SPECIAL, 2/22/2016 1:30:00 PM

BE IT REMEMBERED that on February 22, 2016, there was begun and holden a SPECIAL session of the Commissioners Court of Jefferson County, Texas, with the following members and officers present and participating except those absent as indicated:

Honorable Jeff Branick, County Judge

Commissioner Eddie Arnold, Commissioner Pct. No. 1

Commissioner Brent Weaver, Commissioner Pct. No. 2

Commissioner Michael Sinegal, Commissioner Pct. No. 3

Commissioner Everette D. Alfred, Commissioner Pct. No. 4

Honorable G. Mitch Woods, Sheriff

Honorable Carolyn L. Guidry , County Clerk

When the following proceedings were had and orders made, to-wit:

Jeff R. Branick, County Judge
Eddie Arnold, Commissioner, Precinct One
Brent A. Weaver, Commissioner, Precinct Two
Michael S. Sinegal, Commissioner, Precinct Three
Everette "Bo" Alfred, Commissioner, Precinct Four

NOTICE OF MEETING AND AGENDA OF COMMISSIONERS' COURT OF JEFFERSON COUNTY, TEXAS February 22, 2016

Notice is hereby given that the Commissioners' Court of Jefferson County, Texas, willmeet at **1:30 PM,** on the **22nd** day of **February 2016** at its regular meeting place in the Jury Impaneling room, Jefferson County Courthouse, 1085 Pearl Street, Beaumont, Texas. Until further notice.

Said meeting will be a **Special** for the purpose of transacting the routine business of the County. Persons with disabilities requiring auxiliary aids for services who wish to attend this meeting should contact the County Judge's Office to arrange for assistance.

In addition to the routine business of the County, the subject of said meeting will be the following:

INVOCATION: Michael S. Sinegal, Commissioner, Precinct Three

PLEDGE OF ALLEGIANCE: Everette "Bo" Alfred, Commissioner, Precinct Four

PURCHASING:

1. Receive and file bids for (IFB 16-002/JW), Ford Fields Concession Stand.

SEE ATTACHMENTS ON PAGES 7 - 2606

Motion by: Commissioner Weaver
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

2. Receive and file bids for (IFB 16-001/YS), Term Contract for Motor Fuel for Jefferson County.

SEE ATTACHMENTS ON PAGES 2607 - 2749

Motion by: Commissioner Weaver
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

3. Consider and approve award, execute, receive and file Acceptance of Offer for (IFB 16-001/YS), Term Contract for Motor Fuel for Jefferson County with Spidle Oil Company, as shown on Attachment A.

SEE ATTACHMENTS ON PAGES 2750 - 2752

Motion by: Commissioner Weaver
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

4. Consider and approve, execute, receive and file a renewal for (IFB 14-004/JW), Term Contract for Legal Notices for Jefferson County with Beaumont Enterprise, The Examiner, and The Port Arthur News for a second additional one (1) year renewal from March 8, 2016 to March 7, 2017.

SEE ATTACHMENTS ON PAGES 2753 - 2755

Motion by: Commissioner Weaver
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

ADDENDUMS

5. Consider and approve content of Environmental Impact Study notice/publication for McFaddin Beach Ridge Restoration project.

SEE ATTACHMENTS ON PAGES 2756 - 2756

Motion by: Commissioner Weaver
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

COUNTY AUDITOR:

6. Consider and approve budget transfer - Road & Bridge Pct.4 - additional cost for repairs.

114-0405-431-4018	ROAD MACHINERY	$10,000.00	
114-0402-431-3079	CRUSHED STONE		$10,000.00

SEE ATTACHMENTS ON PAGES 2757 - 2757

Motion by: Commissioner Arnold
Second by: Commissioner Weaver
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

7. Regular County Bills check #417587 through check #417771.

SEE ATTACHMENTS ON PAGES 2758 - 2764

Motion by: Commissioner Arnold
Second by: Commissioner Weaver
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

COUNTY COMMISSIONERS:

8. Consider, possibly approve, and authorize the County Judge to execute an Amended Interlocal Agreement with the City of Beaumont regarding platting authority in the Beaumont extraterritorial jurisdiction.

SEE ATTACHMENTS ON PAGES 2765 - 2766

Motion by: Commissioner Arnold
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

9. Consider and possibly approve Jefferson County Tourism Committee Hotel Occupancy Tax allocation recommendations.-Southern Black Softball Association- Requested $15,000 Recommendation $2,000

Motion by: Commissioner Arnold
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

10. Consider and possibly approve a Resolution approving submission of Grant Application for Jefferson County Drug Intervention Court.(Grant Application No. 1604516)

SEE ATTACHMENTS ON PAGES 2767 - 2767

Motion by: Commissioner Arnold
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

11. Consider and possibly approve a Resolution approving submission for application of Juvenile Accountability Incentive Block Grant from the Office of the Governor, Criminal Justice Division.

SEE ATTACHMENTS ON PAGES 2768 - 2768

Motion by: Commissioner Arnold
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

SHERIFF'S DEPARTMENT:

12. Consider and possibly approve out of state training for Deputy Allen Burleson to attend the National Interdiction Conference in Reno, Nevada, on March 13-18, 2016. This trip is not budgeted. All expenses will be paid from the Sheriff's Asset Forfeiture Fund. While the training is not mandatory, it does directly apply to Deputy Burleson's assignment as the newest member of our drug interdiction unit. This training is not available in Texas.

SEE ATTACHMENTS ON PAGES 2769 - 2769

Motion by: Commissioner Weaver
Second by: Commissioner Sinegal
In favor: County Judge Branick, Commissioner Arnold, Commissioner Weaver, Commissioner Sinegal, Commissioner Alfred
Action: APPROVED

DISTRICT ATTORNEY:

13. Immediately following Commissioners Court- Announcement of an executive (closed) session pursuant to Texas Government Code Section § 551.071 for the purpose of receiving information regarding matters that may require litigation.

Action: NONE

_____

Jeff R. Branick
County Judge

CONSTRUCTION MANUAL

Ford Fields

FORD FIELDS

CONCESSION STAND

5115 IH-10 South, Beaumont, Texas

PROJECT #15036

BRUCE'S GENERAL CONSTRUCTION, INC.
1175 Reynolds Rd.
Beaumont, TX 77707

The LaBiche
ARCHITECTURAL GROUP, INC.

7999 Gladys Ave., Suite 101
Beaumont, Texas 77706
409-860-0197

REGISTERED ARCHITECT
JOHN H. LaBICHE
11592
STATE OF TEXAS

1/22/16

CONSTRUCTION MANUAL

Ford Fields

FORD FIELDS

CONCESSION STAND

5115 IH-10 South, Beaumont, Texas

PROJECT #15036

The LaBiche
ARCHITECTURAL GROUP, INC.

7999 Gladys Ave., Suite 101
Beaumont, Texas 77706
409-860-0197

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JOHN H. LaBICHE
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STATE OF TEXAS

1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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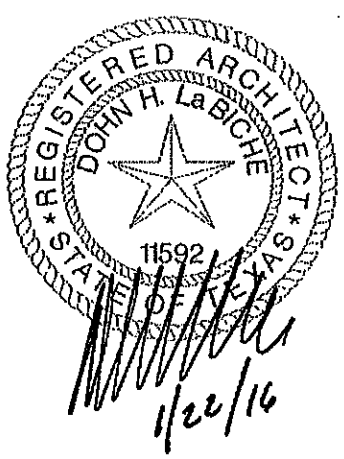

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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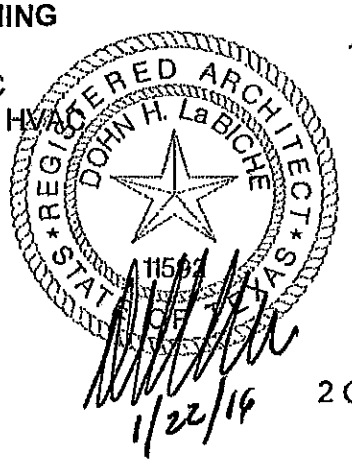

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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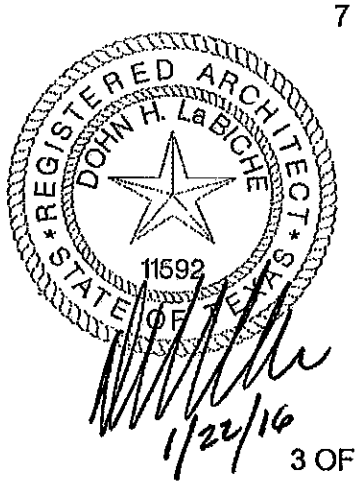

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1001 Pearl Street, 3rd Floor, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

January 19, 2016

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for IFB 16-002/JW, Ford Fields Concession Stand. **Construction Documents for this project may be obtained from the office of The LaBiche Architectural Group, Inc. by calling 409-860-0197 for access to the online drawings and specifications.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Commissioners' Courtroom at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Ford Fields Concession Stand**
BID NO:	**IFB 16-002/JW**
DUE DATE/TIME:	**11:00 AM CDT, Tuesday, February 16, 2016**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1001 Pearl Street, 3rd Floor** **Beaumont, Texas 77701**

There will be a pre-bid conference and walk-through at 10:00 AM CDT on Tuesday, February 2, 2016 at the Ford Park Ball Fields, 5115 IH10 South, Beaumont, Texas 77705.

Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these requirements should be directed to Jamey West, Assistant Purchasing Agent, at 409-835-8593.

Jefferson County encourages Disadvantaged Business Enterprises to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provisions of services. Individuals requiring special accommodations are requested to contact our office at 409-835-8593 to make arrangements no later than seven (7) calendar days prior to the submittal deadline. Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.

Deborah Clark

Deborah L. Clark
Purchasing Agent
Jefferson County, Texas
Publish: Beaumont Enterprise & Port Arthur News – January 20th & January 27th, 2016

IFB 16-002/JW
Ford Fields Concession Stand
Bids due: 11:00 AM CDT, February 16, 2016

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BIDDER IS RESPONSIBLE FOR RETURNING ALL REQUIRED PAGES (MARKED WITH AN "X" ABOVE) WITH THE BID. ADDITIONALLY, BIDDER MUST MONITOR THE PURCHASING WEB SITE (HTTP://WWW.CO.JEFFERSON.TX.US/PURCHASING/MAIN.HTM) TO SEE IF ADDENDA OR ADDITIONAL INSTRUCTIONS HAVE BEEN POSTED. FAILURE TO RETURN ALL REQUIRED FORMS COULD RESULT IN A BID BEING DECLARED AS NON-RESPONSIVE.

Instructions to Bidders

1. Bid Submission

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, TX 77701

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

All bids shall be tightly sealed in an opaque envelope and plainly marked with the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

2. Courthouse Security

Bidders are advised that all visitors to the Courthouse must pass through Security. **Bidders planning to hand deliver bids must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal.** Mondays and Tuesdays are particularly heavy days. Bidders are strongly urged to plan accordingly.

3. Preparation of Bids

The bid shall be legibly printed in ink or typed.

If a unit price or extension already entered is to be altered, it shall be crossed out and initialed in ink by the bidder.

The bid shall be legally signed and shall include the complete address of the bidder.

Jefferson County is exempt from Federal and State Sales Taxes, and such taxes shall not be included in bid prices.

4. Signatures

All bids, notifications, claims, and statements must be signed by an individual authorized to bind the bidder. The individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

5. County Holidays – 2016:

January 1	Friday	New Year's Day
January 18	Monday	Martin Luther King, Jr. Day
February 15	Monday	President's Day
March 25	Friday	Good Friday
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24 & 25	Thursday & Friday	Thanksgiving
December 26-27	Monday & Tuesday	Christmas

6. Rejection or Withdrawal

Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive any informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date.

7. Emergency/Declared Disaster Requirements

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s). Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

8. Award

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected. Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial nonconformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

9. Contract

A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by mutually agreed terms and conditions in the contract documents.

10. Waiver of Subrogation

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

11. Fiscal Funding

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

12. Bid Results

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page (http://co.jefferson.tx.us/ purchasing/main.htm) as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

13. Changes and Addenda to Bid Documents

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

14. Specifications

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

15. Delivery

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

16. Interpretation of Bid and/or Contract Documents

All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

17. Currency

Prices calculated by the bidder shall be stated in U.S. dollars.

18. Pricing

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

19. Notice to Proceed/Purchase Order

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

20. Certification

By signing the offer section of the Offer and Acceptance page, bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.

- The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.

21. Definitions

"County" – Jefferson County, Texas.

"Contractor" – The bidder whose proposal is accepted by Jefferson County.

22. Minority-Women Business Enterprise Participation

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

General Conditions of Bidding and Terms of Contract

By execution of this document, the vendor accepts all general and special conditions of the contract as outlined below and in the specifications and plans.

1. Bidding

1.1 Bids. All bids must be submitted on the bid form furnished in this package.

1.2 Authorized Signatures. The bid must be executed personally by the vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the vendor shall accompany the bid to become a valid bid.

1.3 Late Bids. Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.4 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 Withdrawal of Bids after Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.6 Bid Amounts. Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.7 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.8 Alternates. The Invitation for Bid and/or specifications may expressly allow bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.9 Descriptions. Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.10 Bid Alterations. Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.11 Tax Exempt Status. Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.12 Quantities. Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.13 Bid Award. Award of contract shall be made to the most responsible, responsive bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended. Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.14 Silence of Specifications for Complete Units. All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.15 Addenda. Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.16 General Bid Bond/Surety Requirements. Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.17 General Insurance Requirements. Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 Responsiveness. A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 Responsible Standing of Bidder. To be considered for award, bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.20 Proprietary Data. Bidder may, by written request, indicate as confidential any portion(s) of a bid that contain proprietary information, including manufacturing and/or design processes exclusive to the vendor. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.

1.21 Public Bid Opening. Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. Performance

2.1 Design, Strength, and Quality. Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be

regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 Age and Manufacture. All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 Delivery Location. All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 Delivery Charges. All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 Installation Charges. All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 Operating Instructions and Training. Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 Compliance with Federal, State, County, and Local Laws. Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA. The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 Samples, Demonstrations and Testing. At Jefferson County's request and direction, bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the bidder/vendor.

2.13 Acceptability. All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 Maintenance. Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on

the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 Material Safety Data Sheets. Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 Evaluation. Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. Purchase Orders and Payment

3.1 Purchase Orders. A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 Invoices. All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful bidder(s) is required to pay subcontractors within ten (10) days after the successful bidder receives payment from the County.

3.4 Funding. Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. Contract

4.1 Contract Definition. The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful bidder and Jefferson County.

4.2 Change Order. No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 Price Re-determination. A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The bidder's past experience of honor-

ing contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 Termination. Jefferson County reserves the right to terminate the contract for default if the bidder breached any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the bidder in default.

4.5 Conflict of Interest. Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 Injuries or Damages Resulting from Negligence. Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 Interest by Public Officials. No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 Warranty. The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 Uniform Commercial Code. The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 Venue. This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 Sale, Assignment, or Transfer of Contract. The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 Silence of Specifications. The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Special Requirements/Instructions

The following requirements and instructions supersede General Requirements where applicable.

1. Bid Requirement

Each bidder shall insure that all parts of the bid are **completed and returned.** The Table of Contents indicates specifically which pages need to be returned; these pages shall constitute the vendor's bid.

Vendor shall use an opaque envelope, clearly indicating on the outside the **Bid Number, Bid Description, and marked "SEALED BID".** Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB. All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court. **Bidders** shall submit (1) one original, and (2) two copies of the bid.

2. Vendor Registration: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov
Bid Respondents are highly encouraged to check their firm's SAM (System for Award Management) status prior to Bid Submission; as it is a requirement for vendors doing business with Jefferson County to be registered.

3. Awarded Vendor(s): Submission of FORM 1295 (Texas Ethics Commission)

As of January 1, 2016, per House Bill 1295, the Texas Ethics Commission (TEC) requires **all awarded vendors** to complete a Certificate of Interested Parties (FORM 1295) at time of notification of award. **Awarded Vendors** must visit the TEC website link below, enter the required information on Form 1295, and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

At the time of award, the Jefferson County Purchasing Department will submit a request to the Awarded Vendor to both:

1. Submit FORM 1295 online via the Texas Ethics Commission website link below.

2. Submit a printed copy of FORM 1295, signed by an Authorized Agent of the Awarded Vendor and notarized to the Jefferson County Purchasing Department.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at:https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4. Multiple Vendor Award

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. Delivery

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. Payment

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to: Jefferson County Auditing Department, Attention: Accounts Payable, 1149 Pearl Street, 7th floor, Beaumont, TX 77701.

7. Usage Reports

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. Insurance

The contractor (including any and all subcontractors as defined in Section 7.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

Minimum Insurance Requirements

Public Liability	$1,000,000.00
Excess Liability	$1,000,000.00
Property Insurance (policy below that is applicable to this project):	
Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)	
Builder's Risk Policy: Structural Coverage for Construction Projects	
Installation Floater Policy: Improvements/Alterations to Existing Structure	
Workers' Compensation	Statutory Coverage (see attached)

9. Workers' Compensation Insurance

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 6 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

Minimum Specifications

The following requirements and specifications supersede General Requirements where applicable. Contact Dohn H. LaBiche, FAIA (e-mail: dlabiche@labiche.com; phone: 409-860-0197), regarding any questions or comments. Please reference bid number **IFB 16-002/JW.**

Scope

FURNISH ALL MATERIALS AND LABOR FOR THE CONSTRUCTION OF A NEW CONCESSION STAND TO BE LOCATED AT FORD FIELDS.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, Bruce's General Construction, Inc.
1175 Reynolds, Beaumont, TX 77707
as PRINCIPAL, AND SureTec Insurance Company
1330 Post Oak Blvd., Ste. 1100, Houston, TX 77056

as SURETY are held and firmly bound unto Commissioners' Court of Jefferson County hereinafter called the "Owner," in the penal sum of Five percent of attached bid and alternates---------- Dollars, ($ 5%----------), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas the Principal has submitted the Accompanying Bid, dated February 16, 20 16, for FORD FIELDS CONCESSION STAND, BEAUMONT, TEXAS.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this 16th day of February, 20 16, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

_____ (SEAL)

_____

_____ _____ (SEAL)

_____

Attest: Lynida Clifton

By: Jill Schwertner
Jill Schwertner

_____

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

Bruce's General Construction, Inc.

Lynida Clifton

By: Jill Schwertner Affix Corporate Seal
Jill Schwertner

Attest:
Linda McLeod

SureTec Insurance Company

By: Samoa P Meche Affix Corporate Seal
Samoa P. Meche, 1734287 Attorney in Fact

Countersigned
by Gloria Marisol Villa
Gloria Marisol Villa Lic#1615998 215 Graceland St., Houston, TX 77009
*Attorney-In-Fact, State of Texas

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____,

_____, Secretary of the Corporation named as

Principal in the within bond; that _____,
who signed the said bond on behalf of the Principal was then _____ of
said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was
duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

(Corporate
_____ Seal)

Title _____

* Power-of-attorney for person signing for surety company must be attached to bond.

POA #: 1810025

SureTec Insurance Company
LIMITED POWER OF ATTORNEY

Know All Men by These Presents, That SURETEC INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Texas, and having its principal office in Houston, Harris County, Texas, does by these presents make, constitute and appoint

Nancy Murphy Bernard, Samoa P. Meche, Aimee Denise Morrison, Catherine Sue Moss, Cory Williams

its true and lawful Attorney-in-fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include waivers to the conditions of contracts and consents of surety for:

Two Million Five Hundred Thousand and 00/100 Dollars ($2,500,000.00)

and to bind the Company thereby as fully and to the same extent as if such bond were signed by the President, sealed with the corporate seal of the Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney-in-Fact may do in the premises. Said appointment shall continue in force until 12/31/2016 and is made under and by authority of the following resolutions of the Board of Directors of the SureTec Insurance Company:

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and of behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached. *(Adopted at a meeting held on 20th of April, 1999.)*

Witness Whereof, SURETEC INSURANCE COMPANY has caused these presents to be signed by its President, and its corporate seal to be hereto affixed this 1st day of September, A.D. 2015

SURETEC INSURANCE COMPANY

By: _____
John Knox Jr., President

State of Texas ss:
County of Harris

On this 1st day of September, A.D. 2015 before me personally came John Knox Jr., to me known, who, being by me duly sworn, did depose and say, that he resides in Houston, Texas, that he is President of SURETEC INSURANCE COMPANY, the company described in and which executed the above instrument; that he knows the seal of said Company; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company; and that he signed his name thereto by like order.

JACQUELYN MALDONADO
Notary Public
State of Texas
My Comm. Exp. 5/18/2017

_____
Jacquelyn Maldonado, Notary Public
My commission expires May 18, 2017

I, M. Brent Beaty, Assistant Secretary of SURETEC INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Company, which is still in full force and effect; and furthermore, the resolutions of the Board of Directors, set out in the Power of Attorney are in full force and effect.

Given under my hand and the seal of said Company at Houston, Texas this 16th day of February, 2016, A.D.

_____
M. Brent Beaty, Assistant Secretary

Any instrument issued in excess of the penalty stated above is totally void and without any validity.
For verification of the authority of this power you may call (713) 812-0800 any business day between 8:00 am and 5:00 pm CST.

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): No.1, No.2, No.3, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

BRUCE'S GENERAL CONSTRUCTION, INC.
Company Name

1175 REYNOLDS RD.
Address

BEAUMONT, TEXAS 77707
City State Zip

X _____
Signature of Person Authorized to Sign

Ryan C. Morgan
Printed Name

Vice President
Title

For clarification of this offer, contact:

RYAN MORGAN
Name

409.866.6245 409.866.8245
Phone Fax

ryan@brucesgeneralconstruction.com
E-mail

Bidder Shall Return Completed Form with Offer.

Bid Form

We propose to furnish all labor, material and equipment, and to perform all work necessary to construct the **Ford Fields Concession Stand** including Mechanical, Plumbing and Electrical Work, in accordance with drawings and specifications prepared by The LaBiche Architectural Group, Inc., for the following sum:

BASE BID: Four hundred thirty-eight thousand dollars & 00/KD

Dollars $438,000.00

Materials $253,000.00

Labor $185,000.00

We have examined the site of the Work and the nature and kind of work to be performed and have informed ourselves of all local conditions and other things that might affect the cost or difficulty of performing the Work, and we represent and warrant that we have experience in the use of materials and methods of performance specified, and that we can and will do the Work and construct the improvements with the specified materials as contemplated and indicated by the Drawings and Specifications.

Upon receipt of notice of acceptance of our bid, we agree to execute the Contract within 10 (ten) days after such notice, deliver Performance and Payment Bonds for the faithful performance of the Work, to begin work on or before the date of commencement of the Work established in the Notice to Proceed, and to complete the Work in 180 calendar days.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project on or before the date of completion shown on the "Notice to Proceed". Bidder further agrees to pay as liquidated damages, the sum of **$300.00** for each consecutive calendar day thereafter.

Acknowledgment of Addenda (if any):

Addendum 1 ☑ Date Received 2/8/16

Addendum 2 ☑ Date Received 2/11/16

Addendum 3 ☑ Date Received 2/15/16

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: CITY OF BEAUMONT

Address: 801 MAIN

Contact Person and Title: JOE ED STIFFLEMIRE

Phone: (936) 334.4868 Fax: 409.833.9332

Contract Period: 8/2011 - 3/2012 Scope of Work: BEAUMONT HANGER

REFERENCE TWO

Government/Company Name: BEAUMONT ELECTRICAL TRAINING FACILITY

Address: 707 HELENA AVENUE, Nederland. TX 77627

Contact Person and Title: DANNY PROSPERIE

Phone: 409.727.3102 Fax: 409.727.3103

Contract Period: 2/8/2012- 11/26/2012 Scope of Work: BEAUMONT ELECTRIC TRAINING FACILITY

REFERENCE THREE

Government/Company Name: VIDOR ISD

Address: 500 Orange St, Vidor, TX 77662

Contact Person and Title: Bobby Godeaux

Phone: 409.951.8770 Fax: 409.769.7501

Contract Period: May - August 2007 Scope of Work: VIDOR HS CONCESSION

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... Yes ☑ No ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

Bruce's General Construction, Inc.
Bidder (Entity Name)

X Jill Schwertner
Signature

1175 Reynolds Rd.
Street & Mailing Address

Jill Schwertner
Print Name

Beaumont, Texas 77707
City, State & Zip

2/16/2016
Date Signed

409.866.6245
Telephone Number

409.866.8245
Fax Number

jill@brucesgeneralconstruction,com
E-mail Address

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTERESTQUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 Name of vendor who has a business relationship with local governmental entity.

Bruce's General Construction, Inc.

2 ☐ Check this box if you are filing an update to a previously filed questionnaire.

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 Name of local government officer about whom the information in this section is being disclosed.

_____
Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☑ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☑ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☑ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4 X Signature of vendor doing business with the governmental entity — 2/16/2016 Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 Name of Local Government Officer

2 Office Held

3 Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code

4 Description of the nature and extent of employment or other business relationship with vendor named in item 3

5 List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 AFFIDAVIT

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____

Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 6/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☑ Yes	☐ No	1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?
☑ Yes	☐ No	2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?
☑ Yes	☐ No	3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?
☑ Yes	☐ No	4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?
☑ Yes	☐ No	5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?
☑ Yes	☐ No	6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid. If necessary, please use a separate sheet to answer the above questions.

Jill Schwertner
Printed Name of Authorized Representative

Jill Schwertner
Signature

President
Title

2/16/2016
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: Bruce's General Construction, Inc. HUB: ☑ Yes ☐ No

Address: 1175 Reynolds Rd. (Street) Beaumont, (City) Texas (State) 77707 (Zip)

Phone (with area code): 409.866.6245 Fax (with area code): 409.866.8245

Project Title & No.: Ford Fields Concession Stand Project#15036

Prime Contract Amount: $ 438,000.00

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____ (Street) _____ (City) _____ (State) _____ (Zip)

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Jill Schwertner	X Jill Schwertner	2/16/2016
Printed Name of Contractor Representative	Signature of Representative	Date
_____	X _____	_____
Printed Name of HUB	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Prime Contractor: Bruce's General Construction, Inc. HUB: ☑ Yes ☐ No

HUB Status (Gender & Ethnicity): Female (White)

Address: 1175 Reynolds Rd. (Street) Beaumont (City) Texas (State) 77707 (Zip)

Phone (with area code): 409.866.6245 Fax (with area code): 409.866.8245

Project Title & No.: Ford Field Concession Stand #15036 IFB/RFP No.: IFB 16-002/JW

Total Contract: $ 438,000.00 Total HUB Subcontract(s): $ 42,000.00

Construction HUB Goals: 12.8% MBE:: 10.42 % 12.6% WBE: ____ %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American. Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: ____ Initials: ____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: PREPCO FLOORING

HUB Status (Gender & Ethnicity): HUB #1651292830600

Certifying Agency: ☑ Texas Bldg & Procurement Comm. ☑ Texas Unified Certification Prog.

Address: 6942 FM 1960 (Street) HUMBLE (City) TX (State) 77346 (Zip)

Contact person: CASEY MAST Title: ESTIMATOR

Phone (with area code): 281-360-0012 Fax (with area code): 281-360-0056

Proposed Subcontract Amount: $ 9000.00 Percentage of Prime Contract: 4 %

Description of Subcontract Work to be Performed: EPOXY FLOORING

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☑ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☑ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: BIG THICKET PLUMBING

Address: PO BOX 578 (Street) KOUNTZE (City) TX (State) 77625 (Zip)

Contact person: TROY WHISENANT Title: OWNER

Phone (with area code): 409 790-2297 Fax (with area code): _____

Proposed Subcontract Amount: $ 46,500.00 Percentage of Prime Contract: 15 %

Description of Subcontract Work to be Performed: PLUMBING

Subcontractor Name: ELECTRICAL SPECIALITES

Address: 1550 LANGHAM (Street) BEAUMONT (City) TX (State) 77707 (Zip)

Contact person: JD BURNS Title: PRESIDENT

Phone (with area code): 409 860-5211 Fax (with area code): 860-5851

Proposed Subcontract Amount: $ 72,645.00 Percentage of Prime Contract: 25 %

Description of Subcontract Work to be Performed: ELECTRICAL

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☑ I certify that Bruce's General Construction, Inc is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	76-0527292
Company Name submitting bid/proposal:	Bruce's General Construction, Inc.
Mailing address:	1175 Reynolds Rd. Beaumont, TX 77707
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
700000-000/092275-00000	1175 Reynolds Rd. Beaumont, Tx 77707
067550-000/014500-00000	1175 Reynolds Rd. Beaumont, Tx 77707
	2255 Turningleaf Dr.Beaumont, TX 77706

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and attached any necessary support documentation as required. I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): Ryan Morgan

Title: Vice President

Signature: X _____

Date: 2/16/2016

E-mail address: ryan@brucesgeneralconstruction.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Lynida Reaux

Title: Office Manager

Date: 2/16/2016

E-mail address: lynida@brucesgeneralconstruction.com

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas,

on this day personally appeared Jill Schwertner (name), who

after being by me duly sworn, did depose and say:

"I, Jill Schwertner (name) am a duly authorized officer of/agent

for Bruce's General Construction, Inc. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said Bruce's General Construction, Inc. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: Bruce's General Construction, Inc.

1175 Reynolds Rd. Beaumont, Tx 77707

Fax: 409.866.8245 Telephone# 409.866.6245

by: Jill Schwertner (print name) Title: President/ Owner

Signature: X Jill Schwertner

SUBSCRIBED AND SWORN to before me by the above-named Jill Schwertner on

this the 16th day of February, 2016.

Lynida G. Reaux

Notary Public in and for the State of Texas

LYNIDA G. REAUX
Notary Public, State of Texas
My Commission Expires
November 17, 2019

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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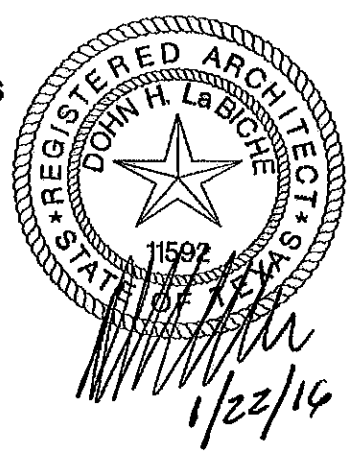

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The project is located at 5115 IH-10 South, in Beaumont, Texas.

B. The Work of this Contract consists of the furnishing of all labor, materials, services, equipment and appliances as indicated in the Drawings and Specifications.

1. **Base Bid:** Construct a new concession stand on the grounds of Ford Park Fields.

C. The Drawings and Specifications do not necessarily indicate or describe all Work required for completion of the Project. Contractor shall provide and install all incidentals reasonably inferable from the Contract Documents that are required for a complete Project.

D. These documents describe the essential elements sufficiently to determine the scope of the Project.

E. Provide all items required for complete operating systems including items not necessarily shown in these documents, but that can be reasonably inferred as being required for the complete operating system.

F. The Drawings and Specifications indicate the basic quality of materials and quality of construction required for the entire project.

G. Site Inspection: Offers' can access the site at any day and time. Access to the Sub Courthouse requires contacting County Maintenance Supervisor Mark Bernard at (409) 466-1790.

H. Inquiries Concerning Proposal and Contract Documents: Prior to submitting a proposal, technical questions concerning the proposal documents shall be directed to:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
dlabiche@labiche.com
Tel: 409/860-0197
Fax: 409/860-0198

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 CONTRACT

A. The Contract will be executed as a lump-sum agreement on the forms provided.

B. Employ subcontractors for the disconnection, re-connection and installation of all mechanical and electrical Work in conjunction with all Work required, or implied, to be performed by licensed mechanics of these disciplines:
   1. Subcontractors of Contractor shall furnish to Contractor bonds covering faithful performance of subcontract Work and payment of all obligations there under, when Contractor is required to furnish such bonds to the Owner.
   2. Subcontractors of Contractor shall purchase and maintain liability insurance as will protect him from claims, for not less than limits of liability which Contractor is required to provide to Owner.
   3. The Contractor shall include in Contract Amount costs of supervision, coordination and monitoring Work of his selected Subcontractors.

1.04 CONTRACTOR'S USE OF PREMISES

A. Contractor shall be responsible for monitoring the use of premises by Contractor's employees and Subcontractors.

B. Access routes for delivery of materials and equipment shall be as indicated by Owner. Do not use access routes other than those indicated without written permission of the Owner.

C. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site. Store materials and products only in those areas indicated for staging.

D. Protect existing lawns, sidewalks, pavements, curbs and utilities subject to damage by Work under this Contract. Repair or replace any existing Work damaged by the Contractor.

E. Parking areas for Contractor's personnel shall be on the project site to the extent it does not interfere with on-going contract Work and in areas designated by the Owner.

1.05 WORK ON PROPERTY

A. Obtain and pay all fees required applicable governing authorities, prior to commencing Work on this Project.

B. Post all notices and warning signs required by applicable governing authorities.

C. Perform Work on this Project in accordance with local codes and ordinance and utility company requirements.

1.06 WORK SEQUENCE AND CLAIMS FOR ADDITIONAL TIME

A. Construct Work in phases to accommodate Owner's occupancy requirements. During the construction period, coordinate construction schedule and operation with the Architect.

B. Claims for additional time as a result of adverse weather conditions will be considered only for weather conditions which are abnormal and if such weather conditions had an adverse effect on the scheduled construction: Rain Day claims for day(s) when Contractor is normally not on site are not legitimate. The Contractor shall document rain delays on a regular basis and submit an itemized listing to the Owner at each payment application meeting. Only requests for extra time, which prevents Work on critical activities for fifty percent (50%) or more of a scheduled workday will be considered. If no request is submitted for a given month, it will be assumed that no time was lost and the contract time shall not be adjusted.

C. No extension of time shall be deemed as waiver by the Owner of its right to terminate the contract for abandonment or delay by the Contractor. Once the Work has begun the contractor shall properly man the project in a continuous manner and proceed with all diligence to complete the project within the contract time. The Contractor must Work continuously and will not be allowed to stop activity on any weekday unless due to adverse weather of to reason pre-approved in writing by the Owner.

1.07 OWNER OCCUPANCY

A. The Owner may occupy all portions of the building and conduct normal operations during the Work. Owner occupancy shall be during the course of the normal Work day and not include evenings. Owner activities may occur on weekends. The Contractor shall fully clean the site and remove all debris and materials from the grounds on days when scheduled Owner's activities will conflict with the Work.

B. Cooperate with the Owner and schedule the Work to minimize conflicts, and to facilitate Owner's normal operations.

C. All electrical, HVAC units and controls shall remain in operation during times the building is occupied.

1.08 OWNER'S OPERATIONS

A. The Contractor shall conduct its Work in a manner to provide minimal interruption of the school campus during all construction Work. The Work shall be done at such times and in such manner and locations as to cause a minimum of inconvenience for the students, instructors, and staff. Limit operations to specific Work areas. A system of barricades, fences and enclosures shall be used by the Contractor to avoid conflict between construction and operations of the facility.

1.09 HAZARDOUS MATERIALS

A. If, during the progress of the Work, Contractor uncovers work which he believes contains asbestos or other hazardous materials, he shall immediately cease operations in the area of such discovery and notify the both the Architect and the Owner's Representative in writing.

B. Owner will arrange with the Abatement Contractor to perform necessary testing, barricades, enclosures, filtering, and ventilation in areas containing hazardous materials; decontamination, or removal and disposal of hazardous materials in accordance with requirements of authorities having jurisdiction.

C. Owner's Abatement Consultant will notify Owner's Representative and Architect in writing when it is safe to resume construction operations in the areas in question.

D. Contractor shall identify potential lead containing material hazards at the Site and oversee appropriate protective measures, including protection of persons, establishing

END OF SECTION 01010

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010300 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 REFERENCES

A. References to known standard specifications shall mean and shall refer to the latest edition of such specifications adopted and published at date of invitation to submit proposals.

B. Reference to technical society, organization or body is made in these Specifications in accordance with the following abbreviations:

AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
ANAAMM	National Association Architectural Metals Manufacturers
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
FS	Federal Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NFPA	National Fire Protection Association
NRCA	National Roofing Contractors Association
UL	Underwriters' Laboratories, Inc.

1.02 CONDITIONS

A. "General Conditions" apply with equal force to the General Contractor, Subcontractors, Work, extra Work, and the like that may be specified herein or performed in or about the building or site under this Contract.

B. For convenience of reference and to facilitate letting of subcontracts, these Specifications are separated into sections. Such separation shall not operate to make Owner an arbitrator to establish subcontract limits between subcontractors.

C. Execute Work as per Contract Documents. Make no changes therefore without having first received written permission. Where detailed information is lacking before proceeding with Work, refer matter to Architect for clarification.

D. All Work shall be executed by mechanics skilled in their respective trades. Mechanics whose Work is unsatisfactory to the Owner and/or Architect, or who are considered by the Owner to be careless, incompetent, unskilled, or otherwise objectionable, are to be dismissed from Work upon notice from the Owner.

E. The Owner will provide temporary water and electrical power required for the Work at no cost to the Contractor. The Contractor shall make necessary connections to existing fireplugs and/or tap the existing water service, and to power transformer or

other power sources at each building or site as required for performance of his Work. Coordinate all connections with the Owner's Maintenance Department.

F. Contractor shall be responsible for furnishing storage trailers, temporary security fencing, temporary fire protection, telephones, etc., as required to carry out construction operations.

G. Construction related access to the site, shall be limited to areas permitted by the Owner and/or as shown on the Drawings. It shall be the responsibility of the Contractor to prevent damage to the existing paving, to repair all damage, and to recognize and respect all traffic safety requirements and signage. Any loss or damage to the Owner's property caused by the Contractor or his workmen shall be repaired or replaced at no cost to the Owner. Restore the grounds to original condition at the completion of the Project. Remove all fences, barricades, etc. Replace all vegetation damaged by construction operations, including grass, shrubs, and trees, to the satisfaction of the Owner.

H. Work hours in general are between 7:00 am and 6:00 pm, Monday through Friday, unless an exception is granted by the Owner and Architect, or as otherwise defined by various Section of these Specifications.

I. The Contractor shall remove trash and rubbish from the Owner's premises at the end of each Workday. This shall mean that these materials shall be cleaned from the grounds and shall not be left in areas or locations other that containers specified for this purpose. Burning of combustibles will not be permitted.

1.03 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.04 PROJECT SUPERINTENDENT

A. In addition to other duties imposed by these Specifications the Project Superintendent shall meet the following requirements:

B. Show prior to the start of Work references from Owners of a minimum of five (5) previously completed jobs of similar size, complexity and construction cost.

C. Show proficiency prior to the start of the Work that the Superintendent is fluent in the English language, or if not, provide a competent and approved interpreter for such purposes. The purpose of this clause is to assure adequate communications with all parties involved in the Work.

D. The Project Superintendent shall be present at the project site at all times that any Work of this contract is underway. In the case that the Project Superintendent must be away from the project site the Contractor shall first file written documentation of the absence with the Architect at least 48-hours in advance of the new replacement. The replacement, or acting Project Superintendent, shall meet the minimum requirements defined above and elsewhere in the Specifications for the Project Superintendent. The only exception to this shall be when the Contractor, an officer of the company with

a majority share of ownership, shall be permitted to act as the Project Superintendent. A majority owner of the contracting company may act as the Project Superintendent for the entirety of the project.

E. No Work shall be performed and no subcontractor(s) shall be permitted to Work at any time when the Project Superintendent is not present.

1.05 INSURANCE CLAIMS FOR PROPERTY DAMAGES

A. In the event that any damage is incurred to the Owner's or employees property due to any act of the Contractor, the Contractor shall make payment of the claim through its own resources or via its insurance carrier within thirty (30) days of the claim occurrence.

1.06 ADDITIONAL INSPECTIONS BY ARCHITECT

A. In the event that the Contractor exceeds the completion date for whatever reason he/she shall be responsible for reimbursing the Owner through authorized change order for all costs of the Architect's staff and expenses to carry on inspection duties at the rate performed during the project before the completion date.

B. The rate of reimbursement shall be as follows:

Construction Observer	$ 65.00 per hour
Architect / Roofing Consultant	$135.00 per hour
Re-Inspection Following Substantial or Final Completion	$135.00 per hour
Mileage	$ 0.45 per mile
Other Expenses	Cost plus 10%

END OF SECTION 010300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010410 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Coordinate Work with that of other contractors and trades and on-going Work by Owner under administration of the Architect.

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 VISIT TO SITE

A. Prior to submitting his quotation for Work under this project, the Contractor shall visit the site to examine all conditions related to his Work, and to acquaint himself with these conditions. FIELD MEASUREMENTS ARE REQUIRED FOR THIS PROJECT.

B. The Contractor shall verify that existing facilities, utilities and/or conditions are adequate and if equipment, utilities, facilities or conditions are such that other items and services, in addition to those specified, are required to achieve operational systems as described herein, the Contractor shall advise the Architect of the scope and costs of necessary additional Work or services at the time of proposal submittal.

1.04 CONSTRUCTION MOBILIZATION

A. The Contractor shall attend the scheduled pre-construction conference as directed by the Architect and Owner for the purpose of project coordination.

B. Cooperate with the Owner and Architect in location of mobilization areas on site for access, traffic, and parking facilities. During construction coordinate use of site and facilities through the Architect and Owner.

C. Comply with the Architect's procedures for intra-project communications: Submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Architect for use of temporary facilities.

E. Coordinate field and layout Work under instructions of the Architect.

1.05 SUBMITTALS TO THE ARCHITECT

A. All submittals for this project will be required to be submitted at the same time and shall be in accordance with requirements of Section 010300. The Contractor shall provide submittals covering all materials specified in the Specifications. Any changes from the existing Work or sheet metal profiles shown in the Drawings will be forwarded in the

form of shop drawings to the Architect by facsimile prior to beginning fabrication or installation. Update and provide revised schedules at each pay application meeting.

B. Deliver submittals to the Architect for transmittal to all required parties. The office of the Architect is located as follows:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
Tel: 409/860-0197
Fax: 409/860-0198

C. Submit written requests for interpretation of Contract Documents and obtain instructions through the Architect.

1.06 COORDINATION DRAWINGS

A. Provide information required by the Architect for preparation of coordination drawings.

B. Review Drawings carefully prior to submission of all submittals to the Architect.

1.07 CLOSEOUT PROCEDURES

Submit in accordance with Section 017000.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 010410

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010450 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of Work.

B. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other Work, and subsequent fitting and patching required for restoration of surfaces to their original condition.
   1. "Cutting and patching" is performed for coordination of the Work, to uncover Work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 SUBMITTALS

A. Submit written request in advance of cutting or alteration, which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather-exposed or moisture-resistant element.
   3. Efficiency, maintenance, or safety of any operational equipment.
   4. Visual qualities of sight-exposed elements.
   5. Work of Owner or separate contractor.

B. Include in request:
   1. Identification of Project.
   2. Location and description of affected Work.
   3. Necessity for cutting or alteration.
   4. Description of proposed Work, and products to be used.
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the Work.
      c. Products proposed to be used.
      d. Extent of re-finishing.
      e. Cost proposal when applicable.
      f. Alternatives to cutting and patching.
   5. Effect on Work of Owner or separate contractor, if any
   6. Written permission of affected separate contractor, if any.
   7. Date and time Work will be executed.

1.04 QUALITY ASSURANCE

Requirements for Structural Work: Do not cut or alter any structural Work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated, or as directed by the Owner, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Those required for original installation.

C. No substitutions of materials will be accepted after proposals are submitted.

PART 3 - EXECUTION

3.01 GENERAL

A. Execute cutting, fitting and patching including excavation and fill, to complete Work and to:
   1. Fit the several parts together, to integrate with other Work.
   2. Uncover Work to install ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

3.02 INSPECTION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the Work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the Work.

B. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

C. After uncovering, inspect conditions affecting performance of Work.

D. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

A. Provide supports to assure structural integrity of surroundings, devices and methods to protect other portions of Work from damage.

B. Provide protection from elements for areas, which may be exposed by uncovering Work; maintain excavations and openings free of water.

C. Prevent debris from entering facility; do not permit product contamination.

3.04 PERFORMANCE

A. Employ skilled workers to perform cutting and patching Work. Except as otherwise indicated or as approved by the Architect, proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut the Work using methods that are least likely to damage Work to be retained or adjoining Work. Where possible review proposed procedures with the original installer and comply with its recommendations.

C. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine, such as a carborundum saw, or core drill, to ensure a neat hole. Cut holes and slots neatly to size required with a minimum disturbance of adjacent Work. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces. Temporarily cover unused openings.

D. Patch with seams, which are durable and as invisible as possible. Comply with specified tolerances for the Work. Where feasible, inspect and test patched areas to demonstrate integrity of Work. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining Work in a manner which will eliminate evidence of patching and re-finishing.

E. Where removal of walls or partitions extends from one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall covering; replace with new materials.

F. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface of wall or ceiling containing patch, after patched area has received prime and base coat. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

G. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through roof, wall, floor or other surfaces.

H. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire rated material, full thickness of the construction element.

I. Do not leave facility open to contamination or rain; close off at end of each Work day.

J. Thoroughly clean areas and spaces where Work is performed or used as access to Work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied.

END OF SECTION 010450

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 011200 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedural requirements

B. Rehabilitation and renovations of existing spaces and materials.

C. Installation of products removed in Sections as specified.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials shall be as specified in individual Sections

B. Match existing products and Work for patching and extending Work.

C. Determine type and quality of existing products by inspection and any necessary testing, and workmanship by use of existing as a standard. Presence of a product, finish or type of Work requires that patching, extending or matching shall be performed as necessary to make Work complete and consistent with the Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move or remove items as necessary for access to alteration and renovation Work; replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, rusted metals, and deteriorated masonry and concrete: replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new Work and new finishes.

E. Close openings in exterior surfaces to protect existing Work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.03 INSTALLATION

A. Coordinate Work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.

B. Designated areas, rooms and spaces and finishes shall be complete in all respects, including operational mechanical and electrical systems.

C. Remove, cut and patch Work in a manner to minimize damage and to provide means to minimize products and finishes to specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent new finishes.

E. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full operational condition.

F. Install products as specified in individual sections.

3.04 TRANSITIONS

A. Where new Work abuts or aligns with existing make a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to the Architect for completion.

3.05 ADJUSTMENTS

Fit Work at penetrations of surfaces as specified in Section 01045.

3.06 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored or showing other imperfections.

B. Repair substrate prior to patching finish.

3.07 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersection or natural termination point.

3.08 CLEANING

In addition to cleaning specified in Section 01500, clean Owner-occupied areas of Work as required.

END OF SECTION 011200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes administrative and procedural requirements for substitutions.

B. Related Section:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

   a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   b. Requested substitution will not adversely affect Contractor's construction schedule.
   c. Requested substitution has received necessary approvals of authorities having jurisdiction.
   d. Requested substitution is compatible with other portions of the Work.
   e. Requested substitution has been coordinated with other portions of the Work.
   f. Requested substitution provides specified warranty.
   g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

   a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
   b. Requested substitution does not require extensive revisions to the Contract Documents.
   c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   d. Requested substitution will not adversely affect Contractor's construction schedule.
   e. Requested substitution has received necessary approvals of authorities having jurisdiction.
   f. Requested substitution is compatible with other portions of the Work.
   g. Requested substitution has been coordinated with other portions of the Work.
   h. Requested substitution provides specified warranty.
   i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has

changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

FORD FIELDS CONCESSION STAND
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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

   a. Project name and location.
   b. Name of Architect.
   c. Architect's project number.
   d. Contractor's name and address.
   e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to Architect by the 23rd of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Initial progress report.
11. Report of preconstruction conference.
12. Certificates of insurance and insurance policies.

I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

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SECTION 013000 - SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures
B. Construction Progress Schedule
C. Shop Drawings
D. Product Data
E. Samples
F. Manufacturer's Instructions
G. Manufacturer's Certificates
H. Schedule of Required Submittals
I. Request for Substitution Form

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

1.03 PROCEDURES - BEFORE PROPOSAL OPENING

No substitute systems or materials will be considered prior to proposal opening.

1.04 PROCEDURES - AFTER PROPOSAL OPENING

A. Deliver submittals to: The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706

B. All submittals required for the project shall be submitted at the same time.

C. Transmit each item under form acceptable to the Architect in this document. Identify Project, Contractor, Subcontractor and major suppliers. Identify pertinent drawing sheet and detail number, and specification section number as appropriate. Identify any and all deviations from Contract Documents. Provide 3-inch x 5-inch space each for Contractor and Architect review stamps. Provide certification stamp on all submittal sets.

D. Submit Submittal Schedule at the same time as all other submittals.

E. All submittals including shop drawings, product data and samples for this project will be submitted at the same time to the Architect and within ten (10) days after receipt of the Notice to Proceed.

F. After Architect's review of submittal, revise and re-submit as required, identifying changes made since previous submittal.

G. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to

promptly report any inability to comply with provisions.

H. Bind sets of submittals in labeled three-ring binders identified on the outside with the project title, date, Contractor's, Architect's and Owner's names, and including a table of contents corresponding to the Specification format, with all contents correlated.

1.05 CONSTRUCTION PROGRESS SCHEDULES

A. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first Workday of each week.

B. Show submittal dates required for Shop Drawings product data and samples and product delivery dates including those, if any, identified to be furnished by the Owner.

1.06 SHOP DRAWINGS

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all shop drawings on opaque reproductions.

B. Present in a clear and thorough manner. Title each Drawing with Project Name and the same information indicated for 1.04.H above. Identify each element of Drawings by reference to sheet number and detail of the Contract Documents.

C. Identify field dimensions. Show relation to adjacent or critical features or Work or products.

1.07 PRODUCT DATA

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all product data.

B. Submit only pages that are pertinent. Mark each copy of standard printed data with yellow hi-liter to identify pertinent products, reference to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

C. Modify manufacturer standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete or cross-out information not applicable.

D. Any deviation from the Contract Documents must be clearly identified when submitted. Any items not identified will be deemed to be the items exactly as specified in the Contract Documents.

1.08 MANUFACTURER'S INSTRUCTIONS

When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

1.09 SAMPLES

A. Submit full range of manufacturer's standard colors, textures, and patterns for Owner's selection. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all samples unless otherwise indicated by these Specifications.

B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing Work.

C. Include identification on each sample, giving full information.

D. Submit the number specified in respective Specification Section: Two (2) will be retained by the Architect. Reviewed samples that may be used in the Work are indicated in the Specification Section.

1.10 FIELD SAMPLES

Provide field samples of finishes at the project site as required by individual Specification Sections. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.11 CONTRACTOR REVIEW

A. Review submittals prior to transmittal. Determine and verify field measurements, field construction criteria, manufacturer's catalog numbers and conformance of submittal with requirements of Contract Documents.

B. Coordinate submittals with requirements of Work and of Contract Documents.

C. Apply Contractor's stamp on each section of Shop Drawings and Product Data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.

D. The Contractor is encouraged not to fabricate products or begin Work which requires submittals until return of reviewed submittal with Architect's review stamp. Fabrication of items and beginning of Work when submittals have not been reviewed will be at the Contractor's risk.

1.12 SUBMITTAL REQUIREMENTS

A. Transmit submittals in such sequence to avoid delay in the Work or Work of other contracts.

B. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

C. Submit under Architect approved transmittal letter. Identify Project by title and number. Identify Work and product by Specification Section and Article Number.

1.13 RE-SUBMITTAL REQUIREMENTS

A. Make re-submittals under procedures specified for initial submittals. Identify changes made since previous submittal.

B. Re-submittals beyond the initial and a second will be reviewed by the Architect and/or his consultants at the Contractor's expense.

1.14 ARCHITECT AND OWNER REVIEW

A. The Architect and Owner and/or other authorized representative will review all submittals. Submittals will be returned to the Contractor with the Architect's review stamp affixed, and/or with the indication of any changes, which may need to be made, shown thereon, or with disapproval.

B. The Architect's review of any such Submittal shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, nor shall it relieve him from responsibility for errors of any sort in the Submittal, nor shall it in any way diminish the Contractor's obligation to conduct the Work in accordance with the Contract Documents.

C. Approval of samples shall be for design and appearance only, and such approval shall not relieve Contractor from any obligation as provided in the Contract Documents.

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REQUEST FOR SUBSTITUTION
(Attach Additional Sheets As Necessary)

From: _____
_____
To: _____
_____

Date of Request: _____
Project: Project Name
Location: Project Location
Architect's Project No.: 09015

References: Specification Section: _____ Part: _____ Paragraph: _____ Subparagraph: _____
Specified Product Name: _____ Model No.: _____
Drawing Sheet(s): _____ De tail(s): _____

Description of Proposed Substitution:
Substitute Product Name: _____ Model No.: _____
Manufacturer: _____ Address: _____ Phone: _____
Installer: _____ Address: _____ Phone: _____
Reason for not providing specified item: _____
_____
Differences between proposed substitution and specified product: _____
_____
_____
☐ Point-by-point comparative data attached (Required for analysis and review by Architect)

Substitution Product History: ☐ New Product ☐ 2 to 5 Years Old ☐ 5 to 10 Years Old ☐ More than 10 Years Old
Similar Installations of Proposed Product:
Project: _____ Architect: _____ Phone: _____
Project Address: _____ Owner: _____ Phone: _____
_____ Date Product Installed: _____

Effect of Proposed Substitution:
Acceptance of proposed substitute will require the following change in Contract Sum and Contract Time:
☐ No Change in Contract Sum ☐ No Change in Contract Time
☐ Increase Contract Sum By $ _____ ☐ Increase Contract Time By _____ Calendar Days
☐ Decrease Contract Sum By $ _____ ☐ Decrease Contract Time By _____ Calendar Days.
Effect of proposed request for substitution on (Attach additional sheets if necessary):
a. Change in Construction Progress Schedule: ☐ No Effect ☐ _____
_____
b. Changes required in details and construction of related work: ☐ No Change ☐ Yes, Explain: _____
_____
c. Change in warranty requirements: ☐ No Change ☐ _____

Representations by Contractor: (1) Substitute item is equivalent or superior to that specified in quality and durability, design, appearance, function, finish, performance, is of size and weight that will permit installation in spaces provided, and that will allow adequate service access; (2) Substitute item is compatible with other portions of the Work; (3) Substitute item has been coordinated with other portions of the Work; (4) Substitute item has received necessary approvals from authorities having jurisdiction; (5) Substitute item is consistent with the Contract Documents and will produce the intended results; (6) Substitute item provides specified warranty; and (7) If requested substitution involves more than one contractor, or subcontractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors, or subcontractors involved.

_____ _____ _____
(Signature) (Typed or Printed Name and Title) (Date)

END OF SECTION 013000

FORD FIELDS CONCESSION STAND
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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Project meetings.
3. Requests for Interpretation (RFIs).

B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque copies of each submittal. Architect will return four copies.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. LEED requirements.
    l. Preparation of Record Documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Owner's occupancy requirements.
    p. Responsibility for temporary facilities and controls.
    q. Construction waste management and recycling.
    r. Parking availability.
    s. Office, work, and storage areas.
    t. Equipment deliveries and priorities.
    u. First aid.
    v. Security.
    w. Progress cleaning.
    x. Working hours.

3. Minutes: Record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at monthly intervals in conjunction with the review of the month's payment request. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) RFIs.
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Hard-Copy RFIs:

1. Identify each page of attachments with the RFI number and sequential page number.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Daily construction reports.
4. Field condition reports.

B. See Division 01 Section "Payment Procedures" for submitting the Schedule of Values.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

C. Daily Construction Reports: Submit three copies at monthly intervals.

D. Field Condition Reports: Submit three copies at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than seven days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

6. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

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SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.

C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.

D. See Division 01 Section "Closeout Procedures" for submitting warranties.

E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810 or approved Contractor Transmittal Form.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked approved on Architect's Submittal review form attached at the end of this section.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating approval taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Approval by the Architect and Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Wiring diagrams showing factory-installed wiring.
    f. Printed performance curves.
    g. Operational range diagrams.
    h. Compliance with specified referenced standards.
    i. Testing by recognized testing agency.

4. Number of Copies: Submit seven copies of Product Data, unless otherwise indicated. Architect will return five copies. Mark up and retain two returned copies as Project Record Documents.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.
    h. Schedules.
    i. Notation of coordination requirements.
    j. Notation of dimensions established by field measurement.
    k. Relationship to adjoining construction clearly indicated.
    l. Seal and signature of professional engineer if specified.
    m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque (bond) copies of each submittal. Architect will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

E. Product Schedule or List: As required in Individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

    1. Number of Copies: Submit seven copies of product schedule or list, unless otherwise indicated. Architect will return five copies.

F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. See sample of Architect's Shop Drawing Review Sheet at the end of this section.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

Submittals not required by the Contract Documents may not be reviewed and may be discarded.

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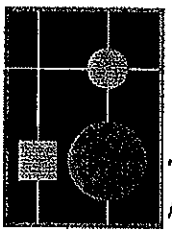

The LaBiche
ARCHITECTURAL GROUP, INC.

Dohn H. LaBiche, FAIA - Principal
Greg Wall, AIA - Principal

7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
(409) 860-0197 • Fax (409) 860-0198

SHOP DRAWING REVIEW

Project Name: XX

Project Number: XX

Submittal For: **XX**

	No Exception		Exceptions Noted		Rejected
	Revise & Resubmit		Submit Specified Item		

NOTE:
Our checking is only to determine general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is solely responsible for confirming and correlating dimensions at the job site; for information which pertains to fabrication processes or construction techniques, and for coordinating the work of all trades. Our checking of shop drawings and submittals shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents nor for errors or emissions in the shop drawings and submittals.

By: Dohn H. LaBiche, FAIA Date:

Remarks:

END OF SECTION 013300

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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:

1. Date of Issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those

operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.6 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which situations tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

B. Special Tests and Inspections: Conducted by a qualified testing agency required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers

AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)

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AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute

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CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FIBA	Federation Internationale de Basketball (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FM Approvals	FM Approvals
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)

GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)

LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association

NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections

RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BOCA	BOCA International, Inc. (See ICC)

IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials (See ICC)
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
SBCCI	Southern Building Code Congress International, Inc. (See ICC)
UBC	Uniform Building Code (See ICC)

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)

NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PBS	Public Building Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA)
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)
FS	Federal Specification
FTMS	Federal Test Method Standard (See FS)
MIL	(See MILSPEC)
MIL-STD	(See MILSPEC)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CCR	California Code of Regulations
CPUC	California Public Utilities Commission
TFS	Texas Forest Service Forest Resource Development

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

FORD FIELDS CONCESSION STAND
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SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. See Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.

C. See Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: type written letter on company stationary.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.

b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 7days of the Bid date. Requests received after that time may be considered or rejected at discretion of Architect. In no case will substitutions submitted more than 30 days after the Notice to Proceed be reviewed.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

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SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. See Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 SUBMITTALS

A. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of Improvements comply with requirements.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work,

Investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. See Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

C. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

D. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

E. See Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.

F. See Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

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PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Emergency manuals.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. See Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

   a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, water leak, power failure, water outage, equipment failure and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.

4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

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PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

C. See Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit two set(s) of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set of corrected Record Transparencies and two set(s) of marked-up Record Prints. Architect will initial and date each transparency and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.

b. Final Submittal: Submit two set(s) of marked-up Record Prints, and the following:

1) Record Transparencies: One (1) set.
2) Copies printed from Record Transparencies: Two (2). Print each Drawing, whether or not changes and additional information were recorded.
3) Scanned PDF document record set.

B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit two copies of each Product Data submittal.

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PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

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PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

FORD FIELDS CONCESSION STAND
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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For steel reinforcement. Material test reports and certificates.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete".

2. ACI 318, "Building Code Requirements for Reinforced Concrete".
3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
4. CRSI, "Manual of Standard Practice".

C. Preinstallation Conference: Conduct conference with Architect and Testing Laboratory representative at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.

    a. Fly Ash: ASTM C 618.

B. Normal-Weight Aggregates: ASTM C 33, graded, 1-inch (25-mm) nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm) nominal maximum aggregate size.

D. Water: ASTM C 94/C 94M and potable.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

G. Synthetic Fiber: Polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 5 inches maximum.
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

    a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after

initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. Testing Services: Tests shall be performed according to ACI 301.

2. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

3. Slump: ASTM C 143, one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

4. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 degrees F (4 deg. C) and below; when 80 degrees F (27 deg. C) and above, and one test for each set of compressive-strength specimens.

6. Compression Test Specimen: ASTM C 31, one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

7. Compressive-Strength Tests: ASTM C 39, one set for each day's pour exceeding 5 cubic yards plus additional sets for 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

B. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

D. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test results falls below specified compressive strength by more than 500 psi.

E. Test Results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for each of the 7-day tests and 28-day tests.

F. Additional Tests: The testing agency will make additional tests of in-place concrete, as directed by Architect, when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed by Architect.

END OF SECTION 033000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood blocking, cants, and nailers.
   2. Wood furring and grounds.
   3. Wood sleepers.
   4. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

   1. Wood-preservative-treated wood.
   2. Fire-retardant-treated wood.
   3. Engineered wood products.
   4. Power-driven fasteners.
   5. Powder-actuated fasteners.
   6. Expansion anchors.
   7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an

agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:
1. Plywood backing panels.

2.3 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exterior, AC in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plastic Wall Panel Backing Panels: Interior grade CD in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Do not splice structural members between supports unless otherwise indicated.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 066400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes plastic sheet paneling.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For plastic paneling and trim accessories.

1.3 QUALITY ASSURANCE

A. Testing Agency: Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. Glass-Fiber-Reinforced Plastic Paneling: Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D 5319.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. Crane Composites, Inc.
    b. Glasteel.
    c. Marlite.
    d. Newcourt, Inc.
    e. Nudo Products, Inc.
    f. Parkland Plastics, Inc.

2. Nominal Thickness: Not less than 0.12 inch.
3. Surface Finish: As selected by Architect from manufacturer's full range.
4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Adhesive: As recommended by plastic paneling manufacturer and with a VOC content of 50g/L or less.

C. Sealant: Mildew-resistant, single-component, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 079200 "Joint Sealants."

1. Sealant shall have a VOC content of 250 g/L or less.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that could impair adhesive bond, including oil, grease, dirt, and dust.

B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

C. Lay out paneling before installing. Locate panel joints so that trimmed panels at corners are not less than 12 inches (300 mm) wide.

3.2 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing panels, and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 066400

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers four samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

D. Product test reports.

E. Preconstruction compatibility and adhesion test reports.

F. Preconstruction field-adhesion test reports.

G. Field-adhesion test reports.

H. Warranties.

1.4 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Minimum Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF Building Systems.
b. Dow Corning Corporation.
c. GE Advanced Materials - Silicones.
d. May National Associates, Inc.
e. Pecora Corporation.
f. Polymeric Systems, Inc.
g. Schnee-Morehead, Inc.
h. Sika Corporation; Construction Products Division.
i. Tremco Incorporated.

2. Type: Single component (S).
3. Grade: Nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF Building Systems.
b. Bostik, Inc.
c. Lymtal, International, Inc.
d. May National Associates, Inc.
e. Pacific Polymers International, Inc.
f. Pecora Corporation.
g. Polymeric Systems, Inc.
h. Schnee-Morehead, Inc.
i. Sika Corporation; Construction Products Division.
j. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Traffic (T).

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Bostik, Inc.
    c. May National Associates, Inc.
    d. Pecora Corporation.
    e. Schnee-Morehead, Inc.
    f. Tremco Incorporated.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Pecora Corporation.
    b. USG Corporation.

2.6 JOINT SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Tile control and expansion joints.
   c. Joints between different materials listed above.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surface.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints between metal panels.
   c. Joints between different materials listed above.
   d. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
   e. Control and expansion joints in ceilings and other overhead surfaces.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:

   a. Isolation joints in cast-in-place concrete slabs.

b. Control and expansion joints in tile flooring.

2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings.
c. Tile control and expansion joints.
d. Vertical joints on exposed surfaces of interior unit masonry, concrete, walls and partitions.
e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.

2. Joint Sealant: Latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints.

2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 079200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard hollow metal doors and frames to be supplied by metal building manufacturer.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required.

E. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.3 QUALITY ASSURANCE

A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Metal Building manufacturer's standard.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS, Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, CS, Type B.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I.

H. Glazing: Division 08 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Comply with ANSI/SDI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
   a. Thermal-Rated (Insulated) Doors: R-value of not less than 12.3 deg F x h x sq. ft./Btu (2.166 K x sq. m/W) when tested according to ASTM C 1363.
3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.
5. Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Comply with ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
   a. Width: 1-3/4 inches (44.5 mm).
   b. Fabricate of metallic-coated sheet.

C. Hardware Reinforcement: ANSI/SDI A250.6.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.

C. Interior Frames: Fabricated from cold-rolled steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
4. Frames for Level 1 Steel Doors: 0.042-inch- (1.0-mm-) thick steel sheet.
5. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
6. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
7. Frames for Borrowed Lights: 0.053-inch- (1.3-mm-) thick steel sheet.

D. Hardware Reinforcement: ANSI/SDI A250.6.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, same material as door face sheet.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, same material as frames.

D. Terminated Stops: Where indicated, terminate stops 6 inches (152 mm) above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

2.8 FABRICATION

A. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.

B. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow Metal Frames: Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) high.
        2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
        3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
        5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

    b. Compression Type: Not less than two anchors in each jamb.
    c. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers.

    a. Single-Door Frames: Three door silencers.
    b. Double-Door Frames: Two door silencers.

D. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 electrical Sections.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: ANSI/SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-protection-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable glazing stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

    a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. In-Place Concrete: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
4. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

B. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:

1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
2. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. Sound Transmission Characteristics: For STC-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
2. Protective Coating: manufacturer's standard corrosion-resistant zinc coating, unless otherwise indicated.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

   a. Type: Post installed, chemical anchor or Post installed, expansion anchor.

2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.

D. Flat Hangers: Steel sheet, 1 by 3/16 inch (25.4 by 4.76 mm) by length indicated.

E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38 mm).

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges, 3/4 inch (19.1 mm) deep.
2. Steel Studs: ASTM C 645.

   a. Minimum Base-Metal Thickness: 0.0312 inch (0.79 mm).
   b. Depth: 1-5/8 inches (41.3 mm).

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.

   a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).

4. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.

   a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

   a. Armstrong World Industries, Inc.; Drywall Grid Systems.
   b. Chicago Metallic Corporation; Drywall Furring System.

c. USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: As indicated on Drawings.

B. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
b. Products: Subject to compliance with requirements, provide one of the following:

1) Steel Network Inc. (The); VertiClip SLD Series.
2) Superior Metal Trim; Superior Flex Track System (SFT).

C. Firestop Track: As specified in Division 07 Section "Fire-Resistive Joint Systems."

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.027 inch (0.7 mm).

E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38.1 mm).
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: As indicated on Drawings.
2. Depth: 1-1/2 inches (38.1 mm).

G. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

H. Cold-Rolled Furring Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: As indicated on Drawings.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch (0.79 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

I. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare-metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.

2.4 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.2 INSTALLING SUSPENSION SYSTEMS

A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

B. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Do not attach hangers to steel roof deck.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

C. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb, unless otherwise indicated.

b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (12.7-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

C. Direct Furring:

1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

D. Z-Furring Members:

1. Erect insulation (specified in Division 07 Section "Thermal Insulation") vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Drawn to scale and coordinating acoustical panel ceiling installation with hanger attachment to building structure and ceiling mounted items:

C. Samples: For each exposed finish.

D. Product test reports.

E. Research/evaluation reports.

F. Maintenance data.

1.3 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Anchors in Concrete: Expansion or Bonded anchors fabricated from corrosion-resistant materials, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or

ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

1. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; "Clean Room VL", unperforated square lay-in.

B. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:

1. Type and Form: Type IV, Form 2, Pattern E, Fire Class A. Wet-formed mineral fiber, vinyl-faced membrane.

C. Color: White.

D. NRC: Not less than 0.50- 0.60, Type E-400 mounting per ASTM E 795.

E. Edge/Joint Detail: Square.

F. Thickness: 5/8 inch (15 mm).

G. Modular Size: 24 by 24 inches (610 by 610 mm).

2.3 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; Prelude Plus XL, AL7200 Series, Non-rated.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders.

C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counters playing, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
2. Do not attach hangers to steel deck tabs.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

END OF SECTION 095113

FORD FIELDS CONCESSION STAND
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SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE

A. Roppe Corporation.

B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Style and Location:
   a. Style C, Butt to: Provide in areas indicated.

C. Thickness: 0.125 inch (3.2 mm).

D. Height: 6 inches.

E. Lengths: Cut lengths 48 inches (1219 mm) long or coils in manufacturer's standard length.

F. Outside Corners: Job formed or preformed.

G. Inside Corners: Job formed or preformed.

H. Colors: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Miter or cope corners to minimize open joints.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

FORD FIELDS CONCESSION STAND
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SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on exterior substrates.

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Galvanized metal.
6. Aluminum (not anodized or otherwise coated)

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles for the paint category indicated.

B. Acceptable Manufacturers:
1. ICI
2. Pittsburgh Paint
3. Sherwin Williams

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As indicated in Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:

1. SW: Loxon Block Surfacer.

2.4 PRIMERS/SEALERS

A. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams, Loxon Exterior Concrete and Masonry Primer, #A24W8300.

2.5 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive for all Metal: [MPI #79]

1. Sherwin Williams, Water Based Rust Inhibited Primer, Pro Industrial Pro-Cryl Universal Metal Primer.

2.6 WOOD PRIMERS

A. Primer, Latex for Exterior Plywood:

1. Sherwin Williams, Exterior Latex Wood Primer, B42W8041

B. Primer, Oil for Exterior Wood:[MPI #7]
1. ICI: #2110-1200.
2. Pittburgh: Speedhide exterior oil based primer.
3. SW: A-100 Exterior oil wood primer, Y24W8020.

2.7 WATER-BASED PAINTS

A. Latex, Exterior Flat (Gloss Level 1):[MPI #10.]

1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

B. Latex, Exterior Semi-Gloss (Gloss Level 5):[MPI #11]
1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

C. Light Industrial Coating, Exterior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #163.]

1. Sherwin Williams, DTM Acrylic

2.8 SOLVENT-BASED PAINTS

A. Alkyd, Exterior Gloss (Gloss Level 6) for metal handrails, doors and bollards:[MPI #9.]

1. Sherwin Williams, Pro Industrial Urethane Alkyd, #B54W151.

2.9 ALUMINUM PAINT

A. Aluminum Paint, 100% Acrylic D.T.M.: [MPI#1]
1. ICI: Devflex 4208 Series.
2. Pittsburgh: 90-Line Finish.
3. SW: Bondplex Waterbased Acrylic Aluminum, B71S200.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Portland Cement Plaster: 12 percent.
5. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Latex, exterior, matching topcoat.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior gloss (Gloss Level 6)[, MPI #119].

B. Concrete Substrates, Traffic Surfaces:

1. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
d. Additive: Manufacturer's standard additive to increase skid resistance of painted surface.

2. Solvent-Based Clear Sealer System:

a. Prime Coat: Sealer, solvent based, for concrete floors[, MPI #104].
b. Intermediate Coat: Sealer, solvent based, for concrete floors[, MPI #104].
c. Topcoat: Sealer, solvent based, for concrete floors[, MPI #104].

C. CMU Substrates:

1. Latex over Alkali-Resistant Primer System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior semi-gloss (Gloss Level 5)[, MPI #11].

D. Steel Substrates:

1. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

2. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

E. Galvanized-Metal Substrates:

1. Latex System:

2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, galvanized, water based[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

END OF SECTION 099113

FORD FIELDS CONCESSION STAND
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SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Cast Iron.
6. Galvanized metal.
7. Aluminum (not anodized or otherwise coated).
8. Wood.
9. Gypsum board

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide product by one of the following:

1. Sherwin Williams
2. Pittsburgh Paint
3. ICI

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Colors: As indicated on Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:[MPI #4.]

1. Sherwin Williams Pro Mar Block Filler, B25W25.

2.4 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior:[MPI #50.]

1. Sherwin Williams Pro Mar 200 Latex Primer.

B. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams Loxon Concrete & Masonry Primer, A24W8300.

C. Primer Sealer, Interior, Institutional Low Odor/VOC:[MPI #149.]

1. Sherwin Williams Pro Mar 200 Zero VOC Primer, B28W2600.

D. Primer, Latex, for Interior Wood:[MPI #39.]

1. Sherwin Williams Multi Purpose Latex Primer, B31W8020.

E. Primer Sealer, Alkyd, Interior:[MPI #45.]

1. Sherwin Williams Pro Block Alkyd Primer, B79W8810.

F. Primer, Bonding, Water Based:[MPI #17.]

1. Sherwin Williams Adhesion Primer, B51W8050.

2.5 METAL PRIMERS

A. Primer, Rust-Inhibitive, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

B. Primer, Alkyd, Anti-Corrosive, for Metal:[MPI #79.]

1. Sherwin Williams Kem Kromik Primer, B50NZ2.

C. Primer, Galvanized, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

D. Primer, Quick Dry, for Aluminum:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

2.6 WATER-BASED PAINTS

A. Latex, Interior, Institutional Low Odor/VOC, Flat (Gloss Level 1):[MPI #143.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Flat, B30W2600.

B. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 2):[MPI #144.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Low Sheen, B24W2600.

C. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3):[MPI #145.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Eg-Shel, B20W2600.

D. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5):[MPI #147.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Semi-Gloss, B31W2600.

E. Latex, Interior, High Performance Architectural, (Gloss Level 2):[MPI #138.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Gloss, B21W2251.

F. Latex, Interior, High Performance Architectural, Semi-Gloss (Gloss Level 5):[MPI #141.]

1. Sherwin Williams Pro Industrial Zero VOC Semi-Gloss, B66W600 Series.

G. Light Industrial Coating, Interior, Water Based (Gloss Level 3):[MPI #151.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Eg-Shel, K45.

H. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #153.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Semi-Gloss, K46.

I. Light Industrial Coating, Interior, Water Based, Gloss (Gloss Level 6):[MPI #154.]

1. Sherwin Williams Pro Industrial Zero VOC Gloss, B66W600 Series.

2.7 DRY FOG/FALL COATINGS

A. Dry Fall, Latex, Flat:[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

B. Dry Fall, Water Based, for Galvanized Steel, Flat (Gloss Level 1):[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

2.8 FLOOR COATINGS

A. Floor Epoxy (Water Based), Gloss (Gloss Level 6):[MPI #212.]

1. Sherwin Williams Armor Seal 8100 Water Based Epoxy.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

   a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
   b. Prime Coat: Latex, interior, matching topcoat.
   c. Intermediate Coat: Latex, interior, matching topcoat.
   d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Latex Aggregate System:

   a. Prime Coat: Textured coating, latex, flat[, MPI #42].
   b. Intermediate Coat: Latex, interior, matching topcoat.
   c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

   a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

   a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].

b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

B. Concrete Substrates, Traffic Surfaces:

1. Water Based Epoxy Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6).
b. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6).
c. Embed in top coat: non-slip floor addative.

C. Clay-Masonry Substrates:

1. Latex System:

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].

h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex Aggregate System:

a. Prime Coat: Primer for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
b. Intermediate Coat: Intermediate coat for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
c. Topcoat: Textured coating, latex, flat[, MPI #42].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
   b. Intermediate Coat: Alkyd, interior, matching topcoat.
   c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

D. CMU Substrates:

1. Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, matching topcoat.
   c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Sealer Coat: Primer sealer, latex, interior[, MPI #50].
   c. Intermediate Coat: Alkyd, interior, matching topcoat.
   d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

E. Steel Substrates:

1. Latex over Alkyd Primer System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[; MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, matching topcoat.
   f. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   g. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   h. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   i. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   j. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   k. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Topcoat: Dry fall, latex, flat[, MPI #118].
   f. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   g. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   h. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   i. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.

e. Intermediate Coat: Alkyd, interior, matching topcoat.
f. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
g. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
h. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
i. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

7. Quick-Drying Enamel System:

a. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
b. Intermediate Coat: Alkyd, quick dry, matching topcoat.
c. Topcoat: Alkyd, quick dry, semi-gloss (Gloss Level 5)[, MPI #81].
d. Topcoat: Alkyd, quick dry, gloss (Gloss Level 7)[, MPI #96].

8. Alkyd Dry-Fall System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Topcoat: Dry fall, alkyd, flat[, MPI #55].

9. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Intermediate Coat: Aluminum paint[, MPI #1].
f. Topcoat: Aluminum paint[, MPI #1].

F. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

a. Prime Coat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

b. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating Over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Aluminum Paint System:

a. Prime Coat: Primer, galvanized metal, as recommended in writing by topcoat manufacturer for use on galvanized-metal substrates with topcoat indicated.
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

G. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].

e. Topcoat: Light Industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

6. Aluminum Paint System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

H. Wood Substrates: Including wood trim, architectural woodwork, doors, windows, wood-based panel products, glued-laminated construction, exposed joists and exposed beams.

1. Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].

b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[. MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

I. Wood Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].
c. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].

2. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].

J. Fiberglass and Plastic Substrates:

1. Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, matching topcoat.
    d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
    e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
    f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
    g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
    h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
    i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
    d. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
    e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
    f. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
    g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
    d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
    e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
    f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
    g. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    d. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].

e. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
f. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, bonding, water based[, MPI #17].
b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

K. Gypsum Board & Plaster Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].

d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

L. Spray-Textured Ceiling Substrates:

1. Latex (Flat) System: Spray applied.

a. Prime Coat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

2. Latex System: Spray applied.

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

c. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
d. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
e. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
f. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
g. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

4. Alkyd (Flat) System:

a. Prime Coat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
b. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

M. Cotton or Canvas and ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

4. Aluminum Paint System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

END OF SECTION 099123

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Operation and maintenance data.

C. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Failure of hydrostatic test according to NFPA 10.
   b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
h. Larsen's Manufacturing Company.
i. Moon-American.
j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
k. Potter Roemer LLC.
l. Pyro-Chem; Tyco Safety Products.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type : UL-rated 2-A:10:B:C 10-lb. nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Larsen's Manufacturing Company.
h. Potter Roemer LLC.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: In cabinets.

C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal roof panels.
3. Metal wall panels.
4. Thermal Insulation.
5. Doors and frames.
6. Accessories.

1.2 SUBMITTALS

A. Product Data: For each type of metal building system component.

B. Shop Drawings: For metal building system components. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

E. Welding certificates.

F. Metal Building System Certificates: For each type of metal building system, from manufacturer.

1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

a. Name and location of Project.
b. Order number.
c. Name of manufacturer.
d. Name of Contractor.
e. Building dimensions including width, length, height, and roof slope.
f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
g. Governing building code and year of edition.
h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category

or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).

i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.

j. Building-Use Category: Indicate category of building use and its effect on load importance factors.

k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

G. Material test reports.

H. Source quality-control reports.

I. Field quality-control reports.

J. Maintenance data.

K. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

D. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.

E. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

1.4 WARRANTY

A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:

1. A&S Building Systems, Inc.; Division of NCI Building Systems, L.P.
2. Alliance Steel, Inc.
3. American Buildings Company; Division of Magnatrax Corp.
4. American Steel Building Co., Inc.
5. BC Steel Buildings, Inc.
6. Behlen Mfg. Co.
7. Bigbee Steel Buildings, Inc.
8. Butler Manufacturing Company; a BlueScope Steel company.
9. CBC Steel Buildings; Division of Magnatrax Corp.
10. Ceco Building Systems; Division of NCI Building Systems, L.P.
11. Chief Buildings; Division of Chief Industries, Inc.
12. Elite Structures, Inc.
13. Garco Building Systems; Division of NCI Building Systems, L.P.
14. Gulf States Manufacturers, Inc.; Division of Magnatrax Corp.
15. Inland Buildings; Subsidiary of Behlen Mfg. Co.
16. Kirby Building Systems; Division of Magnatrax Corp.
17. Mesco Building Solutions; Division of NCI Building Systems, L.P.
18. Metallic Building Company; Division of NCI Building Systems, L.P.
19. Metco Metal Supply.
20. Mid-West Steel Building Company; Division of NCI Building Systems, L.P.
21. Mueller, Inc.
22. Nucor Building Systems.

23. Oakland Metal Buildings, Inc.
24. Olympia Steel Building Systems.
25. Package Industries, Inc.
26. Pinnacle Structures, Inc.
27. Robertson Building Systems; an NCI company.
28. Ruffin Building Systems, Inc.
29. Schulte Building Systems, LLP.
30. Spirco Manufacturing.
31. Star Building Systems; an NCI company.
32. Tyler Building Systems, L.P.
33. USA, Inc.
34. VP Buildings; a United Dominion company.
35. Vulcan Steel Structures, Inc.
36. Whirlwind Building Systems.

2.2 METAL BUILDING SYSTEM PERFORMANCE

A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Metal building systems shall be designed according to procedures in MBMA's "Metal Building Systems Manual."

1. Design Loads: As indicated on Drawings.
2. Design Loads: As required by [MBMA's "Metal Building Systems Manual."] [ASCE/SEI 7.] <Insert applicable code requirement.>
3. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:

    a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
    b. Girts: Horizontal deflection of 1/240 of the span.
    c. Metal Roof Panels: Vertical deflection of 1/240 of the span.
    d. Metal Wall Panels: Horizontal deflection of 1/240 of the span.
    e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.

4. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:

    a. Lateral Drift: Maximum of 1/400 of the building height.

5. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.

C. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of

connections, and other detrimental effects. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of roof area when tested according to ASTM E 1680 at negative test-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

E. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of wall area when tested according to ASTM E 283 at static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 2.86 lbf/sq. ft. (137 Pa).

G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 2.86 lbf/sq. ft. (137 Pa).

H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for Class 90.

2.3 STRUCTURAL-STEEL FRAMING

A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.
2. Frame Configuration: One-directional sloped.
3. Exterior Column Type: Uniform depth.
4. Rafter Type: Tapered.

B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly.

C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating.

D. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide zinc-plated or hot-dip galvanized bolts for structural-framing components that are galvanized.

E. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

2.4 METAL ROOF PANELS

A. Tapered-Rib-Profile, Lap-Seam Metal Roof Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.
    a. Exterior Finish: Galalume.
2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches.

2.5 METAL WALL PANELS

A. Tapered-Rib-Profile, Exposed-Fastener Metal Wall Panels, Panel Type "A": Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.
    a. Exterior Finish: Kynar 500.
    b. Color: As selected by Architect from manufacturer's full range.
2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches (32 mm).

B. Corrigated Profile, Exposed-Fastener Metal Wall Panels Panel Type "B": Designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.
    a. Exterior Finish: Kynar 500.
    b. Color: As selected by Architect from manufacturer's full range.
2. Corrugated Spacing: 2 ¾" o.c.
3. Panel Coverage: 29 ½".
4. Panel Height: 7/8".

2.6 THERMAL INSULATION

A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.

2.7 DOORS AND FRAMES

A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.

1. Hardware:

a. Provide hardware for each door leaf, as follows:

1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
2) Lockset: BHMA A156.2. Heavy-duty Key-in-lever cylindrical type. Cylinders shall match owners existing keyway.
3) Exit Device: BHMA A156.3. Touch- or push-bar type.
4) Threshold: BHMA A156.21. Extruded aluminum. ADA compliant.
5) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
6) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
7) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.
8) Double Doors: Provide head and sill bolts on enactive leaf. Provide heavy-duty floor mounted stops/hold open devices on both leafs of exterior doors.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.

C. Overhead Coiling type Door: Mueller W300 Windlock Roll Up Door (RUD) are approved equal.

1. Quantity: Three (3).

2. Size: 4'-6" height x 12'-0" width.

3. Operation: Manual.

4. Security: Manual locking mechanism.

2.8 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.

D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.

E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch-(2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

G. Roof Curbs: Fabricated from minimum 0.052-inch (1.32-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal roof panels; capable of withstanding loads of size and height indicated.

H. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

D. Secondary Framing: Shop fabricate framing components to size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.

   a. Joint Type: Snug tightened or pretensioned.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Locate canopy framing as indicated.
4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Steel Joists: Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Standard Specifications and Load Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
4. Bolt joists to supporting steel framework using carbon-steel bolts unless high-strength structural bolts are required by the manufacturer.

5. Comply with RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
6. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.2 METAL PANEL INSTALLATION, GENERAL

A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

   a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.3 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge[and hip] caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.

1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

3.5 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

B. Blanket Roof Insulation: Comply with the following installation method:

1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.

C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.

1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.

3.6 DOOR AND FRAME INSTALLATION

A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.

B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8.

C. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing."

D. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

1. Install surface-mounted items after finishes have been completed on substrates involved.
2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in Division 07 Section "Joint Sealants."

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide

concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Tests and Inspections:

1. High-Strength, Field-Bolted Connections: Connections shall be[tested and] inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:

   a. Liquid Penetrant Inspection: ASTM E 165.
   b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
   c. Ultrasonic Inspection: ASTM E 164.
   d. Radiographic Inspection: ASTM E 94.

D. Product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 133419

CERTIFICATION OF RESPONSIBILITY FOR

DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	NATURAL GAS PIPING/DISTRIBUTION

Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 00 - GENERAL PROVISIONS FOR PLUMBING

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	GAS DISTRIBUTION

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Plumbing subcontractor shall be the sole source responsible party to furnish and install the plumbing system. Plumbing contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 22 of these specifications, it is intended to mean the Plumbing Contractor as appropriate. These are sub contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 22 – Plumbing) under the contract with the owner. The General Contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete plumbing portion of this contract, as called for herein and on accompanying drawings. Parts of the plumbing division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items covered in the Plumbing Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Mechanical and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all plumbing systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections, meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than 7 days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Plumbing Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect. After initial surfacing has been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The plumbing piping shall be run at proper slopes and without conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire plumbing work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all plumbing work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. National Electric Code
2. National Fire Protection Association
3. American Society of Mechanical Engineers
4. Underwriters's Laboratories
5. American Gas Association
6. Energy Code for Commercial and High Rise Residential Buildings
7. International Energy Conservation Code
8. International Building Code
9. International Plumbing Code

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift pipes or to change the shape of and these changes shall be made as required. All such changes shall be referred to the Architect/Engineer for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Plumbing Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect/Engineer is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, highest quality and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between plumbing and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the sprinkler system with the structure, ceilings, lights, ductwork, etc. In some cases, due to space limitations, it may be necessary to reroute piping to meet the conditions of the project. Any rerouting required shall be part of this project and done without any additional cost to the Owner. **DO NOT MAKE PIPING WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of sewer lines with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams or concrete beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per the instructions and details of structural engineer.

F. All piping shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.

4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the Owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

I. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

J. All submittals shall be submitted prepaid and in ample time for review before installation.

K. Six (6) copies of each submittal shall be submitted to the Architect.

L. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted.**

M. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

N. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

O. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 UTILITIES

A. Connect all utilities at the points indicated on the drawings and extend such utilities to the building and to equipment or facilities requiring same.

B. Contractor shall pay all service and connection charges required by utility companies and/or site conditions (offsets, conflict boxes, etc.).

C. Contractor shall include all costs required by utility companies to extend utilities to the site. It is the responsibility of the contractor to obtain these fees from the utility companies and include those costs in the bid.

1.13 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done per the Federal, State or Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.14 EXCAVATION AND BACK FILL

A. Trench and excavation work shall include excavating, preparing of trenches, and backfilling as specified. Contractor shall install caution tape 12 inches above all piping, conduit, etc., as backfilling processes.

B. Trench and excavation work shall not include pavement breaking, cutting of holes through foundation walls and floors, removal of obstructions, relaying and/or repairing of floors, and repaving, which work shall be the responsibility of the General Contractor.

C. Contractor shall do all necessary trenching, excavation and backfilling for the proper installation of his work. Care shall be taken not to excavate below depth required, that trench beds are well rounded and that ground under pipe line is firm and secure before any pipe is laid. Trenches shall be excavated where bells of pipe occur in order to insure a pipe resting on the entire length of the bottom of the trench.

D. Unless otherwise noted, minimum cover over underground lines shall be 2-1/2 feet, except under streets and parking lots where minimum cover shall be 3 feet.

E. The width of the trench shall be sufficient to permit thorough compaction of the backfill under and around the pipe but not exceeding the external diameter of the pipe by more than 12 inches. Excavation for pipes shall be by hand and/or machine and as specified herein and shall confirm to the lines and elevations indicated on the plans.

F. The pipe shall be placed on a uniformly firm and compacted bed of sand, carefully shaped to support the pipe at the desired grade and so that any reaction will be distributed as nearly uniform as possible over a horizontal width of not less than six-tenths (6/10) of the outside diameter and all possibility of concentration of the reaction at or near the vertical diameter eliminated. The bed shall be shaped as to fit the lower part of the pipe exterior for at least 10 percent of its overall height.

G. The pipe shall be placed on a firm foundation. Any muck or other objectionable material found during excavation and preparation of the bed shall be removed and replaced with suitable bed material directed by the Architect.

H. All trenches and excavation shall be backfilled in a reasonable time after the pipes are installed unless otherwise directed by the Architect. Special care shall be taken in placing the backfill and extra care shall be used to obtain compaction under and along sides to the top of the pipe.

I. The backfill shall be placed in loose layers not exceeding 6 inches in depth under and around the pipe and not exceeding 8 inches over the pipe. Each layer shall be compacted to the compaction requirements as specified by the Architect.

J. Compaction shall be by hand and pneumatic tampers and the successive layers shall be added and compacted until the trench is completely filled and brought to elevation as directed. Back-filling shall be done in such a manner as to avoid injurious top or side pressures on the pipe.

K. Improper backfilling and compacting shall be cause to have the trench opened to expose the pipe for inspection then properly backfilled and compacted with fill material.

L. Where trenching is for piping, the bottom of the trench shall have minimum 95 percent compaction and shall be bedded with a minimum 12 inches compacted sand, crushed stone or shell on undisturbed soil (minimum 95 percent compaction).

1.15 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.16 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.17 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.18 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.19 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.20 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guideline. (Chlorination, chemical treatment, etc.)

1.21 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.22 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major plumbing equipment (water heaters, pumps, starters, mixing valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to

Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.23 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction.

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes.

1.24 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, etc., and leave entire installation in good working order.

1.25 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of his contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color samples). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.26 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.27 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.28 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all plumbing systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.29 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques.

B. Contractor shall use factory start-up personnel to train the Owner's maintenance personnel.

1.30 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspections.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.31 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.32 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
   c. Contractor, name of responsible principal, address and telephone number.
   d. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
   e. Provide owner with contact information for warranties which extend beyond one year.

1.33 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.34 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.35 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 22 05 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 03 - BASIC MATERIALS AND METHODS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 SANITARY SEWER WASTE AND VENT LINES

A. All sanitary sewer waste and vent lines above and below building slab shall be constructed of service weight bell and spigot cast iron pipe and fittings. Where space requirements do not allow the use of the above materials, government type DWV copper pipe shall be used. All cast iron pipes shall comply with Commercial Standards CS 188-59 coated with tar inside and out and marked with manufacturer's identification and proper weight classification. Joints shall be made with neoprene gaskets.

B. At contractor's option, all sanitary sewer waste and vent lines **excluding grease waste piping** may be Schedule 40 PVC plastic lines and fittings with solvent weld joints (solid core allowed only; foam or cell core not acceptable). Grease waste piping shall remain cast iron.

C. Sanitary sewer lines exterior of building (5 feet from building) **excluding grease waste piping** shall be constructed of ABS or PVC Schedule 40 type "DWV" plastic pipe and fittings (solid core allowed only; foam or cell core not acceptable). Do not mix PVC and ABS materials. Grease waste piping shall remain cast iron.

D. At contractor's option, sanitary sewer vent lines above grade may be constructed of "no hub" service weight cast iron pipe with neoprene/stainless steel clamp couplings.

2.2 DOMESTIC WATER PIPE/WATER HEATER RELIEF PIPE/EQUIPMENT DRAIN PIPE/TRAP PRIMER

A. All domestic cold water lines/hot water lines within building, water heater relief lines and equipment drain piping shall be government type "L" hard copper water tube of standard weight and thickness, unless indicated otherwise. Use 95-5 "lead free" solder on all piping above slab. Use Silfos 1000 degrees Fahrenheit solder on all piping beneath slabs. "Press-Fit" or "Pro-Press" piping is not acceptable.

B. Site water piping (beyond 5 feet of building footprint) shall be Schedule 40 PVC pipe and fittings solvent weld joints (solid core allowed only; foam or cell core not acceptable).

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for domestic water lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe unless other material is approved by the Structural Engineer. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers for cast iron pipes shall be 5 feet; for other than soil, use 10 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported piping or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures.

B. Valves and unions shall be as follows:

COPPER PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 1320	115	Crane 461	M-2882
Globe Valve	Crane 1310	1590T	Crane 359	F-2981
Unions	Crane 633		Crane Std. Gal.	
Check Valve	Crane 1303	1509	Crane 373	2974M

IRON PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 440	148	Crane 461	F2882-M
Globe Valve	Crane 7	590	Crane 359	F
Unions	Crane 633			
Check Valve	Crane 1303	1509	Crane 373	2974M

C. The following valves are considered equal to Crane Company:

CRANE	POWELL	NIBCO	HAMMOND	STOCKHAM	MV
7	150	T-235-Y	1B413T	B-22	590T
359	301	F-718-Y	1R126	G514	F2981
373	559	F918B	1R1124	G931	M2974
440	500	T113	1B640	B114	148
461	1787	F619	1R1138	G612	M-2882
1303	1825	S413(BWY)	1B943	B309	1509
1310	1823	S211(YW)	424	B14	1502
1320	1822	S113	1B647	B112	115

D. All valves, unions, etc., where pipe is chrome plated shall have similar finish. All exposed supplies to plumbing fixtures shall be chrome plated.

E. Ball valves shall be as manufactured by Milwaukee Valve (MV), Watts, Stockham, Powell, NIBCO, Neles-Jamesbury or Hammond.

	2" and Smaller	2-1/2 to 4"	Over 4"
Watts	Series B-6800	Series G-4000	Series G-4000
Neles-Jamesbury	Series 4000	Full Port Series	Full Port Series
Milwaukee Valve	BA-300	F-20CS	F-20CS

F. All valves over 2 inches shall be flanged type and full port type. All valves 2 inches and smaller shall be screw type, sweat type or flanged type as appropriate for type of pipe.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Plumbing Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Plumbing Contractor. The Electrical Contractor shall do all power wiring required for the installation of all equipment including equipment interlocking power wiring, etc. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Plumbing Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

D. Plumbing contractor shall provide and install transformers and low voltage wiring (below 120-1-60) from transformer to equipment. Electrical contractor shall provide and install power wiring to transformers.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall or ceiling where located.

B. Access panels located in rated walls, floors, ceilings, shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 SANITARY SEWER PIPE

A. Pipe ends shall be square cut. Ends of pipes shall be reamed and shall be wiped clean to remove cuttings. Before installation, pipe shall be stood on end and tapped sharply to remove cuttings and other foreign materials from interior. Pipe shall be thoroughly cleaned inside and outside. Bending or springing of pipe shall not be permitted.

B. Various service pipes, valves, fittings, etc., running parallel with each other and near together shall be in line with each other and shall be kept at a sufficient distance from

each other and other work to permit no less than 1/2 inch between finished coverings on different services.

C. Each contractor shall furnish all foundations, structural or pipe supports indicated, called for specifically or that may be required to support his particular equipment and material unless hangers are definitely indicated as being furnished by others. Sewer waste and vent lines shall be supported every 4 feet.

D. Perforated strap hangers shall not be allowed for any part of the hangers.

E. Drainage and vent pipes: Horizontal soil and waste pipes 3 inches and smaller shall have a grade of 1/4 inch per foot and line 4 inches and larger shall have a grade of 1/8 inch per foot unless otherwise specified. The main vertical soil and waste vent shall be extended full size through the wall. Cast-iron pipe inside the building shall be extended 6 inches above the floor.

F. Fittings: Changes in pipe size on soil, waste, and drain lines shall be made with reducing fittings of recessed reducers. All changes in direction shall be made by the appropriate use of 45 degree wyes, long or short sweep 1/4 bends, 1/6, 1/8, or 1/16 bends, or by a combination of those or equivalent fitting, except that single and double sanitary tees may be used in drainage lines only where the direction of flow is from horizontal to vertical. Short sweeps not less than 3 inches in diameter may be used where the change in direction of flow is either from horizontal to vertical or from vertical to horizontal.

G. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.

4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

H. Make connections to equipment and branch mains with unions.

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Install each fixture with trap, easily removable for servicing and cleaning. Each trap shall be placed as near the fixture as possible, and no fixture shall be double trapped. At completion thoroughly clean plumbing fixtures and equipment.

K. Fixture connections: Connections between earthenware fixtures and flanges on soil pipes shall be made absolutely gas tight and water tight with a closet-setting compound or gasket. Bolts shall be not less than 1/4 inch in diameter and shall be equipped with chromium-plated nuts and washers.

L. Test sanitary drainage, condensate drains and vent systems with water or air in accordance with requirements of the State Sanitary Code, International Plumbing Code and all applicable local codes. Water test may be applied to entire drainage systems or sections of systems. All openings shall be tightly closed in section to be tested except at highest opening. All portions of systems shall be subject to a minimum of 10 feet head of water. Water must have been in the system two hours prior to inspection. Air test in accordance with the Plumbing Code may be used at contractor's option.

M. Sanitary sewer or storm drain pipe penetrating concrete slabs shall be wrapped with foam insulation tape.

3.2 DOMESTIC WATER PIPE

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.

5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide non-conducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Domestic cold water lines penetrating concrete slabs shall be wrapped with vinyl flexible tube. Domestic hot or return water piping penetrating concrete slabs shall be insulated at all penetrations through slab (refer to insulation specifications).

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Hydrostatically test entire domestic water system to 200 psig or 2-1/2 times normal working pressure.

K. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

L. Sealing or flashing the building envelope due to penetrations in building shall be the responsibility of the general contractor.

M. Water service to fixtures or groups of fixtures shall have 12 inch long air chambers at the same diameter as header or service pipe on both hot and cold water lines. Air chamber shall be installed close to fixture. Provide and install shock arrestors on sterilizer water supplies or supplies with quick closing valves such as flush valves, dishwashers, tempering valves, etc. Location and size of shock arrestor shall be as per manufacturer's instructions.

END OF SECTION 22 05 03

FORD FIELDS CONCESSION STAND
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SECTION 22 05 93 - SYSTEM TESTING AND BALANCING FOR PLUMBING

PART 1 - GENERAL

1.1 SCOPE

A. Includes But Not Limited To -

1. Witnessing of all plumbing system testing required of Plumbing Subcontractor.
2. Test and Balance agency shall be present for factory start-up of equipment when factory start-up is required.

B. Related Work Specified Elsewhere -

1. The plumbing subcontractor shall address all issues as recommended by Air Balance and Testing Agency at no additional cost to Owner.

1.2 QUALITY ASSURANCE

A. Testing Agency -

1. **General Contractor shall procure services of an independent AABC or NEBB Air Balance and Testing Agency which specializes in balancing and testing of heating, ventilating, and cooling systems. These services shall not be provided by the installing Plumbing Contractor on the project but shall be direct subcontractor of the general contractor. This shall be the same contractor providing Air Balance and Testing services as indicated in Division 23.**
2. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Technician employed by Agency.
3. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
4. If requested, conduct tests in presence of Engineer.
5. Agency shall be approved in writing by Engineer. Plumbing Contractor shall not be permitted to do this work. Submit qualifications for review.

B. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of balancing test report.**

1.3 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

PART 2 - EXECUTION

2.1 Begin balance and testing upon completion of plumbing systems including installation of all specialties and devices.

A. General Contractor shall put systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance Manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

2.2 STANDARDS

A. Perform testing and balancing in complete accordance with the Associated Air Balance Council Standards for Field Measurement and Instructions, Form P1266, Volume I. Record test data on AABC standard forms or facsimile thereof.

2.3 TESTING PROCEDURE

A. Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when piping installation begins.**

B. The following minimum information shall be included in the finished report:

1. Plumbing:
The Test and Balance Contractor shall observe witness and record all plumbing tests required by these specs. The Plumbing Contractor shall contact the Test and Balance Contractor when testing is done. FAILURE TO DO SO WILL REQUIRE TESTING OF THE ENTIRE SYSTEM.

END OF SECTION 22 05 93

FORD FIELDS CONCESSION STAND
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SECTION 22 07 00 – PLUMBING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 DOMESTIC WATER PIPING

A. Cover cold water lines above ceilings and in exterior walls with 1 inch thick and all hot water lines with 1-1/2 inch thick closed cell rubber type insulation. At contractor's option, fiberglass insulation with white universal jacket may be used. All flanges, valves and fittings shall be insulated with closed cell rubber type molded fittings insulation, fabricated mitered segments of pipe insulation or closed cell rubber type insulation equivalent in thickness to insulation of adjoining pipe.

B. All water lines exposed in mechanical rooms shall be covered with 0.020 color coded PVC jacket with solvent welded seams and joints.

C. All water lines outside of building exposed to the weather shall have 1 inch thick closed cell rubber type insulation covered with 0.016 smooth aluminum jacket and elbows.

D. All water lines below building slab shall be insulated with 1 inch thick closed cell insulation with two (2) coats of mastic.

2.2 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, shall be insulated with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.3 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.4 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 22 07 00

SECTION 22 10 00 - PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish all labor and materials as hereinbefore specified, indicated or reasonably implied for the complete installation of the following systems:

1. Cold Water
2. Hot Water System
3. Sanitary Drainage System

PART 2 - MATERIALS

2.1 FLOOR DRAINS

A. All floor drains shall be constructed of cast iron and shall be complete with clamping devices as required.

B. Floor drains (Marked "FD"): shall be bottom outlet with duracoated cast iron body with clamping collar and 6 inch diameter nickel bronze strainer adjustable vertically to floor level, with square perforations and vandal proof screws. Refer to fixture schedule for specific types.

2.2 CLEANOUTS

A. Cleanouts shall be provided where shown on plans, at each change of direction of the building drain greater than 45 degrees and at or near the foot of each vertical waste or soil stack. Location of all cleanouts shall be same size as piping up to 4 inches. Larger pipes shall have 4 inch cleanouts unless noted otherwise. Every cleanout shall be installed so that the cleanout opens in the direction of flow of the drainage line or at right angles thereto. Floor cleanouts shall be adjustable type, double drainage flange, clamping collar (above ground installations), 2 pound lead flashing, nickel bronze cover. Top of cleanout shall be level with top of finished floor so there is a continuous surface. Floor cleanouts shall be Jay R. Smith, Josam or Wade. Wall cleanouts shall be nickel bronze access frame and cover Zurn, Jay R. Smith, Josam or Wade. Outside cleanouts shall be installed with cover, set flush with finished grade, or as detailed on plans.

2.3 FLASHING

A. Flash around all pipes passing through roof in connection with this contract with sheet lead, not less than 2-1/2 pound to the square foot, built 6 inches into the waterproofing, running 10 inches up the pipe and turned over into the pipe cavity. Flashing around roof

drains shall be not less than 2-1/2 pound lead extending at least 12 inches from the drain rim into membrane waterproofing. Fasten flashing to drain clamp device making watertight durable joint.

2.4 EQUIPMENT FURNISHED BY OWNER AND/OR BY OTHER TRADES

A. This equipment and other miscellaneous equipment shall be furnished and set in place under other sections of these Specifications and/or by the Owner, unless specified otherwise.

B. Plumbing Contractor shall provide necessary rough-in required for the equipment and shall completely connect all plumbing services for this equipment providing cut-off valves and unions for each plumbing supply service to each piece of equipment. It is the obligation of the Plumbing Contractor to obtain correct rough-in dimension plans for this equipment as well as the equipment furnished under this contractor.

C. The various Equipment Contractors shall provide access holes for service lines that enter his equipment. This work to be performed on the job site, as necessary. Plumbing Contractor shall furnish and install escutcheons, locknut type, at these locations.

2.5 PLUMBING FIXTURES

A. Plumbing Contractor shall furnish and install all plumbing fixtures shown on accompanying drawings. Refer to both plumbing and architectural drawings and provide all fixtures shown on either. Fixtures shall be complete with all necessary brass and accessories required for a complete installation including traps, escutcheons, angle supplies, basin cocks, etc. All fixtures shall be new and must be delivered to the building properly crated in perfect condition.

B. All brass must be of the best quality, lightweight goods will not be accepted. All brass pipe shall be seamless brass tubing and nipples shall be extra heavy. All fittings and trim shall be chromium plated heavy brass unless otherwise specified. "P" traps shall be cast brass with cleanouts. All exposed piping shall be chromium plated. Provide cutoff valves at each fixture in both hot and cold water piping.

C. For the purpose of establishing type and class of fixtures required, the scheduled plate numbers have been taken from the indicated catalog. Approved equals shall be as follows: Fixtures: Kohler, Briggs, American Standard, Crane, Eljer, Elkay, Dayton, Just or Universal Rundle. Flush Valves: Sloan, Zurn. Faucets: Elkay, Just, Chicago, Kohler, American Standard, Delta Commercial, Zurn, Speakman. Water Heaters: A.O. Smith, Ruud/Rheem, State, Bradford White. Drains: Wade, J.R. Smith, Zurn, Josam. Hose Bibbs: Josam, Woodford, J.R. Smith, Wade, Zurn.

D. All vitreous china plumbing fixtures shall be manufactured in the United States, Canada or Mexico.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Prior to all work of this section, carefully inspect the installed work of adjacent trades and verify that all such work is complete to the point where fixture installation may properly commence.
2. Verify that all hangers and fixture supports are properly installed to receive plumbing fixtures.

3.2 PLUMBING FIXTURE

A. Each plumbing fixture shall be fitted with all necessary and proper fittings, trimmings and operating devices, and shall be in perfect operating condition.

B. Refer to architectural drawings for any other information that may be necessary or required in connection with plumbing installation.

C. Before setting any fixtures, obtain the exact mounting height, as desired, from the Architect.

D. Wall mounted water closets, urinals, and lavatories shall have a floor anchored carrier to fit in available wall space (coordinate requirements in drawings).

END OF SECTION 22 10 00

SECTION 22 11 00 - WATER SUPPLY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Install water supply piping as indicated on plans.

PART 2 - MATERIALS

2.1 PIPING

A. All water supply piping shall be of materials hereinbefore specified.

B. All water lines shall be disinfected in accordance with the State Sanitary Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water lines run underground shall have a minimum of 24 inches cover to finished grade.

B. Make up complete water supply system. Connect to all fixtures and outlets requiring water.

C. At each fixture or group of fixtures furnish and install a 12 inch high air chamber of same size as branch feed line except at fixtures with quick closing valves such as flush valves, dishwashers, etc., in which cases provide "Shock Arrester" properly sized for each unit.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 11 00

FORD FIELDS CONCESSION STAND
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SECTION 22 13 00 - WASTE WATER DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Extend sanitary sewer lines to the location as shown on the plans.

PART 2 - MATERIALS

2.1 PIPING

A. The system of sewage and drainage shall be of materials as hereinbefore specified except where space requirements necessitate the use of Type "DWV" copper.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All work shall be in strict conformity with the International Plumbing Code and in accordance with all local codes. Piping shall be routed as shown on plans or in acceptable manner to meet building conditions. Venting shall be as shown on plumbing riser diagrams.

B. Connections between traps and cast iron pipes are to be made with heavy brass ferrules.

C. Provide reducers, increasers, special flanges, and fittings where required between piping work and fixtures in order to connect and complete work and render it ready for use. Make any offsets required to avoid construction.

D. All lines 3 inches and smaller shall be sloped 1/4 inch per foot, lines 4 inches shall be sloped 1/8 inch per foot, lines 6 inches shall be sloped 1/16 inch per foot and all lines 8 inches and larger shall be sloped 0.4 percent. Piping shall be laid so slope is continuous.

E. All vents shall extend 10 inches above roof and terminate in an appropriate flashing collar. No vents shall penetrate roof within 48 inches of an exterior wall. Offset in ceiling as required. All back vents shall be taken off as near trap as possible.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 13 00

FORD FIELDS CONCESSION STAND
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SECTION 22 16 00 – NATURAL GAS PIPING/DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Fuel gas systems, including piping, equipment and all necessary accessories as designated in this section. Fuel gas piping to equipment shall be routed as shown on plans.

1.2 RELATED WORK

A. FIRESTOPPING: Penetrations in rated enclosures.

B. PAINTING: Preparation and finish painting and identification of piping systems.

C. COMMON WORK RESULTS FOR PLUMBING.

D. GENERAL DUTY VALVES FOR PLUMBING PIPING

1.3 SUBMITTALS

A. Submit SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.

B. Manufacturer's Literature and Data:

1. Pipe & Fittings.
2. Valves.
3. Strainers.
4. All items listed in Part 2 - Products.

C. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Use the edition listed or most recent edition adopted by Local, State or Federal agencies having jurisdiction.

B. Federal Specifications (Fed. Spec.):
A-A-59617 ..... Unions, Brass or Bronze Threaded, Pipe Connections and Solder-Joint Tube Connections

C. American National Standards Institute (ANSI):
American Society of Mechanical Engineers (ASME): (Copyrighted Society)

A13.1-(2007)	Scheme for Identification of Piping Systems
B16.3-(2006)	Malleable Iron Threaded Fittings: Classes 150 and 300 ANSI/ASME
B16.9-2007	Factory-Made Wrought Steel Buttwelding Fittings ANSI/ASME
B16.11-2009	Forged Steel Fittings, Socket-Welding and Threaded ANSI/ASME
B16.15-2006	Cast Copper Alloy Threaded Fittings: Classes 125 and 250 ANSI/ASME
B31.8-2010	Gas Transmission and Distribution Piping Systems ANSI/ASME

D. American Society for Testing and Materials (ASTM):

A47-99(2009)	Standard Specification for Ferritic Malleable Iron Castings
A53-10	Standard Specification for Pipe, Steel, Black And Hot-Dipped, Zinc- coated Welded and Seamless
A183-09	Standard Specification for Carbon Steel Track Bolts and Nuts
A536-09	Standard Specification for Ductile Iron Castings
A733-03(2009)e1	Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples
B687-99(2005)e1	Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

E. National Fire Protection Association (NFPA):

54-2009	National Fuel Gas Code

F. International Code Council

IPC 2009	International Plumbing Code
IFGC 2009	International Fuel Gas Code

G. International Association of Plumbing and Mechanical Officials (IAPMO):
Uniform Plumbing Code – 2009

IS6-06	Installation Standard

H. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):

SP-72-2010	Ball Valves with Flanged or Butt-Welding For General Service
SP-110-2010	Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

1.5 SYSTEM PRESSURE

A. Natural gas systems, unless otherwise noted are designed and materials and equipment selected to prevent failure under gas pressure at downstream side of pressure regulator.

PART 2 - MATERIALS

2.1 FUEL GAS SERVICE CONNECTIONS TO BUILDING (UNDERGROUND AND/OR EXPOSED TO WEATHER)

A. From inside face of exterior wall (outside of building), use coated piping as herein before and/or herein after specified.

B. Pipe: Black Steel, ASTM A53, Schedule 40. Shop-applied pipe coating shall be one of the following types:

1. Coal Tar Enamel Coating: Exterior of pipe and fittings shall be cleaned, primed with Type B primer and coated with hot-applied coal tar enamel with bonded layer of felt wrap in accordance with AWWA C203. **Asbestos felt shall not be used**; felt material shall be fibrous glass mat as specified in Appendix Section A2.1 of AWWA C203.
2. Adhesive-thermoplastic Resin Coating: Fed. Spec. L-C-530, Type I
3. Thermosetting Epoxy Coating: Fed. Spec. L-C-530, Type II
4. Field-applied plastic tape material used on pipe joints and for repairing damaged areas of shop-applied coatings, Fed. Spec. L-T-1512, Type I, 10 mils nominal thickness for pipe joints, and Type II, 20 mils nominal thickness for coating repairs.

C. Holiday Inspections: Procedure for holiday inspection: Holiday Inspection shall be conducted on all coatings to determine the presence and number of discontinuities in those coatings referenced in 2.6/B - 1, 2, 3, and 4 using a Tinker & Rasor model AP/W Holiday Detector. Holiday inspection shall be performed in a manner spelled out in the Tinker & Rasor operating instructions and at a voltage level recommended by the coating manufacturer or applicable NACE International Standard such as RPO 274-93 or RPO 490-90 in the case thermosetting epoxy coating. Holiday Detectors shall be calibrated and supplied with a certificate of calibration from the factory. A calibration of the Holiday Detector shall be performed once every 6 months to verify output voltages are true and correct.

D. Fittings:

1. Butt weld fittings, wrought steel, ANSI B16.9.
2. Socket weld and threaded fittings forged steel, ANSI B16.11.
3. Grooved End: Ductile iron (ASTM A536, Grade 65-45-12), malleable iron (ASTM A47, Grade 32510), or steel (ASTM A53, Type F or Type E or S, Grade B).

E. Joints: Welded, ANSI B31.8.

2.2. FUEL GAS PIPING

A. Pipe: Black steel, ASTM A53, Schedule 40.

B. Nipples: Steel, ASTM A733, Schedule 40.

C. Fittings:

1. Sizes 2 inches under ANSI B 16.3 threaded malleable iron.
2. Over 2 inches and up to 4 inches ANSI B16.11 socket welded.
3. Over 4 inches ANSI 16.9 butt welded.

D. Joints: Provide welded or threaded joints.

2.3 EXPOSED FUEL GAS PIPING

A. Finished Room: Use full iron pipe size chrome plated brass piping for exposed fuel gas piping connecting fixtures, casework, cabinets, equipment and reagent racks when not concealed by apron including those furnished by the Government or specified in other sections.

1. Pipe: Fed. Spec. WW-P-351, standard weight
2. Fittings: ANSI B16.15 cast bronze threaded fittings with chrome finish, (125 and 250).
3. Nipples: ASTM B 687, Chromium-plated.
4. Unions: 2 inches and smaller Mss SP-72, SP-110, Brass or Bronze threaded with chrome finish. Unions 2-1/2 inches and larger shall be flange type with approved gaskets.
5. Valves: Mss SP-72, SP-110, Brass or bronze with chrome finish.

B. Unfinished Rooms, Mechanical Rooms and Kitchens: Chrome-plated brass piping is not required. Paint piping systems as specified in Section PAINTING.

2.4 VALVES

A. Ball Valve: Bronze body, rated for 1025 kPA at 185°C (150 psi at 365°F), 1725 kPa at 121°C (250 psi at 250°F), reinforced TFE seat, stem seal and thrust washer; end entry, threaded ends, UL-listed for natural or LP gas shut off service when used on those services.

B. Gas Vent Cocks: Type 701: Bronze body, tee handle, rated for 205 kPa at 38°C (30 psi at 100°F), ground plug, rated for tight shut-off on fuel gas service.

2.5. WATERPROOFING

A. Provide at points where pipes pass through membrane waterproofed floors or walls in contact with earth.

B. Floors: Provide cast iron stack sleeve with flashing device and a underdeck clamp. After stack is passed through sleeve, provide a waterproofed caulked joint at top hub.

C. Walls: See detail shown on drawings.

2.6 STRAINERS

A. Provide on high pressure side of pressure reducing valves, on inlet side of indicating and control instruments and equipment subject to sediment damage and where shown on drawings. Strainer element shall be removable without disconnection of piping.

B. Gas Lines: "Y" type with removable mesh lined brass strainer sleeve.

C. Body: Smaller than 3 inches, brass or bronze; 3 inches and larger, cast iron or semi-steel.

2.7 DIELECTRIC FITTINGS

A. Provide dielectric couplings or unions between ferrous and non-ferrous pipe.

2.8 GAS EQUIPMENT CONNECTORS

A. Flexible connectors with teflon core, interlocked galvanized steel protective casing, AGA certified design.

2.9 REGULATORS

A. Provide all pressure regulators for the project. Contractor shall be responsible for providing regulators properly selected for pressure, flow, and location. All regulators shall be field adjustable. All regulators shall be vented type. Regulators installed inside buildings shall have vent piping extended to the exterior of the building.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with the International Fuel Gas Code and the following:

1. Install branch piping for fuel gas and connect to all fixtures, valves, cocks, outlets, casework, cabinets and equipment, including those furnished by the Government or specified in other sections.
2. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe, shall be reamed to full size after cutting.
3. All pipe runs shall be laid out to avoid interference with other work.
4. Install valves with stem in horizontal position whenever possible. All valves shall be easily accessible.
5. Install union and shut-off valve on pressure piping at connections to equipment.
6. Pipe Hangers, Supports and Accessories:
   a. All piping shall be supported per the International Fuel Gas Code, Chapter No. 4.
   b. Shop Painting and Plating: Hangers, supports, rods, inserts and accessories used for Pipe supports shall be shop coated with zinc Chromate primer paint. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.
   c. Floor, Wall and Ceiling Plates, Supports, Hangers:
      1) Solid or split unplated cast iron, chrome plated in finished areas.
      2) All plates shall be provided with set screws.
      3) Pipe Hangers: Height adjustable clevis type.
      4) Adjustable Floor Rests and Base Flanges: Steel.
      5) Concrete Inserts: "Universal" or continuous slotted type.
      6) Hanger Rods: Mild, low carbon steel, fully threaded or Threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.
      7) Riser Clamps: Malleable iron or steel.
      8) Rollers: Cast iron.
      9) Self-drilling type expansion shields shall be "Phillips" type, with case hardened steel expander plugs.
      10) Miscellaneous Materials: As specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories.
7. Install cast chrome plated escutcheon with set screw at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.
8. Penetrations:
   a. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases. Completely fill and seal clearances between piping and openings with the fire stopping materials.
   b. Waterproofing: At floor penetrations, completely seal clearances around the pipe and make watertight with appropriate sealant.

B. Piping shall conform to the following:

1. Fuel Gas:
   a. Entire fuel gas piping installation shall be in accordance with requirements of NFPA 54.
   b. Provide fuel gas piping with plugged drip pockets at low points.

3.2. CLEANING OF SYSTEM AFTER INSTALLATION

A. Clean all piping systems to remove all dirt, coatings and debris.

3.3 TESTING

A. General: Test system either in its entirety or in sections after system is installed and cleaned.

B. Test shall be made in accordance with Section 406 of the International Fuel Gas Code. The system shall be tested at a minimum of 1.5 times maximum working pressure, but not less than 30 psig (20 kPa) gage).

END OF SECTION 22 16 00

CERTIFICATION OF RESPONSIBILITY FOR

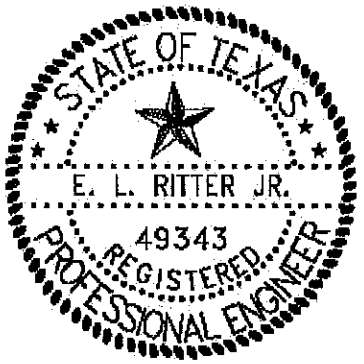
DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC



Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

SECTION 23 05 00 - GENERAL PROVISIONS FOR HVAC

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Mechanical subcontractor shall be the sole source responsible party to furnish and install the mechanical system. Mechanical contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 23 of these specifications, it is intended to mean the Mechanical Contractor as appropriate. These are sub-contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 23 – Mechanical) under the contract with the owner. The General contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete mechanical portion of this contract, including air conditioning, heating, and ventilating systems as called for herein and on accompanying drawings. Parts of the mechanical division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items

covered in the Mechanical Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Plumbing and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project.**

C. It is the intention of these Specifications that all mechanical systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than seven days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Mechanical Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect/Engineer. After initial surfacing has

been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The HVAC piping shall be run in such a manner as to avoid conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire mechanical work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all mechanical work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. American Society of Heating, Refrigeration and Air Conditioning Engineers
2. National Electric Code
3. National Fire Protection Association
4. American Society of Mechanical Engineers
5. Underwriters's Laboratories
6. American Gas Association
7. Energy Code for Commercial and High Rise Residential Buildings
8. International Energy Conservation Code
9. International Building Code
10. International Mechanical Code
11. SMACNA Guidelines

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift ducts or pipes or to change the shape of ducts and these changes shall be made as required. All such changes shall be referred to the Architect for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Mechanical Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

E. Materials and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between mechanical and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the HVAC ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. **Any resizing required shall be part of this project and done without any additional cost to the Owner. DO NOT MAKE DUCTWORK WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of HVAC piping with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per instructions and details of the structural engineer.

F. All pipng shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.
4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. **HVAC ductwork shop drawings shall be prepared showing all conditions of installation coordinated with structure, lights, sprinklers, ceiling, etc. These shop drawings shall be prepared within 45 days of the award of the general contract for the project. Drawings shall be done at minimum 1/8 inch scale on 24 inch x 36 inch sheets.**

I. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

J. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

K. All submittals shall be submitted prepaid and in ample time for review before installation.

L. Six (6) copies of each submittal shall be submitted to the Architect.

M. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted (except in the case of the HVAC ductwork shop drawings).**

N. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

O. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

P. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done as per the Federal, State of Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.13 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.14 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect/Engineer prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.15 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.16 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.17 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any mechanical equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.18 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guidelines (chlorination, chemical treatment, etc.).

1.19 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.20 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major mechanical equipment (pumps, AHUs, starters, valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.21 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction. **Contractor shall provide temporary dehumidification and drying equipment as required to maintain clean, dry air during construction.**

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes, operation of refrigeration and heating system for short periods to adjust controls and temperature regulation, or the operation of fans for air balance.

1.22 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, ductwork, etc., and leave entire installation in good working order.

1.23 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of the contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, ducts, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color sample). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.24 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.25 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.26 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all mechanical systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.27 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques of the air conditioning unit.

B. Contractor shall use factory start-up personnel to train the owner's maintenance personnel.

1.28 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspection.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.29 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters. Additional warranties beyond the above shall be furnished as specified elsewhere in these specifications.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.30 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
7. Contractor, name of responsible principal, address and telephone number.
8. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
9. Provide owner with contact information for warranties which extend beyond one year.

1.31 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.32 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.33 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 23 05 00

SECTION 23 05 03 - BASIC MATERIALS AND METHODS FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 REFRIGERANT PIPING/EQUIPMENT DRAIN PIPING

A. All refrigerant and equipment drain piping shall be government type "L" hard copper tube standard weight and thickness as made by Mueller, Chase, Anaconda or equivalent, unless indicated otherwise. Use Silfos 1000 degrees Fahrenheit solder on all joints.

B. Tubing shall be brought to the site with ends sealed.

2.2 A/C CONDENSATE DRAIN PIPING

A. All A/C condensate drain piping shall be government type "L" hard copper water tube of standard weight and thickness. Fittings shall be compatible with pipe. Use Silfos 1000 degrees Fahrenheit solder on all joints.

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for refrigerant piping and other copper lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers shall be 5 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported fixtures or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures, refer to Division 22.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Mechanical Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Mechanical Contractor. The Electrical Contractor shall do all power wiring required for the installation of all mechanical equipment including equipment interlocking power wiring, etc. Temperature control wiring shall be furnished and installed by the Mechanical Contractor. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Mechanical Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All motors for the mechanical equipment shall be of the 40 degrees Celsius rise type and shall be furnished and installed by the Mechanical Contractor. All motors shall be wound for +/- 10 percent of the specified voltage. Motors shall be voltages indicated on drawings. All motors shall have copper windings, Class F insulation and shall be rated for continuous duty service. All three-phase motors shall be inverter-duty type motors.

D. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

E. Starters for single phase motors 1/2 HP and below shall be furnished with pilot light and "hand-off-auto" selector switch where required.

F. Starters for three-phase, single speed motors shall be stepless solid state soft starter with "hand-off-auto" selector switch, three overload relays and auxiliary contacts as required. The starter shall operate at manufacturers ratings with 10 percent and -15 percent applied voltage tolerance and be capable of operating continuously under ambient temperatures of 0 to 50 degrees Celsius. The starter control circuitry shall be designed for current ramp operation and utilize current feedback for closed loop operation to minimize variation of acceleration time with varying load conditions. The starter shall use metal oxide varistors to clip transient voltage spikes on incoming power lines with protection to limit the rate of rise of voltage spikes to protect the SCR's from damage. The starter shall provide electronic motor overload protection. The starter shall shut down (or shall not start) to protect itself from either phase loss or phase rotation. The starter shall have adjustments for initial torque, pulse, ramp up time, ramp down time, and current limit. The starter shall have a main trip breaker to act as a disconnect and necessary contactors. The starter shall have contacts for remote starting from a building energy management system.

G. Mechanical contractor shall provide and install all smoke dampers and smoke or duct detectors. The electrical contractor shall provide and install all wiring/interlocks with fire alarm.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor, Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall of ceiling where located.

B. Access panels located in rated walls, floors, or ceilings shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 PIPING

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be

repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.

a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.

2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide nonconducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Provide drain valves at main shutoff valves, low points of piping and apparatus.

I. Provide and install air vents with shutoff valve at all high points in the system.

J. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

END OF SECTION 23 05 03

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Division 23 Specification Sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.2 SCOPE OF WORK

A. The General Contractor shall obtain the services of an independent test and balance company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s). These services shall not be provided by the installing mechanical contractor on the project but shall be a direct subcontractor of the general contractor.

1. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Heating and Ventilating Technician employed by Agency.
2. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
3. If requested, conduct tests in presence of Engineer.
4. Agency shall be approved in writing by Engineer. Mechanical Contractor shall not be permitted to do this work. Submit qualifications for review.

B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems, as described in these Specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. Refer to Plumbing Division 22 for additional work required of Air System Test and Balance agency.

C. **Test and Balance agency shall be present for factory start-up of equipment when factory startup is required.**

D. Representatives of the test and balance company shall visit the job site at 60 percent and 90 percent completion of installation of the HVAC equipment, piping and ductwork to review the installation. After each site visit, the test and balance company shall report to the Architect any items that are not installed properly, are missing from the Contract Documents or items that are required to enable him to perform the testing and balancing of the HVAC systems as per normal standard practice. After review, the Architect shall instruct the contractor to implement the recommendations at no additional cost to the Owner if these items were specified in the original scope of the project.

E. Upon completion of the HVAC system installation, the test and balance company shall perform all testing and balancing with the full cooperation of the contractor and his

subcontractors. The contractor shall make changes and/or adjustments to the HVAC system components that are required by the test and balance company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work by the contractor shall be performed at no additional cost to the Owner.

F. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of air balancing test report.**

G. Engineer will choose and direct spot balancing of one zone. Differences between the spot balance and test report will be justification for requiring repeat of testing and balancing for entire building.

1. Be prepared to spot smoke test one ducted system as directed by Architect's Engineer.
2. Rebalancing shall be done in presence of Architect and subject to his approval.
3. Spot balance and rebalance shall be performed at no additional cost to Owner.

H. The test and balance report shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. If he does not concur with the report, he shall meet with the Test and Balance Company to determine what needs to be done to obtain a properly balanced system.

I. After the Mechanical Engineer signs the testing and balancing report, the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.

1.3 The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

A. AIR SYSTEMS:
Air Handling Units
Fans
Zone Branch and Main Ducts
Diffusers, Registers, Grilles and Dampers
Coils (Air Temperatures)
Valves
Vibration Isolators
Duct Smoke/Pressure Leak Testing

1.4 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

1.5 DEFINITIONS, REFERENCES, STANDARDS

A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.6 QUALIFICATIONS

A. Agency Qualifications: The TAB agency shall be a current member of the AABC,NEBB or TABB.

B. Prior to working on this project, the technicians shall attend training provided by the manufacturer of the various equipment on this project on the specific aspects of balancing the equipment. Include letters or certificates from the manufacturer on attendance and satisfactory completion of the factory training. These certifications may be used for continuing education. At a minimum, the technicians shall receive training from the air distribution equipment manufacturer, air unit manufacturer, and temperature controls manufacturer. This should be done prior to any equipment start-ups.

1.7 SUBMITTALS

A. Qualifications: The TAB agency shall submit a company resume listing personnel and project experience in air and hydronic system balancing and a copy of the agency's test and balance engineer (TBE) or technician certificate.

B. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.

C. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

D. Submit continuing educations training on each lead technician working on the project.

1.8 TAB PREPARATION AND COORDINATION

A. Shop drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days prior to the start of TAB work.

B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.

C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all

necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution. The BCA contractor shall provide all necessary software to the TAB Agency at no additional cost.

D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.

E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

F. If, upon commencing the work, the TAB contractor finds that the systems are not ready, or if a dispute occurs as to the readiness of the systems, the TAB contractor may request an inspection to be made by the Designer's Mechanical Engineer. This inspection shall establish to the satisfaction of the represented parties whether or not the systems meet the basic requirements for testing and balancing. Items that are determined to be not ready for testing and balancing shall be completed by the Mechanical Contractor and placed in operational readiness before TAB services are again requested.

1.9 TAB REPORTS

A. Final TAB Report: The TAB agency shall submit the final TAB report for review by the Engineer. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified, along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC or NEBB "National Project Performance Guaranty" assuring that the project systems were tested, adjusted and balanced in accordance with the project Specifications and AABC or NEBB National Standards.

B. Submit four (4) copies of the final TAB report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

2.1 All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC or NEBB National Standards.

PART 3 - EXECUTION

3.1 GENERAL

A. General Contractor with Mechanical Contractor shall put heating, ventilating, and cooling systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Air Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

D. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC or NEBB National Standards. Adjustment tolerances shall be + or -10 percent unless otherwise stated.

E. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.

F. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.

G. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.

H. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 AIR SYSTEMS

A. **TESTING PROCEDURE**
Air Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements. Perform the following tests at high and low speeds of multi-speed systems and single speed system.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when ductwork installation begins. Coordinate and verify the installation of all balancing dampers, fire dampers, etc.**
2. Smoke test or pressure test each low pressure steel duct system to test for air tightness. Use zinc chloride smoke candles or titanium tetrachloride ampules (sticks) to generate smoke.

a. If ducted systems leak, do not continue with air balance. Report findings to Engineer in writing and begin testing again after Mechanical Contractor has repaired ducts or applied duct sealers.
b. If ducted systems appear air tight, proceed with air balance procedure as outlined below.
c. Include in air balance report a letter indicating smoke testing has been accomplished and a report of findings regarding airtightness of each ducted system.
d. Maximum leakage loss shall not exceed 2 percent. If losses are greater, the Mechanical Contractor shall correct the leakage, then the test and balance agency shall retest the ductwork.

3. Test and adjust blower rpm to design requirements.
4. Test and record motor full load amperes.
5. Make Pitot Tube traverse of main supply and return and obtain design cfm.
6. Test and record system static pressures, suction, and discharge.
7. Test and adjust system for design cfm air.
8. Test and adjust system for design cfm outside air.
9. Test and record entering air temperatures (db heating and cooling).
10. Test and record entering air temperatures (wb cooling).
11. Test and record leaving air temperatures (db heating and cooling).
12. Test and record leaving air temperatures (wb cooling).
13. Adjust main supply and return air ducts to proper design cfm.
14. Adjust zones to proper design cfm, supply and return.
15. Test and adjust each diffuser, grille, and register to within 10 percent of design requirements.
16. Identify each diffuser, grille, and register to location and area.
17. Identify and list size, type, and Manufacturer of diffusers, grilles, registers, and testing equipment. Use Manufacturer's rating on equipment to make required calculations.
18. In readings and tests of diffusers, grilles, and registers, include required fpm velocity and test fpm velocity and required cfm and test cfm after adjustments.
19. In cooperation with Mechanical Contractor, set adjustments of automatically operated dampers to operate as specified, indicated, or noted.
20. Adjust diffusers, grilles, and registers to minimize drafts.
21. Verify the calibration of temperature control devices, thermostats, etc.
22. Verify all control sequences with specifications.
23. Include manufacturer's performance data with reports.
24. Schedule three inspections to verify original test and balance of systems within 90 days of acceptance by Owner. Make opposite season adjustment and inspection of systems at one year after acceptance by Owner. Submit reports after each inspection. Submit schedule as part of initial report.

B. Where systems supplied to job site provides over 5 percent more air than schedule requirements, rooms supplied by that system shall have their supply air quantities increased by the ratio of the actual total air quantity supplied to the minimum air quantity required by the schedule.

C. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall

perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:

1. Fans
   a. Fan Speeds--Test and adjust fan RPM to achieve design cfm requirements.
   b. Current and Voltage--Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
   c. Pitot-Tube Traverse--Perform pitot-tube traverse of the main exhaust ducts to obtain total CFM. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
   d. Static Pressure--Test and record system static pressure, including the static pressure profile of each exhaust fan.
2. Zone, Branch, and Main Ducts
   a. Adjust ducts to within design cfm requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.
3. Diffusers, Registers, and Grilles
   a. Tolerances--Test, adjust, and balance each diffuser, grille, and register to within 10 percent of design requirements. Minimize drafts.
   b. Identification--Identify the type, location, and size of each grille, diffuser and register. This information shall be recorded on air outlet data sheets.
4. Coils
   a. Air Temperature--Once air flow are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry bulb temperature shall be taken on the entering and leaving side of each heating coil.
5. Air Handling Units:
   a. Location, manufacturer, model number, serial number, motor manufacturer, fan and motor sheaves, belts. Required and test data with unit operating at full air flow conditions (all space thermostats calling for cooling) for each of following: total CFM, return and outside air CFM, total static pressure, suction and discharge static pressures across unit fan, HP, amperage, voltage, fan RPM. Verify performance of static pressure controls, vane operators, dampers and controls. Adjust and/or change pulleys and belts as required to obtain delivery of system specified or required full load air quantities.
6. Diffusers and Grilles:
   a. Space served; type and size of diffuser or grille, specified CFM, initial test CFM and final test CFM. Each air outlet shall be adjusted for +/- 5 percent of required quantity as shown on plans.
7. Control Systems:
   a. Verify all control sequences and calibration of all thermostats and sensors.
8. Equipment Start-up:
   a. The Test and Balance Contractor shall be on site to witness and record all factory start-up of mechanical equipment. Include start-up reports in final balancing report.
9. Plumbing:
   a. Refer to Plumbing Division 22 for additional work required by the Air System Testing and Balancing Agency.

3.3 INDOOR AIR QUALITY VERIFICATION:

A. The TAB agency shall take measurements at minimum outside air. It shall measure temperature and humidity uniformity throughout the space, check filter installation for proper fit, seal and operation and verify condensate drain operation. The TAB agency shall note any water damage or obvious contamination sources from inside or outside.

B. The TAB agency shall prepare a short report showing the results and location of each test, a summary of the HVAC operating conditions, and a listing of any discrepancies.

3.4 ADDITIONAL TAB SERVICES:

A. Job Site Inspections:
During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems. Inspections shall be conducted a minimum of two times. (Typically, these are performed when 60 percent of the total system is installed and again when 90 percent of the total system is installed, prior to insulation of the duct and piping.) The TAB agency shall submit a written report of each inspection to the Architect.

B. Duct Leakage Testing:
The Installing Contractor shall isolate and seal sections of ductwork for testing. The pressurization fan and test apparatus shall be connected to the test section and the test performed. The test pressure required and the amount of duct to be tested shall be described by the engineer in the appropriate duct classification section. All testing shall be based on one test per section.

C. Verification of HVAC Controls:

1. The TAB agency shall be assisted by the building control Systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
2. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
3. Verify that all controlling instruments are calibrated and set for design operating conditions.

D. Temperature Testing:
To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than 2 degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.

E. TAB Report Verification:
At the time of final inspection, the TAB agency may be required to recheck, in the presence of the Owner's representative, specific and random selections of data, air

quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the Owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10 percent of the total number tabulated in the report.

F. Kitchen Hood Testing:
The TAB agency shall test and adjust kitchen hood total air flow by duct pitot-tube traverse if applicable under local code. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. All sealing of test holes in the exhaust duct to be by others per local code requirements. The TAB agency shall test and record face velocities in accordance with design requirements. It shall test and adjust makeup air flow (if included) to meet design face velocities and pressurization and to minimize turbulence.

G. Building/Zone Pressurization:
The TAB agency shall test and adjust building/zone pressurization by setting the design flows to meet the required flow direction and pressure differential. For positive pressure areas, it shall set the supply air to design flow, and gradually reduce the exhaust air rate to obtain the required flow or pressure difference. For negative pressure areas, it shall set the supply air to design flow, and gradually increase the exhaust air rate to obtain the required flow or pressure difference.

END OF SECTION 25 05 93

SECTION 23 07 00 - MECHANICAL INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 CONDENSATE DRAIN PIPING

A. Insulate condensate drain piping with 3/4 inch thick closed cell rubber type insulation.

2.2 REFRIGERANT LINES

A. Insulate all refrigerant suction lines with 1 inch thick closed cell rubber insulation. Apply two (2) coats of black mastic where the lines are exposed to the weather. Refrigerant piping below grade shall be installed in watertight PVC sleeve.

2.3 AIR CONDITIONING DUCTWORK

A. Insulate all ducts above ceiling with one layer of 3 inch thick, 3/4 pound density flexible Fiberglass duct insulation with aluminum foil facing. Duct insulation to be applied with 2 inches lap of facing sealed with tape and outward clinch staples. Seal all joints with 2 inch wide vapor barrier tape. An additional band of tape shall be applied between the circumferential joints for a maximum 2 foot spacing of taped bands.

B. The ductwrap shall have a minimum installed R-value of 8.5 and shall comply with Energy Code requirements..

2.4 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, roof drain bodies, shall be insulated same with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.5 KITCHEN HOOD EXHAUST DUCTWORK

A. Refer to Kitchen Hood specifications section.

2.6 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.7 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 23 07 00

SECTION 23 09 00 - TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Refer to Section 23 05 00, Section 23 05 03, Section 23 30 00 and Section 23 70 00, provisions of which apply to work under this Section.

B. All control systems shall be furnished complete and functioning.

C. Coordinate all control work with the mechanical and electrical contractors. Contact the Test and Balance Contractor and notify them as to when controls work shall be installed. Test and Balance controller shall verify controls systems installation and proper operations.

1.2 DESCRIPTION OF WORK

A. Provide a complete system of "hard-wired" automatic controls (wireless unacceptable) as indicated herein. Control system shall consist of all thermostats, sensors, actuators, operators, wiring, switches, relays and control panels necessary to accomplish the control sequence specified herein.

1.3 RELATED WORK IN OTHER SECTIONS

A. For extent of power wiring and connection to mechanical equipment under Electrical Work, refer to Division 26.

B. For control devices furnished with equipment, refer to equipment specifications and schedules. Any controls equipment not specifically called for elsewhere shall be provided by controls contractor. All control wiring shall be done by controls contractor.

C. All power for control devices such as actuators, operators, fire/smoke dampers, control dampers, etc. shall be furnished, installed and wired by the Controls Contractor. Controls Contractor may use 24 VAC or 120 VAC for the control system. The controls contractor shall be responsible for obtaining the necessary power and pay all costs associated with obtaining power to controls and controls equipment.

D. All interior control wiring shall be installed in galvanized EMT conduit. The last 6 inches at connection to equipment shall be flexible metal conduit. All control wiring on exterior of building shall be in Seal-Tite conduit and/ or Liquid Tight flexible conduit.

E. All control wiring shall be furnished and installed by this contractor.

1.4 SERVICE

A. Installing Contractor (Mechanical Contractor or subcontractor under the Mechanical Contractor) shall maintain adequate automatic control personnel on his payroll to provide back-up project control service on the automatic control system provided under this contract.

1.5 WARRANTY

A. Contractor shall warranty all work performed under this contract to be free of any defects in workmanship or material for a period of one year after final acceptance by the Owner's representative. The installing controls contractor shall include a second year of extended warranty to cover all parts and labor. The warranty and extended warranty shall include quarterly calibration and set-up checks of all controls. THIS WARRANTY DOES NOT START ON DATE THAT THE MECHANICAL EQUIPMENT IS STARTED.

1.6 SUBMITTAL

A. Submit shop drawings and product data sheets indicating configuration, general assembly, and materials used in fabrication.

B. Submit manufacturer's installation instructions. Instructions shall include complete wiring diagrams drawn specifically for this project.

1.7 OPERATION AND MAINTENANCE

A. Include manufacturer's descriptive literature, operating instructions, and maintenance data.

1.8 QUALITY ASSURANCE

A. Manufacturer shall be a company specializing in products of the type specified in this section. All components shall be Class A quality commercial or industrial grade for installation in locations or environments shown on plans.

1.9 SYSTEM RESPONSIBILITY

A. The entire control system, shall be furnished by a single source manufacturer who shall be responsible for the entire system. The installations shall be by technicians employed by the controls system manufacturer.

PART 2 - PRODUCTS

2.1 FIRESTATS AND SMOKE DETECTORS

A. Duct smoke detectors shall be furnished and installed by mechanical contractor. Install a smoke detector in the supply air section/duct and return air section/ duct of each unit delivering over 2000 cfm to stop the fan and close the outside air dampers in the event of excessive temperature or smoke. Firestats to be provided in the return air units of all units over 600 cfm.

B. Smoke detectors shall be addressable and compatible with the fire alarm system.

C. Where and when the building does not have a fire alarm system, provide a remote annunciator with remote reset for each detector.

D. All smoke detectors shall have remote reset.

2.2 TEMPERATURE CONTROLLER

A. Refer to Section 23 70 00, Packaged Outside Air Unit for controller.

2.3 WIRING

A. Factory mount and wire controls. Mount electrical components in control box with removable cover. Provide clearance for access to controls (36 inch clearance).

B. Provide terminal strip(s) for field wiring of thermostat, communications and power source. DO NOT USE WIRE NUTS IN JUNCTION BOX.

C. All wiring shall comply with local and national electric codes and the manufacturer's published installation manual.

D. Provide terminal strip(s) for field wiring of air conditioning unit input connections, duct temperature sensor, velocity sensor, static pressure sensor, communications, start/stop devices, VFD controls, time clock, bypass damper motor and power wiring, etc. Do not use wire nuts on loose wire. All wire shall be in conduit, flexible conduit or wiring harness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Division 26, ELECTRICAL, shall be responsible for point to point wiring of all starters and starting switches not factory installed in the HVAC equipment.

B. Install all components of control systems under this Section using experienced control mechanics, all in the regular employ of the Installing Contractor, or the apparatus manufacturer.

3.2 WIRING

A. Install all control, pilot circuit and interlock wiring, including wiring through interposed safety or other auxiliary control devices within the confines of the mechanical equipment only. Wiring of thermostats shall be by the Mechanical Contractor.

B. All wiring shall conform to the Local and National Electrical Codes.

C. All control and interlock wiring shall be fused at conductor capacity as shown in the National Electrical Code.

D. No splices will be allowed except at junction boxes and control centers.

E. All wires to each control device must be different colors. All wires to each device must be laced or tied at point of entry into control panel and tagged as to its point of origin.

F. All wires shall be run directly from controller or controlled device to control center. There shall be no looping of wires from one device to another external to the control centers.

G. Control voltage shall be a maximum of 120-volt, unless otherwise indicated herein.

H. Control or interlock wiring shall not be run in conduit with any power wiring other than that serving the equipment controlled.

I. Refer to Division 26, ELECTRICAL, for extent of work under that Division. Provide other wiring systems required to accomplish the work of this Section, following requirements of Division 26 for products and execution.

J. Wiring connection to terminal posts shall be made by means of compression type lugs. Wire splices shall be made with sketch locks.

K. Safety devices in motor control circuits shall be wired to interrupt the holding coil circuit regardless of the position of any selector switches in the circuit.

L. Control circuit conductors shall be sized for a maximum voltage drop of 10 percent of the circuit voltage.

M. All electrical power wiring shall conform in all respects with the provisions of the National Electrical Code and Division 26, ELECTRICAL, of the Specifications.

N. Provide all necessary contactors, switches, transformers to accomplish operating sequences.

3.3 SYSTEM CHECK-OUT

A. Check-out each system for control function through entire sequence, check calibration of instruments, reset instruments control points.

B. Owner maintenance personnel shall be made thoroughly familiar, by the contractor, with the operation and service of the project automatic temperature control circuits.

3.4 SOFTWARE FOR CONTROLS SYSTEMS

A. All software required for the operation of the temperature control system shall be furnished with the control system. The temperature controls manufacturer/contractor shall furnish the software plus two years of software updates.

B. The software shall be provided in original sealed packaging with all written/printed documentation to the Test and Balance Contractor for use in balancing the project. The temperature controls contractor shall turn the software over to the owner upon completion of the project.

END OF SECTION 23 09 00

SECTION 23 28 13 - COMMERCIAL KITCHEN HOODS

PART 1 - GENERAL

1.1 GENERAL

A. The General Section the Mechanical Specification is a part of the Commercial Kitchen Hood Specification and applies same as if herein specified.

1.2 SCOPE OF WORK

A. Furnish and install all materials, labor, tools, equipment and working plans as required to install and place in operation the complete Kitchen Hood System.

1.3 WORK INCLUDED

A. The work shall include but not be limited to the following:

1. All exhaust/make-up air ductwork
2. Fan packages
3. Kitchen hoods (Existing)
4. Insulation and controls

1.4 PLANS AND DIAGRAM

A. Working plans (drawings) shall be prepared by the contractor before commencing hood installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

1. State Fire Marshal/AHJ

B. Drawings must first be submitted to the Mechanical Engineer (POR) for approval. POR will then forward the plans to the State Fire Marshal/AHJ. Drawings must be submitted in conjunction with hood Fire Suppression Drawings. Refer to the State Fire Marshal's website for all fees, checklists, forms and requirements for submittal.

1.5 PERMITS, INSPECTIONS AND TESTS

A. All permits, fees, etc., for the installation, inspection, review or construction of the work which are required by any authority and/or agencies having jurisdiction, shall be obtained and paid for by the contractor.

B. All inspections, examinations and tests required shall be arranged and paid for by the contractor as necessary to obtain complete and final acceptance.

PART 2 - MATERIALS

2.1 KITCHEN HOOD EXHAUST DUCTWORK

A. All kitchen hood exhaust ductwork shall be constructed of 16 gauge black iron with weld seams and joints. All seams and joints shall be liquid tight. All construction of ductwork shall be in compliance with NFPA 96.

B. Cover the kitchen exhaust with a flexible wrap system listed and labeled (labeling on scrim shall include product name and certification mark) by a NRTL, Nationally Recognized Testing Laboratory. System shall be tested per internal fire test ASTM E 2336 and per ASTM E 119 engulfment test and achieve a 2 hour fire resistance rating. Wrap system shall be fully encapsulated to resist moisture absorption. System shall provide zero clearance to combustible protection at all locations on the system surface. Access doors shall be installed per the manufacturer's instructions to comply with local code. A listed and labeled firestop system must be available to seal the opening where the protected grease duct penetrates a fire rated floor or wall. The field applied grease duct enclosure system must be mechanically attached to the duct using steel banding and/or weld pins per manufacturer's instructions. System shall be NFPA 96 approved. Material shall be Unifrax FryeWrap® Elite® 1.5 3M Fire Barrier 615+ or prior approved equivalent.

2.2 KITCHEN HOOD FAN PACKAGE

A. Provide roof top pre-engineered exhaust and supply fan package(s) in sizes and quantities as shown on plans. The fan packages shall be a complete system manufactured and assembled by Greenheck, (Accurex) or prior approved equal.

B. The exhaust fan shall be constructed of heavy gauge aluminum. The fan wheel and cone shall be aluminum and of the high performance, centrifugal blower type, statically and dynamically balanced. The exhaust fan shall be constructed as to include a built-in grease drain. Motor and drives shall be isolated from the exhaust airstream and shall be located in a chamber cooled by air brought in through a tube from a location free of discharge contaminates. The entire drive assembly and wheel as unit shall be serviceable and removable through the support structure without dismantling the fan housing. The wheel shaft shall be mounted in heavy duty ball bearings. Drives shall be sized for 165 percent of driven horsepower. Motor pulleys shall be of the adjustable type for final system balancing made of cast iron and be keyed to motor and wheel shafts. The entire drive assembly shall be mounted in rubber vibration isolators. The exhaust fan assembly shall also include a rigid bird screen mounted within the discharge perimeter and a thermal barrier insulating the wheel compartment from the drive compartment. The fan shall be AMCA approved for sound and air performance and also shall be U.L. listed for grease removal in accordance with Underwriters Laboratories standards.

C. The supply fan unit shall be of the belt-driven, double width, double inlet, forward curved centrifugal blower type. The blower assembly shall be mounted on vibration isolators. Drives shall be sized for a minimum of 165 percent of driven horsepower. All exterior housing components of the supply unit shall be constructed of minimum 18 gauge galvanized steel, painted with a weatherproof finish that has been baked for durability. Heavy gauge adjustable angle iron support legs shall be furnished as required. The inlet of the unit shall contain bird screen and a bank of washable, removable air filters. Filters shall be of 1 inch aluminum mesh type, coated with filter adhesive compound and shall be U.L. Classified. The total fan package shall be furnished with a pre-wired control center which shall include, but not be limited to, a master-fused disconnect for main power. Connection, magnetic motor starters with thermal overloads and manual reset, fused 24-volt control transformer and distribution terminal strip for control wiring connection. All electrical components shall be U.L. Listed, Approved or Classified where applicable and wired in compliance with the National Electrical Code. Wiring shall be complete, requiring only one-point field connection for power service (exception: electric heater) and one-point field connection for low-voltage control harness.

D. Furnish motorized backdraft damper as integral part of supply unit. Damper unit shall open upon energization of supply fan and close upon shut-off of supply fan.

E. Furnish pre-fabricated roof curbs constructed of minimum 18 gauge galvanized steel with integral wood nailer, run-off cant and 1 inch rigid insulation. Provide curb extensions as required for exhaust fan to meet N.F.P.A. requirements for discharge height.

2.3 KITCHEN HOOD

A. Kitchen hoods are existing. Installation of existing hoods shall be by Mechanical Contractor. Furnish all hangers and stainless steel wrappers for a complete installation.

B. Contractor shall submit hood shop drawings along with hood suppression system for submittal to the Fire Marshal. Contractor shall obtain a copy of the required checklist for all requirements and shall pay all fees required.

2.4 FIRE PROTECTION SYSTEM - KITCHEN HOODS

A. GENERAL

1. The General Section of the Mechanical Specifications is a part of the Fire Protection System Specification and applies same as if herein included.

B. SCOPE OF WORK

1. Furnish all materials, labor, tools, equipment and working plans to install and place in operation the complete Hood Fire Protection System for the kitchen hood as herein specified. The contractor shall be responsible for preparing the plans, calculations, fees and Fire Marshal review of the system layout.

C. WORK INCLUDED

1. The work shall include providing hood fire protection system and shall include but not be limited to the following: all piping and fittings; automatic systems; alarm system; testing and approval; and service fees and installation cost.

D. PLAN AND DIAGRAM

1. Working plans (drawings) shall be prepared by the contractor before commencing fire protection installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

   a. State Fire Marshal.

E. HOOD FIRE PROTECTION SYSTEM

1. Furnish and install a fire protection system for the commercial type cooking hood as listed in these specs. The system shall be installed to meet the requirements of NFPA 96, NFPA 17A and UL 300. The Installing Contractor shall also prepare shop drawings for submittal to the State Fire Marshal for review. The Installing Contractor shall be responsible for paying all fees required for submittal to the state and local review agencies. The system shall be installed by all licensed hood fire protection contractor. The Installing Contractor shall be responsible for providing all certificates for Owner's records. The Installing Contractor shall make two (2) inspections of the system during the first year after acceptance by the Owner.
2. The fire protection system shall utilize a wet type fire suppression agent. The liquid agent shall be a potassium carbonate-based solution designed to suppress fires by its saponifying and cooling effects. The agent shall not require periodic replacement. For rapid fire knockdown, the agent shall have an expansion ratio of approximately 2200 to 1. It shall not have an adverse effect on stainless steel appliance, hoods and ducts.
3. The cylinder shall be manufactured and tested in accordance with DOT specifications. It shall be under coated with zinc chromate or red oxide and over coated with white high gloss enamel. The cylinder shall be pressurized to 175 psi to ensure rapid discharge at temperatures as low as 1 degree Fahrenheit. A highly polished metal enclosure shall be provided to conceal the cylinder.
4. The valve shall be heavy duty forged brass, chrome-plated. It shall incorporate an oil-filled bourdon tube gauge to indicate cylinder pressure.
5. The nozzles shall be heavy duty brass, chrome-plated. It shall incorporate a stainless steel strainer to remove scale and foreign matter from pipe or stainless steel tubing. A pure tin foil seal shall protect the nozzle orifice from grease build up. This seal shall be kept tightly in position by a threaded nut to ensure its permanence through the continuous heating-cooling cycle.
6. The system shall be designed for automatic operation with provision for remote and/or local manual control(s). Automatic operation shall be initiated by fusible metallic links, glass bulb links, or electric detectors. The links and glass bulbs are to be utilized with stainless steel cable and corner pulleys employing stainless steel ball bearings. All cable and wiring shall be enclosed in conduit. Where used, the electric detectors are to be utilized with a control panel and an electro-thermal link

that are UL listed for use with the system. All electrical work shall comply with the National Electric Code.

7. Where gas-fired appliances exist, a gas shut-off valve of either the mechanical or electrical type shall be automatically closed upon system actuation. The mechanical type shall be shut-off though the mechanical actuator or a pneumatic release installed in the discharge line. The electric type shall be wired through a manual reset relay to either micro-switch or pressure switch wired through a magnetic contactor. All work shall comply with the National Electric Code.
8. Pipe shall be black steel, stainless steel, or brass standard weight (Schedule 40). Fittings shall be malleable, ductile, or cast iron, steel, stainless steel, or brass and may be standard weight. Stainless steel tubing incorporating bends or stainless steel fittings may also be used. Fittings may be chrome-plated and piping chrome-plated or sleeved. All pipe runs shall be rigidly secured with suitable straps or hangers. Wherever possible, multiple cylinder systems shall be manifolded to minimize pipe.
9. The system shall be installed by an authorized factory trained contractor. The Installing Contractor shall visit the project to take all field measurements and verify the conditions. The Installing Contractor shall acquire and submit all plans, permits and approvals necessary for proper installation and final acceptance. Upon completion, the Installing Contractor shall conduct any and all tests required. The installation shall comply with the manufacturer's installation manual, Underwriters Laboratories listing, National Fire Protection Association Pamphlets 96 and 17A and all applicable regulatory and insurance requirements.

PART 3 - INSTALLATION

3.1 DUCTS

A. Refer to specification section 23 30 00 for any additional comments regarding general duct construction or layout.

PART 4 - EXECUTION

4.1 INSTALLATION

A. The Installing Contractor shall install to meet the manufacturer's instructions.

END OF SECTION 23 28 13

SECTION 23 30 00 - AIR DISTRIBUTION

PART 1 - GENERAL

1.1 GENERAL

A. Furnish and install all ducts for Air Conditioning, Heating, and Ventilating Systems as shown on the plans and as may be required to provide complete system. Ductwork shall be complete with grilles, vanes, flashings, hangers, flexible connections, splitters, manual dampers, fresh air inlets, louvers, reinforcing angles, etc. All ductwork shall be concealed and insulated as hereinafter specified.

1.2 COORDINATION

A. The General Contractor and Mechanical Contractor shall coordinate the space clearances required for ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. Any re-sizing required shall be part of this project and done without any additional cost to the project. DO NOT MAKE DUCTWORK WITHOUT COORDINATION.

1.3 DUCTWORK SHOP DRAWINGS

A. The Mechanical Contractor/ Sheetmetal Contractor shall prepare complete sheetmetal ductwork shop drawings showing coordination with all trades on the project. The shop drawings shall show all offsets, transitions, size changes to resolve conflict, dampers, fire dampers, grilles, air units, etc. These shop drawings shall be submitted prior to starting work and ductwork fabrication.

1.4

Sealing or flashing the building envelope due to penetrations in the building shall be the responsibility of the general contractor.

PART 2 - MATERIALS

2.1 DUCT HANGERS AND SUPPORTS

A. All ductwork shall be properly braced to prevent rattling, breathing, or other unnecessary noise. No sharp edges or obstructions shall project into air stream.

2.2 LOW PRESSURE DUCTWORK

A. All ductwork shall be galvanized steel and shall be of gauges and construction as recommended by ASHRAE Guide and Data Book and SMACNA guidelines. Gauges are as follows with longest side governing.

Dimension of longest side	Low Pressure Ductwork Sheet Metal Gauge
0"-12"	26 gauge
13"-30"	24 gauge
31"-54"	22 gauge
55"-84"	20 gauge

B. Low pressure ductwork shall be all exhaust ducts, return air ducts, fresh air ducts and supply ducts.

C. Joints and reinforcing shall be as per ASHRAE Guide and Data Book and all slips shall be installed without edge of internal part of slip facing downstream.

D. Construction standard of Article 110, of the National Board of Fire Underwriters Bulletin 90, latest edition, shall apply throughout.

E. Flashings shall be of sheet copper and shall be furnished and installed around all outside openings used for ducts of fans and wherever required. Roof flashings shall extend at least 8 inches above roof.

F. All ducts shall be straight and true and installed in a neat and workmanlike manner.

G. All edges shall be straight and true and all bends shall be made with veined turns. Where long radius turns cannot be used, the contractor shall use square turns and use air splitters spaced not more than 3 inches center to center, and of a length so air will be properly distributed over ducts.

H. All ducts shown are metal to metal dimensions.

I. Mastic shall be applied to both male and female connections (all seams and joints) to make all duct joints air tight (applies to all ductwork; round or rectangular). Surplus mastic shall be removed. Tape and re-mastic joints if necessary. Mastic (hard-cast or equivalent duct sealer : tape not acceptable) shall be applied to the joints during assembly so that sealant is on all mating surfaces of the joint.

2.3 DUCT LINERS

A. Low pressure rectangular supply ductwork shall not be lined. All supply and return air ductwork shall be wrapped with same insulation as specified for round ductwork. Exhaust ductwork shall not be insulated. LINED DUCTWORK IS NOT PERMITTED IN THIS PROJECT. WRAP ALL DUCTWORK.

2.4 FILTERS--PRIMARY

A. Units shall be equipped with low velocity filter section with 30 percent efficient 2 inches thick pleated type (Continental air filters "cono pleat" FARR 3030, American Air Filter or equal) throwaway filters.

B. Provide and install one set of filters as called for in these Specifications for initial testing and start-up and another complete set upon completion of the project.

2.5 DUCT ACCESSORIES

A. Dampers of the fusible link operated type shall be provided in all ductwork passing through floor or fire walls.

B. Provide quadrant or adjustable splitters and mark shaft to give position of splitter damper in duct.

C. Provide vanes behind every supply grille or diffuser. Splitters shall be provided where shown on plans and where located in concealed non-accessible space provided Young Regulators to operate splitter. Vanes shall be Tuttle and Bailey "Ducturns", Barber-Coleman, Uniflo, or equivalent. Shop fabricated vanes will be acceptable. All dampers shall be constructed of 14 gauge steel.

2.6 REGISTERS, GRILLES AND DIFFUSERS

A. Ceiling supply outlets, unless otherwise indicated on plans shall be Titus, Price, Nailor or approved equal. Outlets shall be mounted tight to the construction, and shall have frame suitable for type of ceiling used unless otherwise noted.

B. Return air grilles shall be as manufactured by Titus, Price, Nailor or approved equivalent and shall be of style called for on plans.

C. All supply outlets shall have sponge rubber gaskets.

D. All grilles, diffusers, and registers shall be of sizes indicated on plans or scheduled on drawings.

E. Unless otherwise shown on drawings, all grilles installed in the ceiling shall be furnished with white baked-on enamel finish.

2.7 FIRE DAMPERS

A. Furnish and install, at locations shown on plans, fire dampers constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 hour fire protection rating, 212 degrees Fahrenheit fusible link, and shall include a UL label in accordance with established UL labeling procedures. Damper manufacturer's literature

submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with AMCA Standard 500 and shall illustrate pressure drops for all sizes of dampers required at all anticipated air flow rates. Fire dampers shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing steel sleeves, angles, other materials, and practices required to provide an installation equivalent to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. Fire dampers shall be Ruskin type IBD, Arrow, Cesco, Pref-Co, or equal.

B. Fire dampers installed within 10 feet of the air handling unit or where velocities exceed 2000 fpm. Dampers shall be static type for systems with duct smoke detectors, dynamic for systems without duct detector fan shut down.

1. Furnish and install at locations within 10 feet of the air handling unit multi blade fire dampers constructed and tested in accordance with UL safety standard 555 (dynamic) that meet or exceed the following specifications:
   a. Frame shall be a minimum of 16 gauge galvanized (1.52) steel formed into a structural hat and tabbed with tabbed corners for reinforcement. The blades shall be air foil-shaped double skin with 14 gauge (1.90) equivalent thickness. Bearing shall be stainless steel sleeve turning in an extruded hole in the frame.
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in accordance with established labeling procedure.
   c. Damper manufacturers' literature submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with the UL 555 standard.
   d. Fire dampers shall have been tested to close under dynamic air flow conditions with pressures up to 4 inches w.g. and to 4,000 fpm air velocity.
   e. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
   f. Fire dampers shall be installed in a wall or floor opening using steel sleeves, angles and other materials and practices required to provide an installation equivalent used by manufacturer when damper was tested at UL. Installation shall be in accordance with the damper manufacturers' instructions.

C. Fire dampers installed beyond 10 feet of the air handling unit and where velocities are under 2000 fpm.

1. Furnish and install at locations shown on plan fire dampers constructed and tested in accordance with UL safety standard 555.
   a. Fire dampers shall have been tested to close under dynamic air flow conditions and be labeled as a dynamic fire damper (static fire dampers are not allowed).
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in this specification accordance with UL 555 standards, and a dynamic label that shall illustrate maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable at 4 inches static pressure for un-ducted, in-wall mounting.

c. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
d. Fire dampers shall be installed in wall and floor openings using steel sleeves, angles and other materials and practices required to provide an installation equivalent to that used by the manufacturer when dampers were tested at UL. Installation shall be in accordance with damper manufacturers' instructions.

D. Round fire dampers: All systems with pressures to 6 inches w.q. and velocities to 4000 fpm.

1. Furnish and install at locations shown on plans, or as described in schedules, round fire dampers meeting or exceeding the following specifications.
   a. Frame shall be a minimum of 20 gauge galvanized steel and blade shall be two piece equivalent to 14 gauge minimum galvanized. Bearings shall be stainless steel sleeve with grooves to receive the 20 gauge retaining plate for damper mounting.
   b. Each round fire damper shall be 1-1/2 hour fire rated under UL standard 555, and bear a UL label attesting to same.
   c. Each round fire damper shall be equipped with a Fuse Link which shall activate at (specifier select one) 165 degrees, 212 degrees, causing damper to close in a locked position.
   d. Manufacturer must provide UL installation instructions for both masonry walls and metal stud drywall partitions.

2.8 PRE-INSULATED FLEXIBLE DUCT

A. Flexible duct shall be rated for a maximum pressure of 16 inches (4-10 inches I.D.) or 10 inches (12-16 inches I.D.) water column positive pressure and 2 inches water column maximum negative pressure and 6000 FPM maximum velocity and listed by Underwriters Laboratories, Inc. under UL Standard 181 as a Class 1 air duct complying with NFPA Standards 90A and 90B. Flexible air duct shall be factory-made and composed of an inner duct of woven and coated fiber glass fabric providing an air seal and permanently bonded to coated steel wire helix, a fiber glass insulating blanket with minimum R-8.0 value (minimum 2 inch thickness) and low permeability outer vapor barrier of fiberglass reinforced metalized film laminate. Flexible air ducts shall be Thermaflex M-KC or Flexmaster type 4M with minimum R-8.0 insulation to meet ASHRAE 90.1 energy code. Maximum installed length shall not exceed 3 feet-0 inches without approval.

PART 3 - INSTALLATION

3.1 DUCTS

A. Ductwork shall be constructed and installed as follows:

1. Straight and smooth on inside with joints neatly finished unless otherwise directed.

2. Duct panels through 48 inch dimension having acoustic duct liner need not be crossbroken or beaded.
3. Crossbreak unlined ducts and duct panels larger than 48 inches or bead 12 inches on center.
4. Securely anchor ducts to building structure with specified duct hangers attached with screws.
5. Brace and install ducts so they shall be free of vibration under all conditions of operation.
6. Ducts shall not bear on the top of structural member.
7. Make duct take-offs to branches, registers, grilles, and diffusers as detailed on Drawings.
8. Properly flash where ducts protrude above roof.
9. Install internal ends of slip joints in direction of flow. Make joints air tight using specified duct sealer.

B. Install flexible duct connections to each air handling unit.

C. Provide each take-off with an adjustable volume damper to balance that branch.

1. Anchor dampers securely to duct.
2. Install dampers in main ducts within insulation.
3. Dampers in branch ducts shall fit against sheet metal walls, bottom and top of duct, and be securely fastened.
4. Where concealed ceiling damper regulators are installed, provide a cover plate.

D. Install grilles, registers, and diffusers.

3.2 AIR TURNS

A. Permanently installed, consisting of curved metal blades or vanes arranged to permit air to make abrupt turn without appreciable turbulence, in elbows of supply and above ground return ductwork.

B. Air turns shall be quiet and free from vibration when system is in operation.

END OF SECTION 23 30 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 70 00 - AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Air Conditioning System, in general, shall be for the entire building providing cooling and dehumidification in summer and heating in winter. A constant amount of fresh air shall be taken into the system and all air shall be filtered.

B. The General Contractor (Prime Contractor) who has the contracts with the Owner shall be responsible for installing the mechanical systems using qualified subcontractors and/or employees. Any incorrect or improper work shall be corrected by the General Contractor.

C. The General Contractor shall be the sole source responsible party to furnish and install the mechanical system. General Contractor shall be properly licensed to perform this work.

1.2 STANDARDS

A. All air conditioning equipment shall comply with the requirements of applicable ARI standards and shall be tested, rated, labeled, and listed accordingly.

1.3 SPACE REQUIREMENTS

A. General Contractor and Mechanical Contractor shall refer to architectural, structural and electrical drawings and install all equipment, piping, etc. to meet building and space requirements. No equipment shall be bid on or submitted for approval if it will not fit into the space provided or coordinate with other trades involved on the project.

1.4 COMPRESSOR WARRANTIES

A. On all packaged and/or split system DX equipment 5 tons and below, the manufacturer shall provide a full 10 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

B. On all packaged and/or split system DX equipment 6 tons and larger, the manufacturer shall provide a full 5 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

C. The manufacturer shall warranty all parts, labor and refrigerant systems on the entire unit for the warranty period. In addition, annually, the manufacturer's service technicians

shall make a warranty check inspection of the unit with report to the Owner. This warranty shall not include any equipment maintenance; all equipment maintenance is the responsibility of the Owner. The manufacturer shall have full access to the units during the construction period.

D. If a longer warranty period is required elsewhere in these specs, the longer warranty period shall apply.

PART 2 - MATERIALS

2.1 PIPING

A. All piping shall be of materials as hereinbefore specified.

2.2 PACKAGED OUTSIDE AIR UNIT (100% OUTSIDE AIR)

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

1. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
2. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
3. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
4. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
5. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.
6. Unit shall be approved for use in and outside High Velocity Hurricane Zones (HVHZ) by the Florida Building Code (FL# 15031), when using the required steel rooftop curb and attachment methods. Maximum allowable lateral wind pressure is +100psf/-100psf. Maximum allowable uplift is +50psf/-50psf. Positive and negative required design pressures calculated for use with this system shall be determined by others on a job specific basis, in accordance with the governing code. Site specific pressures shall be less than or equal to the listed positive or negative allowable lateral wind design pressure and allowable uplift values for the product.

B. Manufacturer shall provide a limited "parts only" warranty for a period of 24 months from the date of equipment startup or 30 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for Installation, Operation, and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and filters.

C. Products shall be provided by the following manufacturers:

1. AAON, Addison or approved Equal
2. Substitute equipment may be considered for approval that includes at a minimum:
   a. R-410A refrigerant
   b. Variable capacity compressor with 10-100% capacity control
   c. Direct drive supply fans
   d. Double wall cabinet construction
   e. Insulation with a minimum R-value of 13
   f. Stainless steel drain pans
   g. Hinged access doors with lockable handles
   h. All other provisions of the specifications must be satisfactorily addressed

D. General Description

1. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, gas heaters, and unit controls.
2. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.
3. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
4. Unit components shall be labeled, including refrigeration system components and electrical and controls components.
5. Estimated sound power levels (dB) shall be shown on the unit ratings sheet.
6. Installation, Operation, and Maintenance manual shall be supplied within the unit.
7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

E. Construction

1. All cabinet walls, access doors, and roof shall be fabricated of double wall, impact resistant, rigid polyurethane foam panels.
2. Unit insulation shall have a minimum thermal resistance R-value of 13. Foam insulation shall have a minimum density of 2 pounds/cubic foot and shall be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.
3. Unit construction shall be double wall with G90 galvanized steel on both sides and a thermal break. Double wall construction with a thermal break prevents moisture accumulation on the insulation, provides a cleanable interior, prevents heat transfer through the panel, and prevents exterior condensation on the panel.
4. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel

deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width. Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

5. Roof of the air tunnel shall be sloped to provide complete drainage. Cabinet shall have rain break overhangs above access doors.
6. Access to filters, dampers, cooling coils, reheat coil, heaters, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges shall be included on the doors.
7. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
8. Units with cooling coils shall include double sloped 304 stainless steel drain pans.
9. Unit shall be provided with base discharge and return air openings. All openings through the base pan of the unit shall have upturned flanges of at least 1/2 inch in height around the opening.
10. Unit shall include lifting lugs on the top of the unit.
11. Unit base pan shall be provided with 1/2 inch thick foam insulation.

F. Electrical

1. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.
2. Unit shall be provided with a factory installed and factory wired 115V, 13 amp GFI outlet disconnect switch in the unit control panel.

G. Supply Fans

1. Unit shall include direct drive, unhoused, backward curved, plenum supply fans.
2. Blowers and motors shall be dynamically balance and mounted on rubber isolators.
3. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
4. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

H. Cooling Coils

1. Evaporator Coils
   a. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled.
   b. Coils shall have interlaced circuitry and shall be 6 row high capacity.
   c. Coils shall be hydrogen or helium leak tested.
   d. Coils shall be furnished with factory installed expansion valves.

I. Refrigeration System

1. Unit shall be factory charged with R-410A refrigerant.
2. Compressors shall be scroll type with thermal overload protection and carry a 10 year non-prorated warranty, from the date of original equipment shipment from the factory.
3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors shall be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.
4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
5. Each refrigeration circuit shall be equipped with expansion valve type refrigerant flow control.
6. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides and a factory installed replaceable core liquid line filter driers.
7. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
8. Lead refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
9. Each refrigeration circuit shall be equipped with a liquid line sight glass.
10. Each refrigeration circuit shall be equipped with suction and discharge compressor isolation valves.

J. Condensers

1. Air-Cooled Condenser
   a. Condenser fans shall be a vertical discharge, axial flow, direct drive fans.
   b. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.
   c. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
   d. Coils shall be hydrogen or helium leak tested.
   e. Condenser fans shall be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow shall continuously modulate based on head pressure and cooling operation shall be allowed down to 35°F with adjustable compressor lockout.

K. Gas Heating

1. Stainless steel heat exchanger furnace shall carry a 25 year non-prorated warranty, from the date of original equipment shipment from the factory.
2. Gas furnace shall consist of stainless steel heat exchangers with multiple concavities, an induced draft blower and an electronic pressure switch to lockout the gas valve until the combustion chamber is purged and combustion airflow is established.
3. Furnace shall include a gas ignition system consisting of an electronic igniter to a

pilot system, which will be continuous when the heater is operating, but will shut off the pilot when heating is not required.

4. Unit shall include a single gas connection and have gas supply piping entrances in the unit base for through-the-curb gas piping and in the outside cabinet wall for across the roof gas piping.
5. Natural gas furnace shall be equipped with modulating gas valves, adjustable speed combustion blowers, stainless steel tubular heat exchangers, and electronic controller. Combustion blowers and gas valves shall be capable of modulation. Electronic controller includes a factory wired, field installed supply air temperature sensor. Sensor shall be field installed in the supply air ductwork. Supply air temperature setpoint shall be adjustable on the electronic controller within the controls compartment.

L. Filters

1. Unit shall include 2 inch thick, pleated panel filters with an ASHRAE efficiency of 30% and MERV rating of 8, upstream of the cooling coil.
2. Unit shall include 1 inch aluminum mesh pre filters upstream of the outside air opening.

M. Outside Air/Economizer

1. Unit shall include 100% motor operated outside air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge and end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return, 2 position actuator. Unit shall include outside air opening bird screen and outside air hood.

N. Controls

1. Factory Installed and Factory Provided Controller
   a. Unit controller shall be capable of controlling all features and options of the unit. Controller shall be factory installed in the unit controls compartment and factory tested. Controller shall be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.
   b. Controller shall have an onboard clock and calendar functions that allow for occupancy scheduling.
   c. Controller shall include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.
   d. Makeup Air Controller
      1) Unit shall modulate cooling with constant airflow to meet ventilation outside air loads. Cooling capacity shall modulate based on supply air temperature.
      2) With modulating hot gas reheat, unit shall modulate cooling and hot gas reheat as efficiently as possible, to meet outside air humidity loads and prevent supply air temperature swings and overcooling of the space.

3) Unit shall modulate heating with constant airflow to meet ventilation outside air loads. Heating capacity shall modulate based on supply air temperature.

e. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling shall be accomplished with connection to interface module with LCD screen and input keypad, interface module with touch screen, or with connection to PC with free configuration software. Controller shall be capable of connection with other factory installed and factory provided unit controllers with individual unit configuration, setpoint adjustment, sensor status viewing, and occupancy scheduling available from a single unit. Connection between unit controllers shall be with a modular cable. Controller shall be capable of communicating and integrating with a LonWorks or BACnet network.

O. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.

P. Installation, Operation, and Maintenance manual shall be supplied with the unit. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install air conditioning systems in accordance with Section 23 05 00.

B. Mount equipment complete with piping system, roof curbs and air distribution system, and provide for power connection.

C. Complete structural, mechanical, and electrical connections in accordance with manufacturer's installation instructions.

3.2 TESTING

A. Refrigerant lines shall be tested under 200 psi carbon dioxide pressure for 5 hours using soap suds at joints to test for leaks. Evacuate system and charge with refrigerant.

B. All line testing shall be witnessed by the Test and Balance Agency (TAB). TAB Agency shall record results and include in final TAB report.

END OF SECTION 23 70 00

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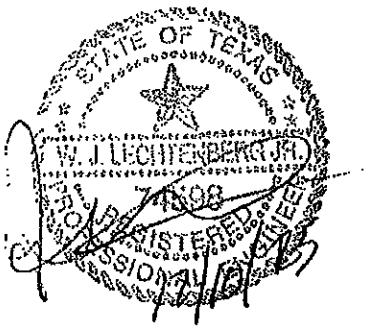


FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 , Type XHHW-2 and Type SO.

C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

F. Branch Circuits Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

H. Flexible Connections to Lighting Fixtures: Type MC cable with maximum length of six feet.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. ILSCO.
4. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Pad-Mounted Transformers and Switches: Install two ground rods around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for taps to equipment grounding terminals.

3.4 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

3.5 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION 260526

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
2. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Mechanical-Expansion Anchors: Insert-wedge-type, **[zinc-coated] [stainless]** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.2 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. GRC: Comply with ANSI C80.1 and UL 6.

C. EMT: Comply with ANSI C80.3 and UL 797.

D. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

E. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Fittings for EMT:

a. Material: die cast.
b. Type: compression.

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

F. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Continuous HDPE: Comply with UL 651B.

D. Fittings for RNC: Comply with NEMA TC 3; match to conduit type and material.

E. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5.

C. Tele-Power Poles:

1. Material: Aluminum with clear anodized finish.
2. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials (top and bottom), and other fittings shall match and mate with tele-power pole as required for complete system. This project uses both sides for power raceways.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Metal Floor Boxes:

1. Material: Cast metal.
2. Type: Fully adjustable.
3. Shape: Square.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

K. Gangable boxes are prohibited.

L. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

M. Cabinets:

1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC or RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried or concrete encased.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC.
4. Concealed In Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Damp or Wet Locations: GRC.
7. Boxes and Enclosures: NEMA 250, Type 1.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use compression, cast-metal fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Raceways Shall not be Embedded in Slabs:

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

K. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

M. Surface Raceways:

1. Install surface raceway with a minimum 2-inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

N. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.

O. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

P. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC in damp or wet locations not subject to severe physical damage.

Q. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

R. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.

S. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

T. Locate boxes so that cover or plate will not span different building finishes.

U. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

V. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

W. Set metal floor boxes level and flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit.
2. Install backfill as specified in Section 312000 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
4. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Warning labels and signs.
3. Equipment identification labels.
4. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.3 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.4 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.5 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

F. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
1. Power.

B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
b. Colors for 208/120-V Circuits:

1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

C. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Distribution, dry-type transformers rated 600 V and less, with capacities up to 1500 kVA.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Source quality-control reports.

B. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company.
2. Square D; by Schneider Electric.

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Transformers Rated 15 kVA and Larger: Comply with NEMA TP 1 energy-efficiency levels as verified by testing according to NEMA TP 2.

1. Coil Material: Copper.

D. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated.

2.3 DISTRIBUTION TRANSFORMERS

A. Comply with NFPA 70, and list and label as complying with UL 1561.

B. Cores: One leg per phase.

C. Enclosure: Ventilated.

1. NEMA 250, Type 3R: Core and coil shall be encapsulated within resin compound utilizing a vacuum pressure impregnation process to seal out moisture and air.

D. Transformer Enclosure Finish: Comply with NEMA 250.

1. Finish Color: NSF/ANSI 49 gray.

E. Taps for Transformers 3 kVA and Smaller: One 5 percent tap above normal full capacity.

F. Taps for Transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.

G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

H. Insulation Class, Smaller than 30 kVA: 185 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

I. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

2.4 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical Systems."

2.5 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from adjacent wall surface.

D. Construct concrete bases according to Section 033000 "Cast-in-Place Concrete" and anchor floor-mounted transformers according to manufacturer's written instructions and requirements in Section 260529 "Hangers and Supports for Electrical Systems."

1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

E. Secure transformer to concrete base according to manufacturer's written instructions.

F. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.

G. Remove shipping bolts, blocking, and wedges.

3.2 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS for dry-type, air-cooled, low-voltage transformers. Certify compliance with test parameters.

B. Remove and replace units that do not pass tests or inspections and retest as specified above.

C. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.

1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

3.4 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.

C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 262200

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

C. Field quality-control reports.

D. Panelboard schedules for installation in panelboards.

E. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

a. Indoor Dry and Clean Locations: NEMA 250, Type 1 or Type 12. See drawings.
b. Outdoor Locations: NEMA 250, Type 3R.

2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
3. Directory Card: Inside panelboard door, mounted in transparent card holder.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus Configured Terminators: Mechanical type.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, power and feeder distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

D. Mains: Circuit breaker, as indicated on plans.

E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs as indicated on plans.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

a. Standard frame sizes, trip ratings, and number of poles.
b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
f. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
g. Handle Lock Device: Loose attachment, for holding circuit-breaker handle in on position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.

B. Mount top of trim 90 inches above finished floor unless otherwise indicated.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and Inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262416

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.5 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Single Pole:

1) Cooper; AH1221.
2) Hubbell; HBL1221.
3) Leviton; 1221-2.
4) Pass & Seymour; CSB20AC1.

b. Two Pole:

1) Cooper; AH1222.
2) Hubbell; HBL1222.
3) Leviton; 1222-2.
4) Pass & Seymour; CSB20AC2.

c. Three Way:

1) Cooper; AH1223.
2) Hubbell; HBL1223.
3) Leviton; 1223-2.
4) Pass & Seymour; CSB20AC3.

d. Four Way:

1) Cooper; AH1224.
2) Hubbell; HBL1224.
3) Leviton; 1224-2.
4) Pass & Seymour; CSB20AC4.

C. Pilot-Light Switches, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "on."

2.6 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. Fluorescent Lamp and LED Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 5 percent of full brightness.

2.7 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with in-use, lockable cover.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect on a room by room basis unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use Instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:

a. Control circuits.
b. Enclosed switches.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Bussmann; a division of Cooper Industries.
2. Edison; a brand of Cooper Bussmann; a division of Cooper Industries.
3. Littelfuse, Inc.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
3. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Fuse rating shall be in accordance with equipment nameplate.

3.2 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Molded-case circuit breakers (MCCBs).
4. Enclosures.

1.2 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Lugs: Suitable for number, size, and conductor material.

2.2 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Lugs: Suitable for number, size, and conductor material.

2.3 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

D. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Suitable for number, size, trip ratings, and conductor material.
3. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
4. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.

2.4 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

B. Install fuses in fusible devices. Verify exact fuse rating with equipment nameplate.

C. Comply with NECA 1.

3.2 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262913 - ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes the following enclosed controllers rated 600 V and less:

1. Full-voltage manual.
2. Full-voltage magnetic.

1.2 DEFINITIONS

A. CPT: Control power transformer.

B. MCCB: Molded-case circuit breaker.

C. MCP: Motor circuit protector.

D. N.C.: Normally closed.

E. N.O.: Normally open.

F. OCPD: Overcurrent protective device.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed controller.

B. Shop Drawings: For each enclosed controller. Include dimensioned plans, elevations, sections, details, and required clearances and service spaces around controller enclosures.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FULL-VOLTAGE CONTROLLERS

A. General Requirements for Full-Voltage Controllers: Comply with NEMA ICS 2, general purpose, Class A.

B. Motor-Starting Switches: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off or on.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Nonreversing.
3. Surface mounting.
4. Pilot light.

C. Fractional Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Two speed.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

D. Integral Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters and sensors in each phase, matched to nameplate full-load current of actual protected motor and having appropriate adjustment for duty cycle; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

E. Magnetic Controllers: Full voltage, across the line, electrically held.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Contactor Coils: Pressure-encapsulated type.

    a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.

4. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
5. Control Circuits: 120-V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices. (100VA extra minimum.)

6. Solid-State Overload Relay:

    a. Switch or dial selectable for motor running overload protection.
    b. Sensors in each phase.
    c. Class 10/20 selectable tripping characteristic selected to protect motor against voltage and current unbalance and single phasing.

7. External overload reset push button.

F. Combination Magnetic Controller: Factory-assembled combination of magnetic controller, OCPD, and disconnecting means.

G. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

4. MCP Disconnecting Means:

   a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents, instantaneous-only circuit breaker with front-mounted, field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
   b. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
   c. Auxiliary contacts "a" arranged to activate with MCP handle.

2.2 ENCLOSURES

A. Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.

1. Dry and Clean Indoor Locations: Type 1.
2. Outdoor Locations: Type 3R.

2.3 ACCESSORIES

A. Push Buttons, Pilot Lights, and Selector Switches: NEMA ICS 5; heavy-duty type; factory installed in controller enclosure cover unless otherwise indicated. (Start-Stop, HOA, Red Pilot Light)

B. Control Relays: Auxiliary and adjustable time-delay relays.

C. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays: Solid-state sensing circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage, overvoltage, and time-delay settings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Wall-Mounted Controllers: Install enclosed controllers on walls with tops at uniform height, and with disconnect operating handles not higher than 79 inches above finished floor, unless otherwise indicated, and by bolting units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks complying with Section 260529 "Hangers and Supports for Electrical Systems."

B. Install fuses in each fusible-switch enclosed controller.

C. Install fuses in control circuits if not factory installed. Comply with requirements in Section 262813 "Fuses."

D. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been installed.

E. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

3.3 CONTROL WIRING INSTALLATION

A. Install wiring between enclosed controllers and remote devices and facility's central control system. Comply with requirements in Section 260523 "Control-Voltage Electrical Power Cables."

B. Bundle, train, and support wiring in enclosures.

C. Connect selector switches and other automatic-control selection devices where applicable.

1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switch is in manual-control position.
2. Connect selector switches with enclosed-controller circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed controller, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Inspect controllers, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
2. Test insulation resistance for each enclosed-controller element, component, connecting motor supply, feeder, and control circuits.
3. Test continuity of each circuit.
4. Verify that voltages at controller locations are within plus or minus 10 percent of motor nameplate rated voltages. If outside this range for any motor, notify Engineer before starting the motor(s).
5. Test each motor for proper phase rotation.
6. Perform each electrical test and visual and mechanical inspection stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed controllers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Set field-adjustable switches and overload-relay pickup and trip ranges.

B. Adjust the trip settings of MCPs and thermal-magnetic circuit breakers with adjustable instantaneous trip elements. Initially adjust to six times the motor nameplate full-load ampere ratings and attempt to start motors several times, allowing for motor cooldown between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed eight times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Engineer before increasing settings.

3.6 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain enclosed controllers.

END OF SECTION 262913

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 264313 - SURGE PROTECTION FOR LOW-VOLTAGE POWER CIRCUITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For manufacturer's special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

A. SPDs: Comply with UL 1449, Type 2.

1. Include LED indicator lights for power and protection status.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.

B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:

1. Line to Neutral: 700 V for 208Y/120 V.
2. Line to Ground: 700 V for 208Y/120 V.
3. Neutral to Ground: 700 V for 208Y/120 V.
4. Line to Line: 1200 V for 208Y/120 V

D. SCCR: Equal or exceed 100 kA.

E. Inominal Rating: 20 kA.

2.3 ENCLOSURES

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.

1. Compare equipment nameplate data for compliance with Drawings and Specifications.
2. Inspect anchorage, alignment, grounding, and clearances.
3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.3 DEMONSTRATION

A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 264313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

1.2 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, arranged by designation.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires and lamps. See Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of luminaire.

B. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Recessed Fixtures: Comply with NEMA LE 4.

C. CRI of minimum 80. CCT of 4100 K.

D. Rated lamp life of 50,000 hours.

E. Lamps dimmable from 100 percent to 0 percent of maximum light output.

F. Internal driver.

G. Nominal Operating Voltage: 120 V ac or 277 V ac. See Drawings.

1. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

H. Housings:

1. Extruded-aluminum housing and heat sink.
2. White, painted finish.

2.2 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging

B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools.

Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers, and Globes:

1. Clear, UV-stabilized acrylic.
2. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear per plan, powder-coat finish.

2.3 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.4 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports: Sized and rated for luminaire weight.

E. Flush-Mounted Luminaire Support: Secured to outlet box.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

G. Ceiling-Mounted Luminaire Support:

1. Ceiling mount with two 5/32-inch diameter aircraft cable supports adjustable to 120 inches in length.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

J. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 265119

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Addressable interface device.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Locate detectors according to manufacturer's written recommendations.

12. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

a. Trained and certified by manufacturer in fire-alarm system design.
b. NICET-certified, fire-alarm technician; Level III minimum.
c. Licensed or certified by authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

C. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment.
d. Riser diagram.
e. Record copy of site-specific software.
f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

g. Manufacturer's required maintenance related to system warranty requirements.
h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Fire-extinguishing system operation.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
5. Record events in the system memory.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, or remote annunciator.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 FIRE-ALARM CONTROL UNIT

A. The Fire Alarm Control Unit is an existing system and this project shall provide the additional components to expand system to include the new facility..

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38.

1. Dual-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
    c. Multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

C. Ionization Smoke Detector:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.6 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature or a rate of rise.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.

2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.7 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464.

C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- high letters on the lens.

1. Mounting: Wall mounted unless otherwise indicated.
2. Flashing shall be in a temporal pattern, synchronized with other units.
3. Strobe Leads: Factory connected to screw terminals.
4. Mounting Faceplate: Factory finished, red.

2.8 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.9 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.

2. Store an internal identifying code for control panel use to identify the module type.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

C. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

D. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

E. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

G. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

2. Exposed pathways conductors shall be red.

B. Pathways shall be installed in EMT.

C. Exposed EMT junction boxes shall be painted red enamel.

3.3 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Smoke dampers in air ducts of designated HVAC duct systems.
2. Magnetically held-open doors.
3. Electronically locked doors and access gates.
4. Alarm-initiating connection to elevator recall system and components.
5. Supervisory connections at valve supervisory switches.
6. Supervisory connections at elevator shunt-trip breaker.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

3.5 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect and authorities having jurisdiction.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter.
b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.7 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111

SECTION 310000 - GEO-TECHNICAL INVESTIGATION REPORTS

GENERAL

A. The report reproduced on the following pages is an exact copy of the original Subsurface Investigation Report for the Ford Park Multi-Sports Facility, Beaumont, Texas, prepared by Science Engineering, Inc.

B. Procedures and precautions recommended in the following Subsurface Investigation Report and attachments are to be strictly followed by the contractor. Where the technical sections of these specifications differ from the recommendations of the Subsurface Investigation Report, the more stringent requirement shall govern.

C. The Contractor is responsible for examining the site and determining the nature of the materials to be excavated.

D. Contractor shall be responsible for paying for all failed tests. Geo-Technical inspection service will bill all failed tests directly to the Contractor. Evidence of payment shall be a requirement for substantial completion.

SUBSURFACE SOILS INVESTIGATION REPORT FOLLOWS IN ITS ENTIRETY AND COMPLETES SECTION 310000.

SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

GEOTECHNICAL INVESTIGATION

FOR

FORD PARK MULTI-SPORTS FACILITY

IN

BEAUMONT, TEXAS

REPORT NUMBER 14260

REPORTED TO:

AMERICAN BUILDERS
9405 COLLEGE STREET
BEAUMONT, TEXAS 77707

NOVEMBER 2014

PREPARED BY:
SCIENCE ENGINEERING, LTD.

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

GEOTECHNICAL INVESTIGATION
Multi-Sports Facility
Beaumont, Texas

INTRODUCTION

The study reported herein is a preliminary investigation of subsurface conditions for the new Ford Park Multi-Sports Facility in Beaumont, Texas.

AUTHORIZATION

This investigation was authorized by Mr. Don King, P.E. by e-mail dated November 5, 2014.

SUBSURFACE EXPLORATION

The subsurface exploration at the site was accomplished by means of two (2) undisturbed sample core borings drilled to depths of approximately twenty (20) feet below existing ground surface. Approximate locations of the borings are shown on the attached boring plan.

SUBSURFACE INVESTIGATION

The subsurface investigation consisted of drilling three-inch nominal diameter core borings. Undisturbed samples of the cohesive soils were obtained from the borings by means of thin-wall, seamless steel Shelby tube samplers, in accordance with the ASTM D-1587 method. The shear strength of the cohesive soil samples was estimated by hand pentrometer in the field.

All undisturbed samples were extracted mechanically from the core barrels in the field, classified, wrapped in aluminum foil, and sealed in airtight plastic bags to prevent moisture loss and disturbance. The samples were transported to our laboratory for testing and further study.

LABORATORY INVESTIGATIONS

All samples from borings were examined and classified in the laboratory by a soil engineer, according to procedures outlined in ASTM D-2488. Laboratory tests were performed on selected soil samples in order to evaluate the engineering properties of the soil in accordance with the indicated standard procedures.

LABORATORY TESTS	STANDARD TESTS
Atterberg Limits (L.L., P. L., P.I.)	ASTM D-4318
Soil Moisture Content	ASTM D-2216
Unconfined Compressive Strength	ASTM D-2266
Soils Classification	ASTM D-2487

Undrained shear strength of selective cohesive soils was determined by unconfined compression tests. Water content and dry unit weight of the foundation soils were determined as routine parts of the unconfined compression tests. Atterberg limits tests were performed on appropriate cohesive samples. The results of these tests are shown on the attached boring logs.

SUBSURFACE CONDITIONS

Specific types and depths of subsurface strata encountered on the site are shown on the attached boring logs. Review of the boring logs indicates that generalized stratography is approximately as follows:

Stratum No.	Average Depth, feet	Description of Strata
I	0.00 - 6.00	Dark Gray CLAY (CH)
II	6.00 - 17.00	Tan and Gray CLAY (CH) with ferrous nodules and slickensides
III	17.00 - 20.00	Tan and Gray SANDY CLAY (CL)

The near surface soils are "CH" type soils when classified by the unified soils classification system. This type soil normally exhibits high swell potential during seasonal moisture variations.

Hydrostatic water was not encountered at the time of drilling.

CONSTRUCTION VARIATIONS

The information contained in this report summarizes conditions found on the date that the borings was drilled. The depth to the static water table may be expected to vary with the environmental variations, such as frequency and magnitude of precipitation and the time of year that construction begins.

DESIGN ANALYSIS AND RECOMMENDATIONS

Information available to this office indicates that the proposed construction at the site will consist of a new multi-sports facility.

DRILLED FOOTINGS (UNDERREAMS)

From analysis of the borings logs and laboratory tests results, it is recommended that the structural loads be transmitted to the foundation soils by the use of drilled and underreamed type footings. Footings should extend to a depth of nine feet (9') below existing ground surface to be located in Tan and Gray Clay. Utilizing a minimum factor of safety of three for dead load, or a minimum factor of two for total load, the allowable bearing capacity of the foundation soils for circular type footings is given as follows. 2,500 Pounds per square foot (PSF) for dead load, plus long term live loads and 3,700 PSF for total load. Whichever is critical should be used. The allowable loads given can be increased by thirty percent (30%) for wind or temporary lateral loading.

Due to the presence of slickensides at the recommended depth, we suggest that the bell to shaft ratio for the footings be limited to one to two (1:2).

There is potential for upward movement of the plastic clays in contact with the sides of the piers; the pier shafts should be well reinforced throughout their length resist tensional force.

STRUCTURE FOUNDATION

Each footing excavation should be inspected by the project's Engineer, Architect or Owner's representative prior to placing concrete to insure that (a) the footing has been constructed at the correct depth and the correct formation established by previously mentioned criteria, (b) the footing is concentric with the pier shaft or column, and (c) excessive cuttings, build-up or any soft-compressible material(s) have been removed from the bottom of the excavation.

Placement of concrete should be accomplished as soon as possible to prevent changes in the state of stress and the caving of the foundation soils. No footings should be poured without the prior approval of the projects' Engineer, Architect or Owner's representative.

FOUNDATION SETTLEMENT

A detailed settlement analysis was not within the scope of this study. It is anticipated that the footings designed, using the recommended allowable bearing pressures, will experience small settlements that will be well within the tolerable limit for the proposed structure.

FLOOR SLABS AND GRADE BEAMS

Review of the Atterberg Limits determinations indicates that the surface soils are "CH" type soils, with high plasticity, which may exhibit expansion during seasonal wetting and drying cycles. We believe that conventional "slab-on-fill" construction may be used for the interior portion of the structures built at the site. Select fill, a minimum of thirty-six-inch (36") thickness should be used to bring the structure to grade.

Prior to placement of select fill, strip site sufficiently to remove all topsoil, existing vegetation and roots larger than ½" in diameter to an approximate depth of twelve (12) inches. Then scarify the subgrade, add moisture, if necessary, and recompact to 95% of the maximum dry density as determined by ASTM D-698 (Standard Proctor). The moisture content at the time of compaction of subgrade soils should be within +1 to +3% of the proctor optimum value.

Select fill should then be placed, under laboratory control, in no greater than eight-inch (8") loose layers, and compacted to a minimum of 95% of the maximum dry unit weight, as obtained in the laboratory by means ASTM D-698 procedure. Moisture content of ±2% optimum should be maintained during placement of the select fill material. A vapor barrier consisting of six (6) mil Polyethylene shall be placed between the select fill and concrete slab.

The material used as select fill should consist of a non-active sandy clay or clayey sand type substance, having a Liquid Limit of 36 or less and Plasticity Index (P.I.) varying from 10 to 20.

SITE PREPARATION

In order to remedy construction problems, which may develop if attempts are made to work the surface materials following prolonged periods of rainfall which are common to this area, it is recommended that prior to starting any work at the site that proper construction drainage is to be provided to maintain a relatively dry construction site. (Use a minimum slope of 5% within 10 feet of the foundation).

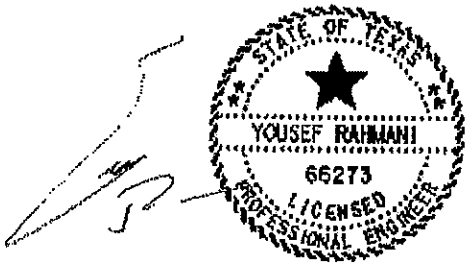
LIMITATIONS

The conclusions and recommendations given in this report are based on the analysis of the data collected for this project. Additive conclusions or recommendations made from this data by others are their responsibility.

Our study is based on the data obtained from soil borings made at the locations shown on borings plan. The nature and extent of variations between borings may become evident during construction. We should be requested to observe exposed conditions. After making these observations, and noting the engineering significance of variations, we will advise you of any changes in recommendations believed appropriate.

We appreciate this opportunity to provide our services to this project. Please let us know if you require additional information. Thank you.

Respectfully submitted for the firm,
TBPE Registration No. 4060



Yousef Rahmani, P.E.
President

Encl.: Boring Plan
Boring Logs 1 and 2
Geotechnical Chart/Symbols

Copies: 2 – Client
1- Fitz & Shipman, Inc.
1- SEL File 14260

YR/nb

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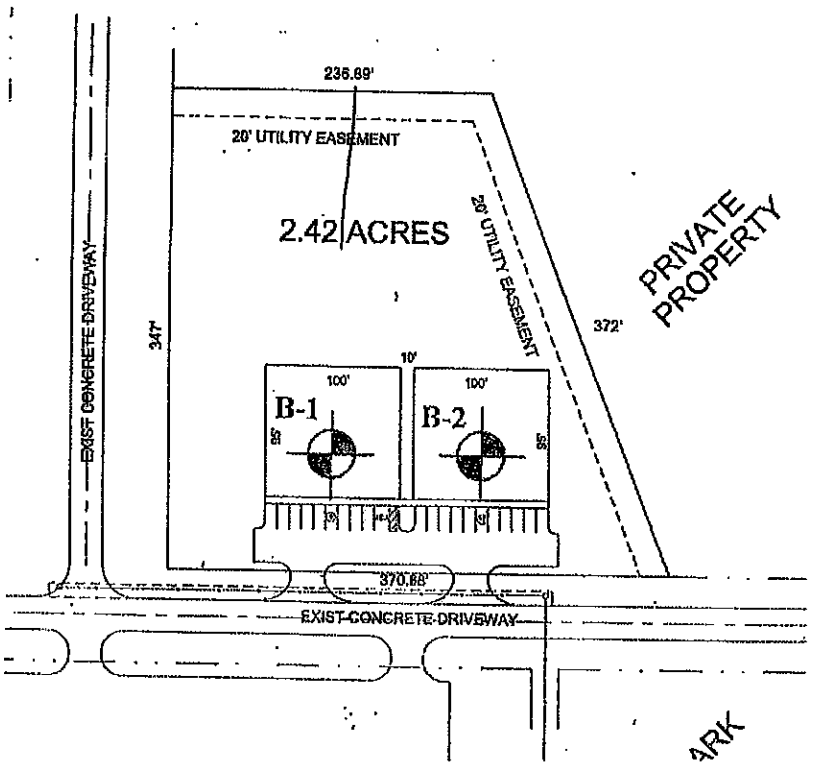
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

Report Number 14260



FORD PARK MULTI-SPORTS FACILTIY
BEAUMONT, TEXAS

BORING PLAN

NOVEMBER 2014

NOT TO SCALE

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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Boring Number: B-1
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY								
							71	26	45		0.75	
											0.25	
5				CH	33	80	91	32	59		0.25	0.30
				Gray and Tan CLAY with ferrous nodules								
											0.25	
				.. tan and gray with slickensides	36	89	90	31	59		0.75	0.90
10												
					38	78	109	36	73		0.75	0.43
					42	81	112	40	72		0.75	0.51
15												
				CH								
				Gray SANDY CLAY								
				CL	22	99	39	19	20		0.50	0.30
20				Bottom at 20 feet								
				1. Water was not encountered during drilling.								
				2. Bore hole dry upon completion.								

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SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Project No: 14260
Boring Number: B-2
Date of Report: 11/13/2014
Location: See Boring Plan
Date of Boring: 11/11/2014
Dry Auger: 0 to 20 Feet
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY								
											0.50	
					34	85	100	33	67		0.25	0.37
5				CH							0.25	
				Tan and Gray CLAY with ferrous nodules and slickensides	32	91	87	26	61		0.35	0.40
					29	88					0.65	0.60
10												
					39	78	108	34	74		0.75	0.50
15				CH								
				Tan and Gray SANDY CLAY								
				CL	22	107					1.00	0.85
20				Bottom at 20 feet								
				1. Water was not encountered during drilling.								
				2. Bore hole dry upon completion.								

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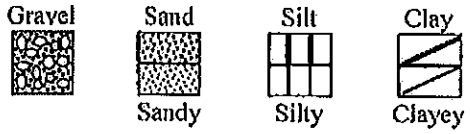
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

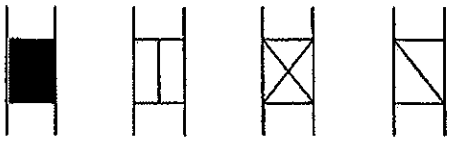
KEY TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPE



Predominant type shown heavy

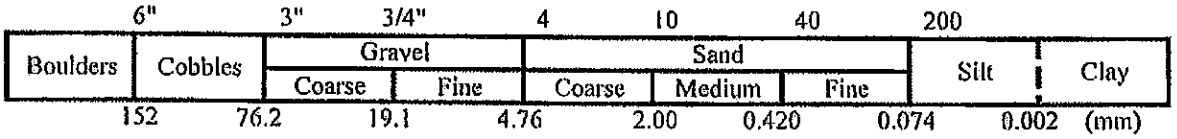
SAMPLE TYPE



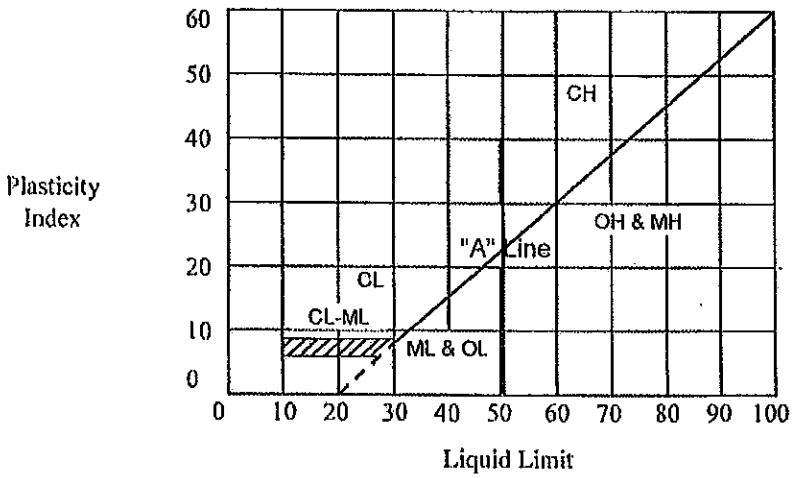
Un-Disturbed | Rock Core | Split Spoon | No Recovery

SOIL GRAIN SIZE

U.S. Standard Sieve



PLASTICITY CHART



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance, blows per foot	Consistency	Cohesion TSF	Plasticity Index	Degree of Plasticity
0 - 2	Very Soft	0 - 0.125	0 - 5	None
2 - 4	Soft	0.125 - 0.25	5 - 10	Low
4 - 8	Firm	0.25 - 0.5	10 - 20	Moderate
8 - 15	Stiff	0.5 - 1.0	20 - 40	Plastic
15 -30	Very Stiff	1.0 - 2.0	> 40	Highly Plastic
> 30	Hard	> 2.0		

RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance, blows per foot	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Removal of underground utilities is included in Division 22 and Division 26 Sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
2. Use only hand methods for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks, pavements.
5. Excavating and backfilling for utility trenches.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of [washed]crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." during earthwork operations.

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit or as indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete".

D. Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).
3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Soil treatment with termiticide.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include the EPA-Registered Label.

B. Product certificates.

C. Soil Treatment Application Report: Include the following:

1. Date and time of application.
2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Termiticides:

a. Aventis Environmental Science USA LP; Termidor.
b. Bayer Corporation; Premise 75.
c. Dow AgroSciences LLC; Dursban TC.
d. FMC Corporation, Agricultural Products Group; Prevail FT.
e. Syngenta; Demon TC.

2.2 SOIL TREATMENT

A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

B. Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

3.2 APPLYING SOIL TREATMENT

A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

1. Slabs-on-Grade: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

D. Post warning signs in areas of application.

E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 316329 - DRILLED CONCRETE PIERS AND SHAFTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes dry-installed drilled piers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For concrete reinforcement.

D. Welding certificates.

E. Material certificates & test reports.

1.3 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.4, "Structural Welding Code - Reinforcing Steel."

B. Drilled-Pier Standard: Comply with ACI 336.1 unless modified in this Section.

1.4 PROJECT CONDITIONS

A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for drilled piers.
2. The geotechnical report is included in Section 310000 – Geotechnical Investigation elsewhere in the Project Manual.

B. Survey Work: Engage a qualified land surveyor or professional engineer to perform surveys, layouts, and measurements for drilled piers. Before excavating, lay out each drilled pier to lines and levels required. Record actual measurements of each drilled

pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.

1. Record and maintain information pertinent to each drilled pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I. Supplement with the following:

a. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33, graded, 1-inch nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94 and potable.

D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
3. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
4. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.3 CONCRETE MIXTURES AND MIXING

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 limits as if concrete were exposed to deicing chemicals.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Proportion normal-weight concrete mixture as follows:

1. Compressive Strength (28 Days): 3000 psi.
2. Air Content: Do not air entrain concrete.

E. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Classified Excavation: Excavation is classified as standard excavation, special excavation, and obstruction removal and includes excavation to bearing elevations as follows:

1. Standard excavation includes excavation accomplished with conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work.
2. Special excavation includes excavation that requires special equipment or procedures above or below indicated depth of drilled piers where drilled-pier excavation equipment used in standard excavation, operating at maximum power, torque, and downthrust, cannot advance the shaft.
3. Obstructions: Payment for removing unanticipated boulders, concrete, masonry, or other subsurface obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.

B. Excavate shafts for drilled piers to indicated elevations. Remove loose material from bottom of excavation.

C. Notify and allow testing and inspecting agency to test and inspect bottom of excavation. If unsuitable bearing stratum is encountered, make adjustments to drilled piers as determined by Architect.

1. Do not excavate shafts deeper than elevations indicated unless approved by Architect.
2. Payment for additional authorized excavation will be according to Contract provisions for changes in the Work.

D. Temporary Casings: Install watertight steel casings of sufficient length and thickness to prevent water seepage into shaft; to withstand compressive, displacement, and withdrawal stresses; and to maintain stability of shaft walls.

1. Remove temporary casings, maintained in plumb position, during concrete placement and before initial set of concrete.

E. Bells: Excavate bells for drilled piers to shape, base thickness, and slope angle indicated. Excavate bottom of bells to level plane and remove loose material before placing concrete.

F. Tolerances: Construct drilled piers to remain within ACI 336.1 tolerances.

3.2 INSTALLATION

A. Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Place concrete in continuous operation and without segregation immediately after inspection and approval of shaft by Owner's independent testing and inspecting agency.

C. Place concrete to fall vertically down the center of drilled pier without striking sides of shaft or steel reinforcement. Vibrate top 60 inches of concrete.

D. Coordinate withdrawal of temporary casings with concrete placement to maintain at least a 60-inch head of concrete above bottom of casing. Vibrate top 60 inches of concrete after withdrawal of temporary casing.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special Inspector to perform the following special inspections:

1. Drilled piers.
2. Excavation.
3. Concrete.
4. Steel reinforcement welding.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Drilled-Pier Tests and Inspections: For each drilled pier, before concrete placement.

1. Soil Testing: Bottom elevations, bearing capacities, and lengths of drilled piers indicated have been estimated from available soil data. Actual elevations and drilled-pier lengths and bearing capacities will be determined by testing and inspecting agency. Final evaluations and approval of data will be determined by Architect.

D. Concrete Tests and Inspections: ACI 301.

END OF SECTION 316329

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Driveways and roadways.
2. Walkways.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:]

a. Fly Ash: ASTM C 618, Class C or F.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded, from a single source coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).
4. Air Content: 4-1/2 percent plus or minus 1.5 percent.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. (0.60 kg/cu. m).

C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on pavement surface according to manufacturer's written instructions.

1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch (6 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/4 inch (6 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

B. wheel stop.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type and color of joint sealant required.

C. Product certificates & test reports.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

A. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

1. Products:

a. Sonneborn, Div. of ChemRex, Inc.; Sonomeric SL-1.

2.4 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 321373

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:
   1. Chain-Link Fences: Industrial
   2. Gates: Motor operated, horizontal slide (two required)

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate framework shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

   1. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified and on the following:

      a. Wind Loads: 120 MPH.
      b. Fence Height: to match existing.
      c. Material Group: IA, ASTM F 1043, Schedule 40 steel pipe.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

   1. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

C. Product Certificates: For each type of chain-link fence and gate, from manufacturer.

D. Product Test Reports: For framing strength according to ASTM F 1043.

E. Operation and maintenance data.

1.4 QUALITY INSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70. Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. UL Standard: Provide gate operators that comply with UL 325.

C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators serving as a required means of access.

1.5 WARRANTY

F. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: to match existing w/ inserts.
2. Steel Wire Fabric: 0.148 inch (3.76 mm)

a. Mesh Size: 2 inches (50 mm).

b. Zinc-Coated Fabric: ASTM A 392, Type II

3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

1. Fence Height: to match existing.

2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

   a. Line Post: 2.25 by 1.70 inches..
   b. End, Corner and Pull Post: 2.375 inches in diameter.

3. Horizontal Framework Members: Top and bottom rails complying with ASTM F 1043.

4. Horizontal-Slide Gate Post: According to ASTM F 1184.
5. Brace Rails: Comply with ASTM F 1043.
6. Metallic Coating for Steel Framing:

   a. Type B zinc with organic overcoat.

2.3 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- (4.5-mm-) diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:

1. Type III, Zn-5-Al-MM alloy with minimum coating weight matching chain-link fabric coating weight

2.4 INDUSTRIAL HORIZONTAL-SLIDE GATES

A. General: Comply with ASTM F 1184 for single slide gated types (two required)
   1. Classification: Type II Cantilever Slide, Class 1 with external roller assemblies.
   2. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1184 for materials and protective coatings.
   3. Metal Pipe and Tubing Aluminum. Comply with ASTM F 699 for materials and protective coatings.

B. Frames and Bracing: Fabricate members from round, aluminum tubing with outside dimension and weight according to ASTM F 1184 and the following:
   1. Gate Fabric Height: As indicated.
   2. Gate Opening Width: As indicated.
   3. Frame Members:
      a) Tubular Aluminum: 2 inches rectangular.

   4. Bracing Members:
      a.) Tubular Aluminum: 2 inches rectangular.

C. Frame Corner Construction:
   1. Welded frame with panels assembled with bolted or riveted corner

Fitting and 5/16" diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame as indicated as required to attach barbed wire assemblies.
E. Overhead Track Assembly: Manufacture's standard track, with overhead framing supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.
F. Roller Guards: As required per ASTM F 1184 for Type II, Class 2 gates.
G. Hardware: Latches permitting operation from both sides of gate, locking devices, hangers, roller assemblies and stops fabricated from mill-finished Grade 319 aluminum-alloy casting with stainless-steel fastners.

2.4 FITTINGS

A. General: Comply with ASTM F 626.

B. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.

a. Polymer coating over metallic coating.

2. Aluminum: Mill finish.

2.5 BARBED WIRE

A. Steel Barbed Wire: Comply with ASTM A 121, for two-strand barbed wire, 0.099-inch-(2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, four-point round barbs spaced not more than 5 inches (127 mm) o.c.

1. Zinc Coating: Type Z, Class 3.

2.6 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at

Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

2.7 GATE OPERATORS

A. General: Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
   1. Provide HySecurity, Model 222 E-ST (02827 HYS), Extra Duty Slide Gate Operator with Smart Touch Controller.

B. Comply with NFPA 70.

C. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG-1 and the following:

   1. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
   2. Horsepower: 1 HP.
   3. Phase: One.

D. Gate Operators: Concrete base/pad mounted and as follows:

   1. Hydraulic Slide Gate Operators:

      a. Duty: Heavy-duty, commercial/industrial.

E. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure and with space for additional optional equipment. Provide station remote-control device(s).

F. Vehicle Detector: Exit Gate Only, (east gate). Presence system including automatic closing timer with adjustable time delay before closing and timer cut-off switch; designed to open and close gate.

G. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.

H. Accessories:

   1. Warning Module: Audio/Visual, ADA-compliant, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.

2. Battery Backup System: Battery-powered drive and access control system, independent of primary drive system.
3. Intercom System:
4. Instructional, Safety, and Warning Labels and Signs: According to UL 325.

I. Tie Wires: Attach wire per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothinh.

J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

K. Barbed Wire: Uniformly spaced, angled toward security side of fence. Pull wire taut and install securely to extension arms and secure to end post or terminal arms.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

D. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

E. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

G. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment.

H. Line Posts: Space line posts uniformly at 10 feet o.c.

I. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing.

J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage unless otherwise indicated.

K. Barbed Wire: Install barbed wire uniformly spaced, angled toward security side of fence. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.

L. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

M. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 323113

BRUCE'S GENERAL CONSTRUCTION, INC.
1175 REYNOLDS RD
BEAUMONT, TX 77707

FORD FIELDS CONCESSION STAND
IFB 16-002/JW
JEFFERSON COUNTY PURCHASING DEPT.
1001 PEARL STREET 3RD FLOOR
BEAUMONT, TX 77701

"BID DOCUMENTS"
1 ORIGINAL & 2 COPIES
BID DUE 2/16/16 @11:00

Received @ 11:03 am CDT
on Tuesday, Feb. 16, 2016
(note: 3 minutes late due to
temp location of Purch. office)
-JWest

CONSTRUCTION MANUAL

Ford Fields

FORD FIELDS

CONCESSION STAND

5115 IH-10 South, Beaumont, Texas

PROJECT #15036

The LaBiche
ARCHITECTURAL GROUP, INC.

7999 Gladys Ave., Suite 101
Beaumont, Texas 77706
409-860-0197

REGISTERED ARCHITECT
JOHN H. LaBICHE
11592
STATE OF TEXAS

1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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BEAUMONT, TEXAS

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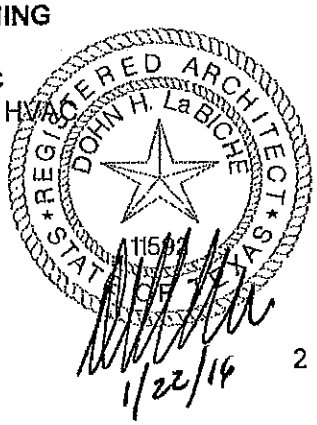

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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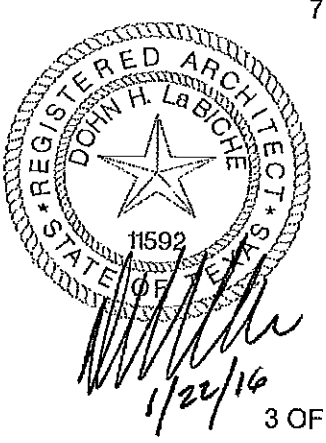

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1001 Pearl Street, 3rd Floor, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

January 19, 2016

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for IFB 16-002/JW, Ford Fields Concession Stand. **Construction Documents for this project may be obtained from the office of The LaBiche Architectural Group, Inc. by calling 409-860-0197 for access to the online drawings and specifications.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Commissioners' Courtroom at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Ford Fields Concession Stand**
BID NO:	**IFB 16-002/JW**
DUE DATE/TIME:	**11:00 AM CDT, Tuesday, February 16, 2016**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1001 Pearl Street, 3rd Floor** **Beaumont, Texas 77701**

There will be a pre-bid conference and walk-through at 10:00 AM CDT on Tuesday, February 2, 2016 at the Ford Park Ball Fields, 5115 IH10 South, Beaumont, Texas 77705.

Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these requirements should be directed to Jamey West, Assistant Purchasing Agent, at 409-835-8593.

Jefferson County encourages Disadvantaged Business Enterprises to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provisions of services. Individuals requiring special accommodations are requested to contact our office at 409-835-8593 to make arrangements no later than seven (7) calendar days prior to the submittal deadline. Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.

Deborah Clark

Deborah L. Clark
Purchasing Agent
Jefferson County, Texas
Publish: Beaumont Enterprise & Port Arthur News – January 20th & January 27th, 2016

IFB 16-002/JW
Ford Fields Concession Stand
Bids due: 11:00 AM CDT, February 16, 2016

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BIDDER IS RESPONSIBLE FOR RETURNING ALL REQUIRED PAGES (MARKED WITH AN "X" ABOVE) WITH THE BID. ADDITIONALLY, BIDDER MUST MONITOR THE PURCHASING WEB SITE (HTTP://WWW.CO.JEFFERSON.TX.US/PURCHASING/MAIN.HTM) TO SEE IF ADDENDA OR ADDITIONAL INSTRUCTIONS HAVE BEEN POSTED. FAILURE TO RETURN ALL REQUIRED FORMS COULD RESULT IN A BID BEING DECLARED AS NON-RESPONSIVE.

Instructions to Bidders

1. Bid Submission

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, TX 77701

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

All bids shall be tightly sealed in an opaque envelope and plainly marked with the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

2. Courthouse Security

Bidders are advised that all visitors to the Courthouse must pass through Security. **Bidders planning to hand deliver bids must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal.** Mondays and Tuesdays are particularly heavy days. Bidders are strongly urged to plan accordingly.

3. Preparation of Bids

The bid shall be legibly printed in ink or typed.

If a unit price or extension already entered is to be altered, it shall be crossed out and initialed in ink by the bidder.

The bid shall be legally signed and shall include the complete address of the bidder.

Jefferson County is exempt from Federal and State Sales Taxes, and such taxes shall not be included in bid prices.

4. Signatures

All bids, notifications, claims, and statements must be signed by an individual authorized to bind the bidder. The individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

5. County Holidays – 2016:

January 1	Friday	New Year's Day
January 18	Monday	Martin Luther King, Jr. Day
February 15	Monday	President's Day
March 25	Friday	Good Friday
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24 & 25	Thursday & Friday	Thanksgiving
December 26-27	Monday & Tuesday	Christmas

6. Rejection or Withdrawal

Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive any informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date.

7. Emergency/Declared Disaster Requirements

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s). Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

8. Award

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected. Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial nonconformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

9. Contract

A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by mutually agreed terms and conditions in the contract documents.

10. Waiver of Subrogation

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

11. Fiscal Funding

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

12. Bid Results

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page (http://co.jefferson.tx.us/ purchasing/main.htm) as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

13. Changes and Addenda to Bid Documents

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

14. Specifications

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

15. Delivery

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

16. Interpretation of Bid and/or Contract Documents

All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

17. Currency

Prices calculated by the bidder shall be stated in U.S. dollars.

18. Pricing

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

19. Notice to Proceed/Purchase Order

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

20. Certification

By signing the offer section of the Offer and Acceptance page, bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.

- The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.

21. Definitions

"County" – Jefferson County, Texas.

"Contractor" – The bidder whose proposal is accepted by Jefferson County.

22. Minority-Women Business Enterprise Participation

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

General Conditions of Bidding and Terms of Contract

By execution of this document, the vendor accepts all general and special conditions of the contract as outlined below and in the specifications and plans.

1. Bidding

1.1 Bids. All bids must be submitted on the bid form furnished in this package.

1.2 Authorized Signatures. The bid must be executed personally by the vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the vendor shall accompany the bid to become a valid bid.

1.3 Late Bids. Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.4 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 Withdrawal of Bids after Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.6 Bid Amounts. Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.7 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.8 Alternates. The Invitation for Bid and/or specifications may expressly allow bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.9 Descriptions. Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.10 Bid Alterations. Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.11 Tax Exempt Status. Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.12 Quantities. Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.13 Bid Award. Award of contract shall be made to the most responsible, responsive bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended. Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.14 Silence of Specifications for Complete Units. All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.15 Addenda. Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.16 General Bid Bond/Surety Requirements. Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.17 General Insurance Requirements. Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 Responsiveness. A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 Responsible Standing of Bidder. To be considered for award, bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.20 Proprietary Data. Bidder may, by written request, indicate as confidential any portion(s) of a bid that contain proprietary information, including manufacturing and/or design processes exclusive to the vendor. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.

1.21 Public Bid Opening. Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. Performance

2.1 Design, Strength, and Quality. Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be

regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 Age and Manufacture. All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 Delivery Location. All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 Delivery Charges. All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 Installation Charges. All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 Operating Instructions and Training. Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 Compliance with Federal, State, County, and Local Laws. Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA. The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 Samples, Demonstrations and Testing. At Jefferson County's request and direction, bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the bidder/vendor.

2.13 Acceptability. All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 Maintenance. Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on

the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 Material Safety Data Sheets. Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 Evaluation. Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. Purchase Orders and Payment

3.1 Purchase Orders. A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 Invoices. All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful bidder(s) is required to pay subcontractors within ten (10) days after the successful bidder receives payment from the County.

3.4 Funding. Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. Contract

4.1 Contract Definition. The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful bidder and Jefferson County.

4.2 Change Order. No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 Price Re-determination. A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The bidder's past experience of honor-

ing contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 Termination. Jefferson County reserves the right to terminate the contract for default if the bidder breached any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the bidder in default.

4.5 Conflict of Interest. Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 Injuries or Damages Resulting from Negligence. Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 Interest by Public Officials. No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 Warranty. The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 Uniform Commercial Code. The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 Venue. This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 Sale, Assignment, or Transfer of Contract. The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 Silence of Specifications. The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Special Requirements/Instructions

The following requirements and instructions supersede General Requirements where applicable.

1. Bid Requirement

Each bidder shall insure that all parts of the bid are **completed and returned.** The Table of Contents indicates specifically which pages need to be returned; these pages shall constitute the vendor's bid.

Vendor shall use an opaque envelope, clearly indicating on the outside the **Bid Number, Bid Description, and marked "SEALED BID".** Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB. All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court. **Bidders** shall submit (1) one original, and (2) two copies of the bid.

2. Vendor Registration: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov

Bid Respondents are highly encouraged to check their firm's SAM (System for Award Management) status prior to Bid Submission; as it is a requirement for vendors doing business with Jefferson County to be registered.

3. Awarded Vendor(s): Submission of FORM 1295 (Texas Ethics Commission)

As of January 1, 2016, per House Bill 1295, the Texas Ethics Commission (TEC) requires **all awarded vendors** to complete a Certificate of Interested Parties (FORM 1295) at time of notification of award. **Awarded Vendors** must visit the TEC website link below, enter the required information on Form 1295, and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

At the time of award, the Jefferson County Purchasing Department will submit a request to the Awarded Vendor to both:

1. Submit FORM 1295 online via the Texas Ethics Commission website link below.

2. Submit a printed copy of FORM 1295, signed by an Authorized Agent of the Awarded Vendor and notarized to the Jefferson County Purchasing Department.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at:https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4. Multiple Vendor Award

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. Delivery

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. Payment

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to: Jefferson County Auditing Department, Attention: Accounts Payable, 1149 Pearl Street, 7th floor, Beaumont, TX 77701.

7. Usage Reports

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. Insurance

The contractor (including any and all subcontractors as defined in Section 7.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

Minimum Insurance Requirements

Public Liability	$1,000,000.00
Excess Liability	$1,000,000.00
Property Insurance (policy below that is applicable to this project):	
Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)	
Builder's Risk Policy: Structural Coverage for Construction Projects	
Installation Floater Policy: Improvements/Alterations to Existing Structure	
Workers' Compensation	Statutory Coverage (see attached)

9. Workers' Compensation Insurance

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entitles performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 6 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

Minimum Specifications

The following requirements and specifications supersede General Requirements where applicable. Contact Dohn H. LaBiche, FAIA (e-mail: dlabiche@labiche.com; phone: 409-860-0197), regarding any questions or comments. Please reference bid number **IFB 16-002/JW**.

Scope

FURNISH ALL MATERIALS AND LABOR FOR THE CONSTRUCTION OF A NEW CONCESSION STAND TO BE LOCATED AT FORD FIELDS.

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): 1, 2, 3, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

Goss Building Inc.
Company Name

2455 W. Cardinal Dr.
Address

Beaumont, TX 77705
City State Zip

Kathy M. Goss
Signature of Person Authorized to Sign

Kathy M. Goss
Printed Name

President
Title

For clarification of this offer, contact:

James Goss
Name

409-842-4988 409-842-0709
Phone Fax

jamesgoss@gossbuilding.com
E-mail

Bidder Shall Return Completed Form with Offer.

Bid Form

We propose to furnish all labor, material and equipment, and to perform all work necessary to construct the **Ford Fields Concession Stand** including Mechanical, Plumbing and Electrical Work, in accordance with drawings and specifications prepared by The LaBiche Architectural Group, Inc., for the following sum:

BASE BID : 486,000

Four Hundred Eighty Six Thousand

Dollars $ 486,000.00

Materials $ 206,000.00

Labor $ 280,000.00

We have examined the site of the Work and the nature and kind of work to be performed and have informed ourselves of all local conditions and other things that might affect the cost or difficulty of performing the Work, and we represent and warrant that we have experience in the use of materials and methods of performance specified, and that we can and will do the Work and construct the improvements with the specified materials as contemplated and indicated by the Drawings and Specifications.

Upon receipt of notice of acceptance of our bid, we agree to execute the Contract within 10 (ten) days after such notice, deliver Performance and Payment Bonds for the faithful performance of the Work, to begin work on or before the date of commencement of the Work established in the Notice to Proceed, and to complete the Work in 150 calendar days.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project on or before the date of completion shown on the "Notice to Proceed". Bidder further agrees to pay as liquidated damages, the sum of **$300.00** for each consecutive calendar day thereafter.

Acknowledgment of Addenda (if any):

Addendum 1 X Date Received 02-08-16

Addendum 2 X Date Received 02-11-16

Addendum 3 X Date Received 02-15-16

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, Goss Building, Inc.
P.O. Box 21537, Beaumont, TX 77705
as PRINCIPAL, AND SureTec Insurance Company
1330 Post Oak Blvd., Ste. 1100, Houston, TX 77056,

as SURETY are held and firmly bound unto Commissioners' Court of Jefferson County hereinafter called the "Owner," in the penal sum of Five percent of attached bid and alternates---------- Dollars, ($ 5%----------), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas the Principal has submitted the Accompanying Bid, dated February 16, 20 16, for FORD FIELDS CONCESSION STAND, BEAUMONT, TEXAS.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this 16th day of February, 20 16, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

_____ (SEAL)

_____

_____ _____ (SEAL)

_____

Attest: By: _____

_____ _____

_____

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

Goss Building, Inc.

By: Kathy M. Goss Affix Corporate Seal

Attest: Linda McLeod

SureTec Insurance Company

By: Samoa P. Meche Affix Corporate Seal

Samoa P. Meche, 1734287 Attorney in Fact

Countersigned

by Gloria Marisol Villa

Gloria Marisol Villa Lic#1615998 215 Graceland St., Houston, TX 77009

*Attorney-in-Fact, State of Texas

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____,

_____, Secretary of the Corporation named as

Principal in the within bond; that _____,
who signed the said bond on behalf of the Principal was then _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

(Corporate Seal)

Title _____

* Power-of-attorney for person signing for surety company must be attached to bond.

POA #: 1810025

SureTec Insurance Company
LIMITED POWER OF ATTORNEY

Know All Men by These Presents, That SURETEC INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Texas, and having its principal office in Houston, Harris County, Texas, does by these presents make, constitute and appoint

Nancy Murphy Bernard, Samoa P. Meche, Aimee Denise Morrison, Catherine Sue Moss, Cory Williams

its true and lawful Attorney-in-fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include waivers to the conditions of contracts and consents of surety for:

Two Million Five Hundred Thousand and 00/100 Dollars ($2,500,000.00)

and to bind the Company thereby as fully and to the same extent as if such bond were signed by the President, sealed with the corporate seal of the Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney-in-Fact may do in the premises. Said appointment shall continue in force until 12/31/2016 and is made under and by authority of the following resolutions of the Board of Directors of the SureTec Insurance Company:

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and of behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached. *(Adopted at a meeting held on 20th of April, 1999.)*

In Witness Whereof, SURETEC INSURANCE COMPANY has caused these presents to be signed by its President, and its corporate seal to be hereto affixed this 1st day of September, A.D. 2015

SURETEC INSURANCE COMPANY

By: _____
John Knox Jr., President

State of Texas ss:
County of Harris

On this 1st day of September, A.D. 2015 before me personally came John Knox Jr., to me known, who, being by me duly sworn, did depose and say, that he resides in Houston, Texas, that he is President of SURETEC INSURANCE COMPANY, the company described in and which executed the above instrument; that he knows the seal of said Company; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company; and that he signed his name thereto by like order.

JACQUELYN MALDONADO
Notary Public
State of Texas
My Comm. Exp. 5/18/2017

_____
Jacquelyn Maldonado, Notary Public
My commission expires May 18, 2017

I, M. Brent Beaty, Assistant Secretary of SURETEC INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Company, which is still in full force and effect; and furthermore, the resolutions of the Board of Directors, set out in the Power of Attorney are in full force and effect.

Given under my hand and the seal of said Company at Houston, Texas this 16th day of February, 2016, A.D.

_____
M. Brent Beaty, Assistant Secretary

Any Instrument issued in excess of the penalty stated above is totally void and without any validity.
For verification of the authority of this power you may call (713) 812-0800 any business day between 8:00 am and 5:00 pm CST.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: Metal Express LLC

Address: 8605 Broussard, Bmt., TX 77713

Contact Person and Title: Ben Jorgenson / Project Management

Phone: 409-899-3500 Fax: 409-899-3501

Contract Period: 7/14 - 4/15 Scope of Work: New Clean Shop

REFERENCE TWO

Government/Company Name: Red Dot Buildings

Address: 1209 W. Corsicana, Athens, TX 75751

Contact Person and Title: Thomas Faulk / Project Management

Phone: 903-675-9181 Fax: 903-675-9180

Contract Period: 3/14 - 2/15 Scope of Work: New Admin / WareH

REFERENCE THREE

Government/Company Name: Adkins Steel Erectors

Address: 175 E. Pine Lake Dr., Sour Lake, TX 77659

Contact Person and Title: Gary Adkins / Owner

Phone: 409-753-1412 Fax:

Contract Period: 3/14 - 3/15 Scope of Work: New Admin / WareH

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☒ **No** ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid; Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

Goss Building Inc.	Kathy M. Goss
Bidder (Entity Name)	Signature
P.O. Box 21537 2455 W. Cardinal DR.	Kathy M. Goss
Street & Mailing Address	Print Name
Beaumont, TX 77705	02-15-16
City, State & Zip	Date Signed
409-842-4988	409-842-0709
Telephone Number	Fax Number
jamesgoss@gossbuilding.com	
E-mail Address	

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

N/A

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

Signature of vendor doing business with the governmental entity — Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

OFFICE USE ONLY
Date Received

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

_____ _____
Signature of vendor doing business with the governmental entity — Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☑ Yes	☐ No	1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?
☑ Yes	☐ No	2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?
☑ Yes	☐ No	3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?
☑ Yes	☐ No	4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?
☐ Yes	☑ No	5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?
☑ Yes	☑ No	6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid. If necessary, please use a separate sheet to answer the above questions.

James Goss
Printed Name of Authorized Representative

James Goss
Signature

Project Manager
Title

2/16/16
Date

Bidder Shall Return Completed Form with Offer.

GOSS
Building Incorporated
P.O. Box 21537
Beaumont, Texas 77720

(409) 842-4988
1-800-458-0648
FAX (409) 842-0709

February 16, 2016

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, Texas 77701

Re: Good Faith Effort Determination Checklist
Item #5

To Whom It May Concern:

At the time of bid there were no written rejection notices to HUB bidders because of timing.

Sincerely,

James Goss
Project Manager

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: _____ HUB: ☐ Yes ☐ No

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____

Prime Contract Amount: $ _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

KATHY M. GOSS Printed Name of Contractor Representative	Kathy M. Goss Signature of Representative	2-15-16 Date
_____ Printed Name of HUB	_____ Signature of Representative	_____ Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Prime Contractor: _____ HUB: ☐ Yes ☐ No

HUB Status (Gender & Ethnicity): _____

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____ IFB/RFP No.: _____

Total Contract: $ _____ Total HUB Subcontract(s): $ _____

Construction HUB Goals: 12.8% MBE:: _____ % 12.6% WBE: _____ %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American. Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☑ HUBs were solicited but did not respond.
- ☑ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☑ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PAGE 4 OF 4

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required.** I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): _____

Title: _____

Signature: _____

Date: _____

E-mail address: _____

Contact person that will be in charge of invoicing for this project:

Name (print or type): _____

Title: _____

Date: _____

E-mail address: _____

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that Goss Building Inc. [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	76-0576243
Company Name submitting bid/proposal:	Goss Building Inc.
Mailing address:	P.O. Box 21537, Beaumont, TX 77720
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas,

on this day personally appeared Kathy M. Goss (name), who

after being by me duly sworn, did depose and say:

"I, Kathy M. Goss (name) am a duly authorized officer of/agent

for Goss Building Inc. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said Goss Building Inc. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: Goss Building Inc.
2455 W. Cardinal Dr., Beaumont, TX 77705

Fax: 409-842-0709 Telephone# 409-842-4988

by: Kathy M. Goss (print name) Title: President

Signature: Kathy M. Goss

SUBSCRIBED AND SWORN to before me by the above-named

on

this the 15th day of February, 2016.

Pamela Jeanis
Notary Public in and for
the State of Tx

PAMELA JEANIS
NOTARY PUBLIC-STATE OF TEXAS
COMM. EXP. 01-19-2020
NOTARY ID 13050282-9

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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END OF INDEX OF DRAWINGS

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The project is located at 5115 IH-10 South, in Beaumont, Texas.

B. The Work of this Contract consists of the furnishing of all labor, materials, services, equipment and appliances as indicated in the Drawings and Specifications.

1. **Base Bid:** Construct a new concession stand on the grounds of Ford Park Fields.

C. The Drawings and Specifications do not necessarily indicate or describe all Work required for completion of the Project. Contractor shall provide and install all incidentals reasonably inferable from the Contract Documents that are required for a complete Project.

D. These documents describe the essential elements sufficiently to determine the scope of the Project.

E. Provide all items required for complete operating systems including items not necessarily shown in these documents, but that can be reasonably inferred as being required for the complete operating system.

F. The Drawings and Specifications indicate the basic quality of materials and quality of construction required for the entire project.

G. Site Inspection: Offers' can access the site at any day and time. Access to the Sub Courthouse requires contacting County Maintenance Supervisor Mark Bernard at (409) 466-1790.

H. Inquiries Concerning Proposal and Contract Documents: Prior to submitting a proposal, technical questions concerning the proposal documents shall be directed to:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
dlabiche@labiche.com
Tel: 409/860-0197
Fax: 409/860-0198

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 CONTRACT

A. The Contract will be executed as a lump-sum agreement on the forms provided.

B. Employ subcontractors for the disconnection, re-connection and installation of all mechanical and electrical Work in conjunction with all Work required, or implied, to be performed by licensed mechanics of these disciplines:
   1. Subcontractors of Contractor shall furnish to Contractor bonds covering faithful performance of subcontract Work and payment of all obligations there under, when Contractor is required to furnish such bonds to the Owner.
   2. Subcontractors of Contractor shall purchase and maintain liability insurance as will protect him from claims, for not less than limits of liability which Contractor is required to provide to Owner.
   3. The Contractor shall include in Contract Amount costs of supervision, coordination and monitoring Work of his selected Subcontractors.

1.04 CONTRACTOR'S USE OF PREMISES

A. Contractor shall be responsible for monitoring the use of premises by Contractor's employees and Subcontractors.

B. Access routes for delivery of materials and equipment shall be as indicated by Owner. Do not use access routes other than those indicated without written permission of the Owner.

C. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site. Store materials and products only in those areas indicated for staging.

D. Protect existing lawns, sidewalks, pavements, curbs and utilities subject to damage by Work under this Contract. Repair or replace any existing Work damaged by the Contractor.

E. Parking areas for Contractor's personnel shall be on the project site to the extent it does not interfere with on-going contract Work and in areas designated by the Owner.

1.05 WORK ON PROPERTY

A. Obtain and pay all fees required applicable governing authorities, prior to commencing Work on this Project.

B. Post all notices and warning signs required by applicable governing authorities.

C. Perform Work on this Project in accordance with local codes and ordinance and utility company requirements.

1.06 WORK SEQUENCE AND CLAIMS FOR ADDITIONAL TIME

A. Construct Work in phases to accommodate Owner's occupancy requirements. During the construction period, coordinate construction schedule and operation with the Architect.

B. Claims for additional time as a result of adverse weather conditions will be considered only for weather conditions which are abnormal and if such weather conditions had an adverse effect on the scheduled construction: Rain Day claims for day(s) when Contractor is normally not on site are not legitimate. The Contractor shall document rain delays on a regular basis and submit an itemized listing to the Owner at each payment application meeting. Only requests for extra time, which prevents Work on critical activities for fifty percent (50%) or more of a scheduled workday will be considered. If no request is submitted for a given month, it will be assumed that no time was lost and the contract time shall not be adjusted.

C. No extension of time shall be deemed as waiver by the Owner of its right to terminate the contract for abandonment or delay by the Contractor. Once the Work has begun the contractor shall properly man the project in a continuous manner and proceed with all diligence to complete the project within the contract time. The Contractor must Work continuously and will not be allowed to stop activity on any weekday unless due to adverse weather of to reason pre-approved in writing by the Owner.

1.07 OWNER OCCUPANCY

A. The Owner may occupy all portions of the building and conduct normal operations during the Work. Owner occupancy shall be during the course of the normal Work day and not include evenings. Owner activities may occur on weekends. The Contractor shall fully clean the site and remove all debris and materials from the grounds on days when scheduled Owner's activities will conflict with the Work.

B. Cooperate with the Owner and schedule the Work to minimize conflicts, and to facilitate Owner's normal operations.

C. All electrical, HVAC units and controls shall remain in operation during times the building is occupied.

1.08 OWNER'S OPERATIONS

A. The Contractor shall conduct its Work in a manner to provide minimal interruption of the school campus during all construction Work. The Work shall be done at such times and in such manner and locations as to cause a minimum of inconvenience for the students, instructors, and staff. Limit operations to specific Work areas. A system of barricades, fences and enclosures shall be used by the Contractor to avoid conflict between construction and operations of the facility.

1.09 HAZARDOUS MATERIALS

A. If, during the progress of the Work, Contractor uncovers work which he believes contains asbestos or other hazardous materials, he shall immediately cease operations in the area of such discovery and notify the both the Architect and the Owner's Representative in writing.

B. Owner will arrange with the Abatement Contractor to perform necessary testing, barricades, enclosures, filtering, and ventilation in areas containing hazardous materials; decontamination, or removal and disposal of hazardous materials in accordance with requirements of authorities having jurisdiction.

C. Owner's Abatement Consultant will notify Owner's Representative and Architect in writing when it is safe to resume construction operations in the areas in question.

D. Contractor shall identify potential lead containing material hazards at the Site and oversee appropriate protective measures, including protection of persons, establishing

END OF SECTION 01010

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010300 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 REFERENCES

A. References to known standard specifications shall mean and shall refer to the latest edition of such specifications adopted and published at date of invitation to submit proposals.

B. Reference to technical society, organization or body is made in these Specifications in accordance with the following abbreviations:

AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
ANAAMM	National Association Architectural Metals Manufacturers
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
FS	Federal Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NFPA	National Fire Protection Association
NRCA	National Roofing Contractors Association
UL	Underwriters' Laboratories, Inc.

1.02 CONDITIONS

A. "General Conditions" apply with equal force to the General Contractor, Subcontractors, Work, extra Work, and the like that may be specified herein or performed in or about the building or site under this Contract.

B. For convenience of reference and to facilitate letting of subcontracts, these Specifications are separated into sections. Such separation shall not operate to make Owner an arbitrator to establish subcontract limits between subcontractors.

C. Execute Work as per Contract Documents. Make no changes therefore without having first received written permission. Where detailed information is lacking before proceeding with Work, refer matter to Architect for clarification.

D. All Work shall be executed by mechanics skilled in their respective trades. Mechanics whose Work is unsatisfactory to the Owner and/or Architect, or who are considered by the Owner to be careless, incompetent, unskilled, or otherwise objectionable, are to be dismissed from Work upon notice from the Owner.

E. The Owner will provide temporary water and electrical power required for the Work at no cost to the Contractor. The Contractor shall make necessary connections to existing fireplugs and/or tap the existing water service, and to power transformer or

other power sources at each building or site as required for performance of his Work. Coordinate all connections with the Owner's Maintenance Department.

F. Contractor shall be responsible for furnishing storage trailers, temporary security fencing, temporary fire protection, telephones, etc., as required to carry out construction operations.

G. Construction related access to the site, shall be limited to areas permitted by the Owner and/or as shown on the Drawings. It shall be the responsibility of the Contractor to prevent damage to the existing paving, to repair all damage, and to recognize and respect all traffic safety requirements and signage. Any loss or damage to the Owner's property caused by the Contractor or his workmen shall be repaired or replaced at no cost to the Owner. Restore the grounds to original condition at the completion of the Project. Remove all fences, barricades, etc. Replace all vegetation damaged by construction operations, including grass, shrubs, and trees, to the satisfaction of the Owner.

H. Work hours in general are between 7:00 am and 6:00 pm, Monday through Friday, unless an exception is granted by the Owner and Architect, or as otherwise defined by various Section of these Specifications.

I. The Contractor shall remove trash and rubbish from the Owner's premises at the end of each Workday. This shall mean that these materials shall be cleaned from the grounds and shall not be left in areas or locations other that containers specified for this purpose. Burning of combustibles will not be permitted.

1.03 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.04 PROJECT SUPERINTENDENT

A. In addition to other duties imposed by these Specifications the Project Superintendent shall meet the following requirements:

B. Show prior to the start of Work references from Owners of a minimum of five (5) previously completed jobs of similar size, complexity and construction cost.

C. Show proficiency prior to the start of the Work that the Superintendent is fluent in the English language, or if not, provide a competent and approved interpreter for such purposes. The purpose of this clause is to assure adequate communications with all parties involved in the Work.

D. The Project Superintendent shall be present at the project site at all times that any Work of this contract is underway. In the case that the Project Superintendent must be away from the project site the Contractor shall first file written documentation of the absence with the Architect at least 48-hours in advance of the new replacement. The replacement, or acting Project Superintendent, shall meet the minimum requirements defined above and elsewhere in the Specifications for the Project Superintendent. The only exception to this shall be when the Contractor, an officer of the company with

a majority share of ownership, shall be permitted to act as the Project Superintendent. A majority owner of the contracting company may act as the Project Superintendent for the entirety of the project.

E. No Work shall be performed and no subcontractor(s) shall be permitted to Work at any time when the Project Superintendent is not present.

1.05 INSURANCE CLAIMS FOR PROPERTY DAMAGES

A. In the event that any damage is incurred to the Owner's or employees property due to any act of the Contractor, the Contractor shall make payment of the claim through its own resources or via its insurance carrier within thirty (30) days of the claim occurrence.

1.06 ADDITIONAL INSPECTIONS BY ARCHITECT

A. In the event that the Contractor exceeds the completion date for whatever reason he/she shall be responsible for reimbursing the Owner through authorized change order for all costs of the Architect's staff and expenses to carry on inspection duties at the rate performed during the project before the completion date.

B. The rate of reimbursement shall be as follows:

Construction Observer	$ 65.00 per hour
Architect / Roofing Consultant	$135.00 per hour
Re-Inspection Following Substantial or Final Completion	$135.00 per hour
Mileage	$ 0.45 per mile
Other Expenses	Cost plus 10%

END OF SECTION 010300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010410 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Coordinate Work with that of other contractors and trades and on-going Work by Owner under administration of the Architect.

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 VISIT TO SITE

A. Prior to submitting his quotation for Work under this project, the Contractor shall visit the site to examine all conditions related to his Work, and to acquaint himself with these conditions. FIELD MEASUREMENTS ARE REQUIRED FOR THIS PROJECT.

B. The Contractor shall verify that existing facilities, utilities and/or conditions are adequate and if equipment, utilities, facilities or conditions are such that other items and services, in addition to those specified, are required to achieve operational systems as described herein, the Contractor shall advise the Architect of the scope and costs of necessary additional Work or services at the time of proposal submittal.

1.04 CONSTRUCTION MOBILIZATION

A. The Contractor shall attend the scheduled pre-construction conference as directed by the Architect and Owner for the purpose of project coordination.

B. Cooperate with the Owner and Architect in location of mobilization areas on site for access, traffic, and parking facilities. During construction coordinate use of site and facilities through the Architect and Owner.

C. Comply with the Architect's procedures for intra-project communications: Submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Architect for use of temporary facilities.

E. Coordinate field and layout Work under instructions of the Architect.

1.05 SUBMITTALS TO THE ARCHITECT

A. All submittals for this project will be required to be submitted at the same time and shall be in accordance with requirements of Section 010300. The Contractor shall provide submittals covering all materials specified in the Specifications. Any changes from the existing Work or sheet metal profiles shown in the Drawings will be forwarded in the

form of shop drawings to the Architect by facsimile prior to beginning fabrication or installation. Update and provide revised schedules at each pay application meeting.

B. Deliver submittals to the Architect for transmittal to all required parties. The office of the Architect is located as follows:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
Tel: 409/860-0197
Fax: 409/860-0198

C. Submit written requests for interpretation of Contract Documents and obtain instructions through the Architect.

1.06 COORDINATION DRAWINGS

A. Provide information required by the Architect for preparation of coordination drawings.

B. Review Drawings carefully prior to submission of all submittals to the Architect.

1.07 CLOSEOUT PROCEDURES

Submit in accordance with Section 017000.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 010410

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010450 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of Work.

B. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other Work, and subsequent fitting and patching required for restoration of surfaces to their original condition.
   1. "Cutting and patching" is performed for coordination of the Work, to uncover Work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 SUBMITTALS

A. Submit written request in advance of cutting or alteration, which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather-exposed or moisture-resistant element.
   3. Efficiency, maintenance, or safety of any operational equipment.
   4. Visual qualities of sight-exposed elements.
   5. Work of Owner or separate contractor.

B. Include in request:
   1. Identification of Project.
   2. Location and description of affected Work.
   3. Necessity for cutting or alteration.
   4. Description of proposed Work, and products to be used.
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the Work.
      c. Products proposed to be used.
      d. Extent of re-finishing.
      e. Cost proposal when applicable.
      f. Alternatives to cutting and patching.
   5. Effect on Work of Owner or separate contractor, if any
   6. Written permission of affected separate contractor, if any.
   7. Date and time Work will be executed.

1.04 QUALITY ASSURANCE

Requirements for Structural Work: Do not cut or alter any structural Work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated, or as directed by the Owner, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Those required for original installation.

C. No substitutions of materials will be accepted after proposals are submitted.

PART 3 - EXECUTION

3.01 GENERAL

A. Execute cutting, fitting and patching including excavation and fill, to complete Work and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

3.02 INSPECTION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the Work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the Work.

B. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

C. After uncovering, inspect conditions affecting performance of Work.

D. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

A. Provide supports to assure structural integrity of surroundings, devices and methods to protect other portions of Work from damage.

B. Provide protection from elements for areas, which may be exposed by uncovering Work; maintain excavations and openings free of water.

C. Prevent debris from entering facility; do not permit product contamination.

3.04 PERFORMANCE

A. Employ skilled workers to perform cutting and patching Work. Except as otherwise indicated or as approved by the Architect, proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut the Work using methods that are least likely to damage Work to be retained or adjoining Work. Where possible review proposed procedures with the original installer and comply with its recommendations.

C. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine, such as a carborundum saw, or core drill, to ensure a neat hole. Cut holes and slots neatly to size required with a minimum disturbance of adjacent Work. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces. Temporarily cover unused openings.

D. Patch with seams, which are durable and as invisible as possible. Comply with specified tolerances for the Work. Where feasible, inspect and test patched areas to demonstrate integrity of Work. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining Work in a manner which will eliminate evidence of patching and re-finishing.

E. Where removal of walls or partitions extends from one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall covering; replace with new materials.

F. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface of wall or ceiling containing patch, after patched area has received prime and base coat. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

G. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through roof, wall, floor or other surfaces.

H. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire rated material, full thickness of the construction element.

I. Do not leave facility open to contamination or rain; close off at end of each Work day.

J. Thoroughly clean areas and spaces where Work is performed or used as access to Work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied.

END OF SECTION 010450

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 011200 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedural requirements

B. Rehabilitation and renovations of existing spaces and materials.

C. Installation of products removed in Sections as specified.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials shall be as specified in individual Sections

B. Match existing products and Work for patching and extending Work.

C. Determine type and quality of existing products by inspection and any necessary testing, and workmanship by use of existing as a standard. Presence of a product, finish or type of Work requires that patching, extending or matching shall be performed as necessary to make Work complete and consistent with the Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move or remove items as necessary for access to alteration and renovation Work; replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, rusted metals, and deteriorated masonry and concrete: replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new Work and new finishes.

E. Close openings in exterior surfaces to protect existing Work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.03 INSTALLATION

A. Coordinate Work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.

B. Designated areas, rooms and spaces and finishes shall be complete in all respects, including operational mechanical and electrical systems.

C. Remove, cut and patch Work in a manner to minimize damage and to provide means to minimize products and finishes to specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent new finishes.

E. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full operational condition.

F. Install products as specified in individual sections.

3.04 TRANSITIONS

A. Where new Work abuts or aligns with existing make a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to the Architect for completion.

3.05 ADJUSTMENTS

Fit Work at penetrations of surfaces as specified in Section 01045.

3.06 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored or showing other imperfections.

B. Repair substrate prior to patching finish.

3.07 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersection or natural termination point.

3.08 CLEANING

In addition to cleaning specified in Section 01500, clean Owner-occupied areas of Work as required.

END OF SECTION 011200

FORD FIELDS CONCESSION STAND
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SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Section:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Requested substitution will not adversely affect Contractor's construction schedule.
    c. Requested substitution has received necessary approvals of authorities having jurisdiction.
    d. Requested substitution is compatible with other portions of the Work.
    e. Requested substitution has been coordinated with other portions of the Work.
    f. Requested substitution provides specified warranty.
    g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    b. Requested substitution does not require extensive revisions to the Contract Documents.
    c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    d. Requested substitution will not adversely affect Contractor's construction schedule.
    e. Requested substitution has received necessary approvals of authorities having jurisdiction.
    f. Requested substitution is compatible with other portions of the Work.
    g. Requested substitution has been coordinated with other portions of the Work.
    h. Requested substitution provides specified warranty.
    i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

FORD FIELDS CONCESSION STAND
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SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has

changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

FORD FIELDS CONCESSION STAND
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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to Architect by the 23rd of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

    1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
    2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Initial progress report.
11. Report of preconstruction conference.
12. Certificates of insurance and insurance policies.

I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

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SECTION 013000 - SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures
B. Construction Progress Schedule
C. Shop Drawings
D. Product Data
E. Samples
F. Manufacturer's Instructions
G. Manufacturer's Certificates
H. Schedule of Required Submittals
I. Request for Substitution Form

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

1.03 PROCEDURES - BEFORE PROPOSAL OPENING

No substitute systems or materials will be considered prior to proposal opening.

1.04 PROCEDURES - AFTER PROPOSAL OPENING

A. Deliver submittals to: The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706

B. All submittals required for the project shall be submitted at the same time.

C. Transmit each item under form acceptable to the Architect in this document. Identify Project, Contractor, Subcontractor and major suppliers. Identify pertinent drawing sheet and detail number, and specification section number as appropriate. Identify any and all deviations from Contract Documents. Provide 3-inch x 5-inch space each for Contractor and Architect review stamps. Provide certification stamp on all submittal sets.

D. Submit Submittal Schedule at the same time as all other submittals.

E. All submittals including shop drawings, product data and samples for this project will be submitted at the same time to the Architect and within ten (10) days after receipt of the Notice to Proceed.

F. After Architect's review of submittal, revise and re-submit as required, identifying changes made since previous submittal.

G. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to

promptly report any inability to comply with provisions.

H. Bind sets of submittals in labeled three-ring binders identified on the outside with the project title, date, Contractor's, Architect's and Owner's names, and including a table of contents corresponding to the Specification format, with all contents correlated.

1.05 CONSTRUCTION PROGRESS SCHEDULES

A. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first Workday of each week.

B. Show submittal dates required for Shop Drawings product data and samples and product delivery dates including those, if any, identified to be furnished by the Owner.

1.06 SHOP DRAWINGS

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all shop drawings on opaque reproductions.

B. Present in a clear and thorough manner. Title each Drawing with Project Name and the same information indicated for 1.04.H above. Identify each element of Drawings by reference to sheet number and detail of the Contract Documents.

C. Identify field dimensions. Show relation to adjacent or critical features or Work or products.

1.07 PRODUCT DATA

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all product data.

B. Submit only pages that are pertinent. Mark each copy of standard printed data with yellow hi-liter to identify pertinent products, reference to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

C. Modify manufacturer standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete or cross-out information not applicable.

D. Any deviation from the Contract Documents must be clearly identified when submitted. Any items not identified will be deemed to be the items exactly as specified in the Contract Documents.

1.08 MANUFACTURER'S INSTRUCTIONS

When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

1.09 SAMPLES

A. Submit full range of manufacturer's standard colors, textures, and patterns for Owner's selection. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all samples unless otherwise indicated by these Specifications.

B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing Work.

C. Include identification on each sample, giving full information.

D. Submit the number specified in respective Specification Section: Two (2) will be retained by the Architect. Reviewed samples that may be used in the Work are indicated in the Specification Section.

1.10 FIELD SAMPLES

Provide field samples of finishes at the project site as required by individual Specification Sections. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.11 CONTRACTOR REVIEW

A. Review submittals prior to transmittal. Determine and verify field measurements, field construction criteria, manufacturer's catalog numbers and conformance of submittal with requirements of Contract Documents.

B. Coordinate submittals with requirements of Work and of Contract Documents.

C. Apply Contractor's stamp on each section of Shop Drawings and Product Data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.

D. The Contractor is encouraged not to fabricate products or begin Work which requires submittals until return of reviewed submittal with Architect's review stamp. Fabrication of items and beginning of Work when submittals have not been reviewed will be at the Contractor's risk.

1.12 SUBMITTAL REQUIREMENTS

A. Transmit submittals in such sequence to avoid delay in the Work or Work of other contracts.

B. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

C. Submit under Architect approved transmittal letter. Identify Project by title and number. Identify Work and product by Specification Section and Article Number.

1.13 RE-SUBMITTAL REQUIREMENTS

A. Make re-submittals under procedures specified for initial submittals. Identify changes made since previous submittal.

B. Re-submittals beyond the initial and a second will be reviewed by the Architect and/or his consultants at the Contractor's expense.

1.14 ARCHITECT AND OWNER REVIEW

A. The Architect and Owner and/or other authorized representative will review all submittals. Submittals will be returned to the Contractor with the Architect's review stamp affixed, and/or with the indication of any changes, which may need to be made, shown thereon, or with disapproval.

B. The Architect's review of any such Submittal shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, nor shall it relieve him from responsibility for errors of any sort in the Submittal, nor shall it in any way diminish the Contractor's obligation to conduct the Work in accordance with the Contract Documents.

C. Approval of samples shall be for design and appearance only, and such approval shall not relieve Contractor from any obligation as provided in the Contract Documents.

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REQUEST FOR SUBSTITUTION
(Attach Additional Sheets As Necessary)

From: _____
To: _____

Date of Request: _____
Project: Project Name
Location: Project Location
Architect's Project No.: 09015

References: Specification Section: _____ Part: _____ Paragraph: _____ Subparagraph: _____
Specified Product Name: _____ Model No.: _____
Drawing Sheet(s): _____ De tail(s): _____

Description of Proposed Substitution:
Substitute Product Name: _____ Model No.: _____
Manufacturer: _____ Address: _____ Phone: _____
Installer: _____ Address: _____ Phone: _____
Reason for not providing specified item: _____
Differences between proposed substitution and specified product: _____
☐ Point-by-point comparative data attached (Required for analysis and review by Architect)

Substitution Product History: ☐ New Product ☐ 2 to 5 Years Old ☐ 5 to 10 Years Old ☐ More than 10 Years Old
Similar Installations of Proposed Product:
Project: _____ Architect: _____ Phone: _____
Project Address: _____ Owner: _____ Phone: _____
Date Product Installed: _____

Effect of Proposed Substitution:
Acceptance of proposed substitute will require the following change in Contract Sum and Contract Time:
☐ No Change in Contract Sum ☐ No Change in Contract Time
☐ Increase Contract Sum By $ _____ ☐ Increase Contract Time By _____ Calendar Days
☐ Decrease Contract Sum By $ _____ ☐ Decrease Contract Time By _____ Calendar Days.
Effect of proposed request for substitution on (Attach additional sheets if necessary):
a. Change in Construction Progress Schedule: ☐ No Effect ☐ _____
b. Changes required in details and construction of related work: ☐ No Change ☐ Yes, Explain: _____
c. Change in warranty requirements: ☐ No Change ☐ _____

Representations by Contractor: (1) Substitute item is equivalent or superior to that specified in quality and durability, design, appearance, function, finish, performance, is of size and weight that will permit installation in spaces provided, and that will allow adequate service access; (2) Substitute item is compatible with other portions of the Work; (3) Substitute item has been coordinated with other portions of the Work; (4) Substitute item has received necessary approvals from authorities having jurisdiction; (5) Substitute item is consistent with the Contract Documents and will produce the intended results; (6) Substitute item provides specified warranty; and (7) If requested substitution involves more than one contractor, or subcontractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors, or subcontractors involved.

_____ _____ _____
(Signature) (Typed or Printed Name and Title) (Date)

END OF SECTION 013000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Project meetings.
3. Requests for Interpretation (RFIs).

B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque copies of each submittal. Architect will return four copies.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. LEED requirements.
    l. Preparation of Record Documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Owner's occupancy requirements.
    p. Responsibility for temporary facilities and controls.
    q. Construction waste management and recycling.
    r. Parking availability.
    s. Office, work, and storage areas.
    t. Equipment deliveries and priorities.
    u. First aid.
    v. Security.
    w. Progress cleaning.
    x. Working hours.

3. Minutes: Record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at monthly intervals in conjunction with the review of the month's payment request. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) RFIs.
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Hard-Copy RFIs:

1. Identify each page of attachments with the RFI number and sequential page number.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Daily construction reports.
4. Field condition reports.

B. See Division 01 Section "Payment Procedures" for submitting the Schedule of Values.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

C. Daily Construction Reports: Submit three copies at monthly intervals.

D. Field Condition Reports: Submit three copies at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than seven days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

6. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.

C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.

D. See Division 01 Section "Closeout Procedures" for submitting warranties.

E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

a. Project name.
b. Date.
c. Name and address of Architect.
d. Name and address of Contractor.
e. Name and address of subcontractor.
f. Name and address of supplier.
g. Name of manufacturer.
h. Submittal number or other unique identifier, including revision identifier.

1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

i. Number and title of appropriate Specification Section.
j. Drawing number and detail references, as appropriate.
k. Location(s) where product is to be installed, as appropriate.
l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810 or approved Contractor Transmittal Form.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked approved on Architect's Submittal review form attached at the end of this section.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating approval taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Approval by the Architect and Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

   a. Manufacturer's written recommendations.
   b. Manufacturer's product specifications.
   c. Manufacturer's installation instructions.
   d. Manufacturer's catalog cuts.
   e. Wiring diagrams showing factory-installed wiring.
   f. Printed performance curves.
   g. Operational range diagrams.
   h. Compliance with specified referenced standards.
   i. Testing by recognized testing agency.

4. Number of Copies: Submit seven copies of Product Data, unless otherwise indicated. Architect will return five copies. Mark up and retain two returned copies as Project Record Documents.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   f. Shopwork manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Notation of coordination requirements.
   j. Notation of dimensions established by field measurement.
   k. Relationship to adjoining construction clearly indicated.
   l. Seal and signature of professional engineer if specified.
   m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque (bond) copies of each submittal. Architect will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

    1. Number of Copies: Submit seven copies of product schedule or list, unless otherwise indicated. Architect will return five copies.

F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. See sample of Architect's Shop Drawing Review Sheet at the end of this section.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

Submittals not required by the Contract Documents may not be reviewed and may be discarded.

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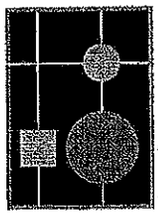

The LaBiche
ARCHITECTURAL GROUP, INC.

Dohn H. LaBiche, FAIA - Principal
Greg Wall, AIA - Principal

7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
(409) 860-0197 • Fax (409) 860-0198

SHOP DRAWING REVIEW

Project Name: XX

Project Number: XX

Submittal For: XX

	No Exception		Exceptions Noted		Rejected
	Revise & Resubmit		Submit Specified Item		

NOTE:
Our checking is only to determine general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is solely responsible for confirming and correlating dimensions at the job site; for information which pertains to fabrication processes or construction techniques, and for coordinating the work of all trades. Our checking of shop drawings and submittals shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents nor for errors or emissions in the shop drawings and submittals.

By: Dohn H. LaBiche, FAIA Date:

Remarks:

END OF SECTION 013300

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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those

operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.6 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which situations tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

B. Special Tests and Inspections: Conducted by a qualified testing agency required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers

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AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)

AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute

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CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FIBA	Federation Internationale de Basketball (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FM Approvals	FM Approvals
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)

GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)

LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association

NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections

RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BOCA	BOCA International, Inc. (See ICC)

IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials (See ICC)
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
SBCCI	Southern Building Code Congress International, Inc. (See ICC)
UBC	Uniform Building Code (See ICC)

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)

NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PBS	Public Building Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA)
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)
FS	Federal Specification
FTMS	Federal Test Method Standard (See FS)
MIL	(See MILSPEC)
MIL-STD	(See MILSPEC)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CCR	California Code of Regulations
CPUC	California Public Utilities Commission
TFS	Texas Forest Service Forest Resource Development

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. See Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.

C. See Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: type written letter on company stationary.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.

b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 7days of the Bid date. Requests received after that time may be considered or rejected at discretion of Architect. In no case will substitutions submitted more than 30 days after the Notice to Proceed be reviewed.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. See Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 SUBMITTALS

A. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work,

investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. See Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

C. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

D. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

E. See Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.

F. See Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Emergency manuals.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. See Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

   a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, water leak, power failure, water outage, equipment failure and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.

4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

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PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

C. See Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit two set(s) of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set of corrected Record Transparencies and two set(s) of marked-up Record Prints. Architect will initial and date each transparency and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.

b. Final Submittal: Submit two set(s) of marked-up Record Prints, and the following:

1) Record Transparencies: One (1) set.
2) Copies printed from Record Transparencies: Two (2). Print each Drawing, whether or not changes and additional information were recorded.
3) Scanned PDF document record set.

B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit two copies of each Product Data submittal.

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PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

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PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For steel reinforcement. Material test reports and certificates.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete".

2. ACI 318, "Building Code Requirements for Reinforced Concrete".
3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
4. CRSI, "Manual of Standard Practice".

C. Preinstallation Conference: Conduct conference with Architect and Testing Laboratory representative at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.

    a. Fly Ash: ASTM C 618.

B. Normal-Weight Aggregates: ASTM C 33, graded, 1-inch (25-mm) nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm) nominal maximum aggregate size.

D. Water: ASTM C 94/C 94M and potable.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

G. Synthetic Fiber: Polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 5 inches maximum.
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after

initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. Testing Services: Tests shall be performed according to ACI 301.

2. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

3. Slump: ASTM C 143, one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

4. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 degrees F (4 deg. C) and below; when 80 degrees F (27 deg. C) and above, and one test for each set of compressive-strength specimens.

6. Compression Test Specimen: ASTM C 31, one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

7. Compressive-Strength Tests: ASTM C 39, one set for each day's pour exceeding 5 cubic yards plus additional sets for 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

B. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

D. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test results falls below specified compressive strength by more than 500 psi.

E. Test Results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for each of the 7-day tests and 28-day tests.

F. Additional Tests: The testing agency will make additional tests of in-place concrete, as directed by Architect, when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed by Architect.

END OF SECTION 033000

FORD FIELDS CONCESSION STAND
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SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Wood blocking, cants, and nailers.
2. Wood furring and grounds.
3. Wood sleepers.
4. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Power-driven fasteners.
5. Powder-actuated fasteners.
6. Expansion anchors.
7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an

agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:
1. Plywood backing panels.

2.3 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exterior, AC in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plastic Wall Panel Backing Panels: Interior grade CD in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Do not splice structural members between supports unless otherwise indicated.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

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SECTION 066400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes plastic sheet paneling.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For plastic paneling and trim accessories.

1.3 QUALITY ASSURANCE

A. Testing Agency: Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. Glass-Fiber-Reinforced Plastic Paneling: Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D 5319.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Crane Composites, Inc.
b. Glasteel.
c. Marlite.
d. Newcourt, Inc.
e. Nudo Products, Inc.
f. Parkland Plastics, Inc.

2. Nominal Thickness: Not less than 0.12 inch.
3. Surface Finish: As selected by Architect from manufacturer's full range.
4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Adhesive: As recommended by plastic paneling manufacturer and with a VOC content of 50g/L or less.

C. Sealant: Mildew-resistant, single-component, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 079200 "Joint Sealants."

1. Sealant shall have a VOC content of 250 g/L or less.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that could impair adhesive bond, including oil, grease, dirt, and dust.

B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

C. Lay out paneling before installing. Locate panel joints so that trimmed panels at corners are not less than 12 inches (300 mm) wide.

3.2 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing panels, and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 066400

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SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers four samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

D. Product test reports.

E. Preconstruction compatibility and adhesion test reports.

F. Preconstruction field-adhesion test reports.

G. Field-adhesion test reports.

H. Warranties.

1.4 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Minimum Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Dow Corning Corporation.
    c. GE Advanced Materials - Silicones.
    d. May National Associates, Inc.
    e. Pecora Corporation.
    f. Polymeric Systems, Inc.
    g. Schnee-Morehead, Inc.
    h. Sika Corporation; Construction Products Division.
    i. Tremco Incorporated.

2. Type: Single component (S).
3. Grade: Nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Bostik, Inc.
    c. Lymtal, International, Inc.
    d. May National Associates, Inc.
    e. Pacific Polymers International, Inc.
    f. Pecora Corporation.
    g. Polymeric Systems, Inc.
    h. Schnee-Morehead, Inc.
    i. Sika Corporation; Construction Products Division.
    j. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Traffic (T).

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Bostik, Inc.
    c. May National Associates, Inc.
    d. Pecora Corporation.
    e. Schnee-Morehead, Inc.
    f. Tremco Incorporated.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Pecora Corporation.
    b. USG Corporation.

2.6 JOINT SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

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PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Tile control and expansion joints.
   c. Joints between different materials listed above.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surface.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints between metal panels.
   c. Joints between different materials listed above.
   d. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
   e. Control and expansion joints in ceilings and other overhead surfaces.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation joints in cast-in-place concrete slabs.

b. Control and expansion joints in tile flooring.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings.
c. Tile control and expansion joints.
d. Vertical joints on exposed surfaces of interior unit masonry, concrete, walls and partitions.
e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.

2. Joint Sealant: Latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints.

2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 079200

FORD FIELDS CONCESSION STAND
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SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard hollow metal doors and frames to be supplied by metal building manufacturer.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required.

E. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.3 QUALITY ASSURANCE

A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Metal Building manufacturer's standard.

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2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS, Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, CS, Type B.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I.

H. Glazing: Division 08 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Comply with ANSI/SDI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
   a. Thermal-Rated (Insulated) Doors: R-value of not less than 12.3 deg F x h x sq. ft./Btu (2.166 K x sq. m/W) when tested according to ASTM C 1363.
3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.
5. Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Comply with ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
   a. Width: 1-3/4 inches (44.5 mm).
   b. Fabricate of metallic-coated sheet.

C. Hardware Reinforcement: ANSI/SDI A250.6.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.

C. Interior Frames: Fabricated from cold-rolled steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
4. Frames for Level 1 Steel Doors: 0.042-inch- (1.0-mm-) thick steel sheet.
5. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
6. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
7. Frames for Borrowed Lights: 0.053-inch- (1.3-mm-) thick steel sheet.

D. Hardware Reinforcement: ANSI/SDI A250.6.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, same material as door face sheet.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, same material as frames.

D. Terminated Stops: Where indicated, terminate stops 6 inches (152 mm) above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

2.8 FABRICATION

A. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.

B. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow Metal Frames: Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) high.
        2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
        3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
        5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

    b. Compression Type: Not less than two anchors in each jamb.
    c. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers.

    a. Single-Door Frames: Three door silencers.
    b. Double-Door Frames: Two door silencers.

D. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 electrical Sections.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: ANSI/SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. At fire-protection-rated openings, install frames according to NFPA 80.
b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
c. Install frames with removable glazing stops located on secure side of opening.
d. Install door silencers in frames before grouting.
e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. In-Place Concrete: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
4. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

B. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

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SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:

1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
2. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. Sound Transmission Characteristics: For STC-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
2. Protective Coating: manufacturer's standard corrosion-resistant zinc coating, unless otherwise indicated.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

   a. Type: Post installed, chemical anchor or Post installed, expansion anchor.

2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.

D. Flat Hangers: Steel sheet, 1 by 3/16 inch (25.4 by 4.76 mm) by length indicated.

E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38 mm).

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges, 3/4 inch (19.1 mm) deep.
2. Steel Studs: ASTM C 645.

   a. Minimum Base-Metal Thickness: 0.0312 inch (0.79 mm).
   b. Depth: 1-5/8 inches (41.3 mm).

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.

   a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).

4. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.

   a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

   a. Armstrong World Industries, Inc.; Drywall Grid Systems.
   b. Chicago Metallic Corporation; Drywall Furring System.

c. USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: As indicated on Drawings.

B. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-(50.8-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
b. Products: Subject to compliance with requirements, provide one of the following:

1) Steel Network Inc. (The); VertiClip SLD Series.
2) Superior Metal Trim; Superior Flex Track System (SFT).

C. Firestop Track: As specified in Division 07 Section "Fire-Resistive Joint Systems."

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.027 inch (0.7 mm).

E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38.1 mm).
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38.1 by 38.1 mm), 0.068-inch-(1.73-mm-) thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: As indicated on Drawings.
2. Depth: 1-1/2 inches (38.1 mm).

G. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

H. Cold-Rolled Furring Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: As indicated on Drawings.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch (0.79 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

I. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare-metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.

2.4 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.2 INSTALLING SUSPENSION SYSTEMS

A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

B. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Do not attach hangers to steel roof deck.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

C. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb, unless otherwise indicated.

b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (12.7-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

C. Direct Furring:

1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

D. Z-Furring Members:

1. Erect insulation (specified in Division 07 Section "Thermal Insulation") vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

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SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Drawn to scale and coordinating acoustical panel ceiling installation with hanger attachment to building structure and ceiling mounted items:

C. Samples: For each exposed finish.

D. Product test reports.

E. Research/evaluation reports.

F. Maintenance data.

1.3 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Anchors in Concrete: Expansion or Bonded anchors fabricated from corrosion-resistant materials, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or

ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

1. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; "Clean Room VL", unperforated square lay-in.

B. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:

1. Type and Form: Type IV, Form 2, Pattern E, Fire Class A. Wet-formed mineral fiber, vinyl-faced membrane.

C. Color: White.

D. NRC: Not less than 0.50- 0.60, Type E-400 mounting per ASTM E 795.

E. Edge/Joint Detail: Square.

F. Thickness: 5/8 inch (15 mm).

G. Modular Size: 24 by 24 inches (610 by 610 mm).

2.3 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; Prelude Plus XL, AL7200 Series, Non-rated.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders.

C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counters playing, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
2. Do not attach hangers to steel deck tabs.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

END OF SECTION 095113

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SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE

A. Roppe Corporation.

B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Style and Location:
   a. Style C, Butt to: Provide in areas indicated.

C. Thickness: 0.125 inch (3.2 mm).

D. Height: 6 inches.

E. Lengths: Cut lengths 48 inches (1219 mm) long or coils in manufacturer's standard length.

F. Outside Corners: Job formed or preformed.

G. Inside Corners: Job formed or preformed.

H. Colors: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

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3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Miter or cope corners to minimize open joints.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on exterior substrates.

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Galvanized metal.
6. Aluminum (not anodized or otherwise coated)

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles for the paint category indicated.

B. Acceptable Manufacturers:
1. ICI
2. Pittsburgh Paint
3. Sherwin Williams

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As indicated in Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:

1. SW: Loxon Block Surfacer.

2.4 PRIMERS/SEALERS

A. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams, Loxon Exterior Concrete and Masonry Primer, #A24W8300.

2.5 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive for all Metal: [MPI #79]

1. Sherwin Williams, Water Based Rust Inhibited Primer, Pro Industrial Pro-Cryl Universal Metal Primer.

2.6 WOOD PRIMERS

A. Primer, Latex for Exterior Plywood:

1. Sherwin Williams, Exterior Latex Wood Primer, B42W8041

B. Primer, Oil for Exterior Wood:[MPI #7]
1. ICI: #2110-1200.
2. Pittburgh: Speedhide exterior oil based primer.
3. SW: A-100 Exterior oil wood primer, Y24W8020.

2.7 WATER-BASED PAINTS

A. Latex, Exterior Flat (Gloss Level 1):[MPI #10.]

1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

B. Latex, Exterior Semi-Gloss (Gloss Level 5):[MPI #11]
1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

C. Light Industrial Coating, Exterior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #163.]

1. Sherwin Williams, DTM Acrylic

2.8 SOLVENT-BASED PAINTS

A. Alkyd, Exterior Gloss (Gloss Level 6) for metal handrails, doors and bollards:[MPI #9.]

1. Sherwin Williams, Pro Industrial Urethane Alkyd, #B54W151.

2.9 ALUMINUM PAINT

A. Aluminum Paint, 100% Acrylic D.T.M.: [MPI#1]
1. ICI: Devflex 4208 Series.
2. Pittsburgh: 90-Line Finish.
3. SW: Bondplex Waterbased Acrylic Aluminum, B71S200.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Portland Cement Plaster: 12 percent.
5. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Latex, exterior, matching topcoat.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior gloss (Gloss Level 6)[, MPI #119].

B. Concrete Substrates, Traffic Surfaces:

1. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
d. Additive: Manufacturer's standard additive to increase skid resistance of painted surface.

2. Solvent-Based Clear Sealer System:

a. Prime Coat: Sealer, solvent based, for concrete floors[, MPI #104].
b. Intermediate Coat: Sealer, solvent based, for concrete floors[, MPI #104].
c. Topcoat: Sealer, solvent based, for concrete floors[, MPI #104].

C. CMU Substrates:

1. Latex over Alkali-Resistant Primer System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior semi-gloss (Gloss Level 5)[, MPI #11].

D. Steel Substrates:

1. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

2. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

E. Galvanized-Metal Substrates:

1. Latex System:

2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, galvanized, water based[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

END OF SECTION 099113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Cast iron.
6. Galvanized metal.
7. Aluminum (not anodized or otherwise coated).
8. Wood.
9. Gypsum board

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide product by one of the following:

1. Sherwin Williams
2. Pittsburgh Paint
3. ICI

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Colors: As indicated on Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:[MPI #4.]

1. Sherwin Williams Pro Mar Block Filler, B25W25.

2.4 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior:[MPI #50.]

1. Sherwin Williams Pro Mar 200 Latex Primer.

B. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams Loxon Concrete & Masonry Primer, A24W8300.

C. Primer Sealer, Interior, Institutional Low Odor/VOC:[MPI #149.]

1. Sherwin Williams Pro Mar 200 Zero VOC Primer, B28W2600.

D. Primer, Latex, for Interior Wood:[MPI #39.]

1. Sherwin Williams Multi Purpose Latex Primer, B31W8020.

E. Primer Sealer, Alkyd, Interior:[MPI #45.]

1. Sherwin Williams Pro Block Alkyd Primer, B79W8810.

F. Primer, Bonding, Water Based:[MPI #17.]

1. Sherwin Williams Adhesion Primer, B51W8050.

2.5 METAL PRIMERS

A. Primer, Rust-Inhibitive, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

B. Primer, Alkyd, Anti-Corrosive, for Metal:[MPI #79.]

1. Sherwin Williams Kem Kromik Primer, B50NZ2.

C. Primer, Galvanized, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

D. Primer, Quick Dry, for Aluminum:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

2.6 WATER-BASED PAINTS

A. Latex, Interior, Institutional Low Odor/VOC, Flat (Gloss Level 1):[MPI #143.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Flat, B30W2600.

B. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 2):[MPI #144.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Low Sheen, B24W2600.

C. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3):[MPI #145.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Eg-Shel, B20W2600.

D. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5):[MPI #147.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Semi-Gloss, B31W2600.

E. Latex, Interior, High Performance Architectural, (Gloss Level 2):[MPI #138.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Gloss, B21W2251.

F. Latex, Interior, High Performance Architectural, Semi-Gloss (Gloss Level 5):[MPI #141.]

1. Sherwin Williams Pro Industrial Zero VOC Semi-Gloss, B66W600 Series.

G. Light Industrial Coating, Interior, Water Based (Gloss Level 3):[MPI #151.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Eg-Shel, K45.

H. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #153.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Semi-Gloss, K46.

I. Light Industrial Coating, Interior, Water Based, Gloss (Gloss Level 6):[MPI #154.]

1. Sherwin Williams Pro Industrial Zero VOC Gloss, B66W600 Series.

2.7 DRY FOG/FALL COATINGS

A. Dry Fall, Latex, Flat:[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

B. Dry Fall, Water Based, for Galvanized Steel, Flat (Gloss Level 1):[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

2.8 FLOOR COATINGS

A. Floor Epoxy (Water Based), Gloss (Gloss Level 6):[MPI #212.]

1. Sherwin Williams Armor Seal 8100 Water Based Epoxy.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Latex Aggregate System:

a. Prime Coat: Textured coating, latex, flat[, MPI #42].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].

b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, Interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

B. Concrete Substrates, Traffic Surfaces:

1. Water Based Epoxy Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6).
b. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6).
c. Embed in top coat: non-sip floor addative.

C. Clay-Masonry Substrates:

1. Latex System:

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].

h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex Aggregate System:

a. Prime Coat: Primer for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
b. Intermediate Coat: Intermediate coat for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
c. Topcoat: Textured coating, latex, flat[, MPI #42].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

    a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
    b. Intermediate Coat: Alkyd, interior, matching topcoat.
    c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
    d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
    e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
    f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

D. CMU Substrates:

1. Latex System:

    a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
    b. Intermediate Coat: Latex, interior, matching topcoat.
    c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
    d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
    e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
    f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
    g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
    h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

    a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
    b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
    c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
    d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
    e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
    f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

    a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
    b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
    c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
    d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
    e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
    f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Sealer Coat: Primer sealer, latex, interior[, MPI #50].
   c. Intermediate Coat: Alkyd, interior, matching topcoat.
   d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

E. Steel Substrates:

1. Latex over Alkyd Primer System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, matching topcoat.
   f. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   g. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   h. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   i. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   j. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   k. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Topcoat: Dry fall, latex, flat[, MPI #118].
   f. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   g. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   h. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   i. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.

e. Intermediate Coat: Alkyd, interior, matching topcoat.
f. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
g. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
h. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
i. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

7. Quick-Drying Enamel System:

a. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
b. Intermediate Coat: Alkyd, quick dry, matching topcoat.
c. Topcoat: Alkyd, quick dry, semi-gloss (Gloss Level 5)[, MPI #81].
d. Topcoat: Alkyd, quick dry, gloss (Gloss Level 7)[, MPI #96].

8. Alkyd Dry-Fall System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Topcoat: Dry fall, alkyd, flat[, MPI #55].

9. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Intermediate Coat: Aluminum paint[, MPI #1].
f. Topcoat: Aluminum paint[, MPI #1].

F. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

a. Prime Coat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

b. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating Over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Aluminum Paint System:

a. Prime Coat: Primer, galvanized metal, as recommended in writing by topcoat manufacturer for use on galvanized-metal substrates with topcoat indicated.
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

G. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].

e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

6. Aluminum Paint System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

H. Wood Substrates: Including wood trim, architectural woodwork, doors, windows, wood-based panel products, glued-laminated construction, exposed joists and exposed beams.

1. Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].

b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[. MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

I. Wood Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].
c. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].

2. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].

J. Fiberglass and Plastic Substrates:

1. Latex System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Latex, interior, matching topcoat.
   d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   d. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   f. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   g. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   d. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].

e. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
f. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, bonding, water based[, MPI #17].
b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

K. Gypsum Board & Plaster Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].

d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

L. Spray-Textured Ceiling Substrates:

1. Latex (Flat) System: Spray applied.

a. Prime Coat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

2. Latex System: Spray applied.

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

c. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
d. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
e. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
f. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
g. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

4. Alkyd (Flat) System:

a. Prime Coat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
b. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

M. Cotton or Canvas and ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

4. Aluminum Paint System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

END OF SECTION 099123

FORD FIELDS CONCESSION STAND
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SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Operation and maintenance data.

C. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Failure of hydrostatic test according to NFPA 10.
   b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
h. Larsen's Manufacturing Company.
i. Moon-American.
j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
k. Potter Roemer LLC.
l. Pyro-Chem; Tyco Safety Products.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type : UL-rated 2-A:10:B:C 10-lb. nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Larsen's Manufacturing Company.
h. Potter Roemer LLC.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: In cabinets.

C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

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SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal roof panels.
3. Metal wall panels.
4. Thermal insulation.
5. Doors and frames.
6. Accessories.

1.2 SUBMITTALS

A. Product Data: For each type of metal building system component.

B. Shop Drawings: For metal building system components. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

E. Welding certificates.

F. Metal Building System Certificates: For each type of metal building system, from manufacturer.

1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

a. Name and location of Project.
b. Order number.
c. Name of manufacturer.
d. Name of Contractor.
e. Building dimensions including width, length, height, and roof slope.
f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
g. Governing building code and year of edition.
h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category

or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).

i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.

j. Building-Use Category: Indicate category of building use and its effect on load importance factors.

k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

G. Material test reports.

H. Source quality-control reports.

I. Field quality-control reports.

J. Maintenance data.

K. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

D. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.

E. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

1.4 WARRANTY

A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:

1. A&S Building Systems, Inc.; Division of NCI Building Systems, L.P.
2. Alliance Steel, Inc.
3. American Buildings Company; Division of Magnatrax Corp.
4. American Steel Building Co., Inc.
5. BC Steel Buildings, Inc.
6. Behlen Mfg. Co.
7. Bigbee Steel Buildings, Inc.
8. Butler Manufacturing Company; a BlueScope Steel company.
9. CBC Steel Buildings; Division of Magnatrax Corp.
10. Ceco Building Systems; Division of NCI Building Systems, L.P.
11. Chief Buildings; Division of Chief Industries, Inc.
12. Elite Structures, Inc.
13. Garco Building Systems; Division of NCI Building Systems, L.P.
14. Gulf States Manufacturers, Inc.; Division of Magnatrax Corp.
15. Inland Buildings; Subsidiary of Behlen Mfg. Co.
16. Kirby Building Systems; Division of Magnatrax Corp.
17. Mesco Building Solutions; Division of NCI Building Systems, L.P.
18. Metallic Building Company; Division of NCI Building Systems, L.P.
19. Metco Metal Supply.
20. Mid-West Steel Building Company; Division of NCI Building Systems, L.P.
21. Mueller, Inc.
22. Nucor Building Systems.

23. Oakland Metal Buildings, Inc.
24. Olympia Steel Building Systems.
25. Package Industries, Inc.
26. Pinnacle Structures, Inc.
27. Robertson Building Systems; an NCI company.
28. Ruffin Building Systems, Inc.
29. Schulte Building Systems, LLP.
30. Spirco Manufacturing.
31. Star Building Systems; an NCI company.
32. Tyler Building Systems, L.P.
33. USA, Inc.
34. VP Buildings; a United Dominion company.
35. Vulcan Steel Structures, Inc.
36. Whirlwind Building Systems.

2.2 METAL BUILDING SYSTEM PERFORMANCE

A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Metal building systems shall be designed according to procedures in MBMA's "Metal Building Systems Manual."

1. Design Loads: As indicated on Drawings.
2. Design Loads: As required by [MBMA's "Metal Building Systems Manual."] [ASCE/SEI 7.] <Insert applicable code requirement.>
3. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:

    a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
    b. Girts: Horizontal deflection of 1/240 of the span.
    c. Metal Roof Panels: Vertical deflection of 1/240 of the span.
    d. Metal Wall Panels: Horizontal deflection of 1/240 of the span.
    e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.

4. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:

    a. Lateral Drift: Maximum of 1/400 of the building height.

5. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.

C. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of

connections, and other detrimental effects. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of roof area when tested according to ASTM E 1680 at negative test-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

E. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of wall area when tested according to ASTM E 283 at static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 2.86 lbf/sq. ft. (137 Pa).

G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 2.86 lbf/sq. ft. (137 Pa).

H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for Class 90.

2.3 STRUCTURAL-STEEL FRAMING

A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.
2. Frame Configuration: One-directional sloped.
3. Exterior Column Type: Uniform depth.
4. Rafter Type: Tapered.

B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly.

C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating.

D. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide zinc-plated or hot-dip galvanized bolts for structural-framing components that are galvanized.

E. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

2.4 METAL ROOF PANELS

A. Tapered-Rib-Profile, Lap-Seam Metal Roof Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

    a. Exterior Finish: Galalume.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches.

2.5 METAL WALL PANELS

A. Tapered-Rib-Profile, Exposed-Fastener Metal Wall Panels, Panel Type "A": Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

    a. Exterior Finish: Kynar 500.
    b. Color: As selected by Architect from manufacturer's full range.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches (32 mm).

B. Corrigated Profile, Exposed-Fastener Metal Wall Panels Panel Type "B": Designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

    a. Exterior Finish: Kynar 500.
    b. Color: As selected by Architect from manufacturer's full range.

2. Corrugated Spacing: 2 ¾" o.c.
3. Panel Coverage: 29 ½".
4. Panel Height: 7/8".

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2.6 THERMAL INSULATION

A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.

2.7 DOORS AND FRAMES

A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.

1. Hardware:

a. Provide hardware for each door leaf, as follows:

1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
2) Lockset: BHMA A156.2. Heavy-duty Key-in-lever cylindrical type. Cylinders shall match owners existing keyway.
3) Exit Device: BHMA A156.3. Touch- or push-bar type.
4) Threshold: BHMA A156.21. Extruded aluminum. ADA compliant.
5) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
6) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
7) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.
8) Double Doors: Provide head and sill bolts on enactive leaf. Provide heavy-duty floor mounted stops/hold open devices on both leafs of exterior doors.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.

C. Overhead Coiling type Door: Mueller W300 Windlock Roll Up Door (RUD) are approved equal.

1. Quantity: Three (3).

2. Size: 4'-6" height x 12'-0" width.

3. Operation: Manual.

4. Security: Manual locking mechanism.

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2.8 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.

D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.

E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch-(2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

G. Roof Curbs: Fabricated from minimum 0.052-inch (1.32-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal roof panels; capable of withstanding loads of size and height indicated.

H. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

D. Secondary Framing: Shop fabricate framing components to size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.

   a. Joint Type: Snug tightened or pretensioned.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Locate canopy framing as indicated.
4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Steel Joists: Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Standard Specifications and Load Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
4. Bolt joists to supporting steel framework using carbon-steel bolts unless high-strength structural bolts are required by the manufacturer.

5. Comply with RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
6. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.2 METAL PANEL INSTALLATION, GENERAL

A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

   a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.3 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge[and hip] caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.

1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

3.5 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

B. Blanket Roof Insulation: Comply with the following installation method:

1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.

C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.

1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.

3.6 DOOR AND FRAME INSTALLATION

A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.

B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8.

C. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing."

D. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

1. Install surface-mounted items after finishes have been completed on substrates involved.
2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in Division 07 Section "Joint Sealants."

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide

concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Tests and Inspections:

1. High-Strength, Field-Bolted Connections: Connections shall be[tested and] inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:

    a. Liquid Penetrant Inspection: ASTM E 165.
    b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
    c. Ultrasonic Inspection: ASTM E 164.
    d. Radiographic Inspection: ASTM E 94.

D. Product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 133419

CERTIFICATION OF RESPONSIBILITY FOR

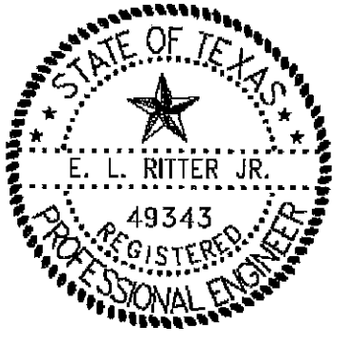
DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	NATURAL GAS PIPING/DISTRIBUTION



Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 00 - GENERAL PROVISIONS FOR PLUMBING

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	GAS DISTRIBUTION

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Plumbing subcontractor shall be the sole source responsible party to furnish and install the plumbing system. Plumbing contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 22 of these specifications, it is intended to mean the Plumbing Contractor as appropriate. These are sub contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 22 – Plumbing) under the contract with the owner. The General Contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete plumbing portion of this contract, as called for herein and on accompanying drawings. Parts of the plumbing division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items covered in the Plumbing Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Mechanical and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all plumbing systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections, meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than 7 days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Plumbing Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect. After initial surfacing has been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The plumbing piping shall be run at proper slopes and without conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire plumbing work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all plumbing work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. National Electric Code
2. National Fire Protection Association
3. American Society of Mechanical Engineers
4. Underwriters's Laboratories
5. American Gas Association
6. Energy Code for Commercial and High Rise Residential Buildings
7. International Energy Conservation Code
8. International Building Code
9. International Plumbing Code

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift pipes or to change the shape of and these changes shall be made as required. All such changes shall be referred to the Architect/Engineer for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Plumbing Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect/Engineer is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, highest quality and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between plumbing and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the sprinkler system with the structure, ceilings, lights, ductwork, etc. In some cases, due to space limitations, it may be necessary to reroute piping to meet the conditions of the project. Any rerouting required shall be part of this project and done without any additional cost to the Owner. **DO NOT MAKE PIPING WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of sewer lines with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams or concrete beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per the instructions and details of structural engineer.

F. All piping shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.

4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the Owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

I. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

J. All submittals shall be submitted prepaid and in ample time for review before installation.

K. Six (6) copies of each submittal shall be submitted to the Architect.

L. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted.**

M. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

N. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

O. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 UTILITIES

A. Connect all utilities at the points indicated on the drawings and extend such utilities to the building and to equipment or facilities requiring same.

B. Contractor shall pay all service and connection charges required by utility companies and/or site conditions (offsets, conflict boxes, etc.).

C. Contractor shall include all costs required by utility companies to extend utilities to the site. It is the responsibility of the contractor to obtain these fees from the utility companies and include those costs in the bid.

1.13 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done per the Federal, State or Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.14 EXCAVATION AND BACK FILL

A. Trench and excavation work shall include excavating, preparing of trenches, and backfilling as specified. Contractor shall install caution tape 12 inches above all piping, conduit, etc., as backfilling processes.

B. Trench and excavation work shall not include pavement breaking, cutting of holes through foundation walls and floors, removal of obstructions, relaying and/or repairing of floors, and repaving, which work shall be the responsibility of the General Contractor.

C. Contractor shall do all necessary trenching, excavation and backfilling for the proper installation of his work. Care shall be taken not to excavate below depth required, that trench beds are well rounded and that ground under pipe line is firm and secure before any pipe is laid. Trenches shall be excavated where bells of pipe occur in order to insure a pipe resting on the entire length of the bottom of the trench.

D. Unless otherwise noted, minimum cover over underground lines shall be 2-1/2 feet, except under streets and parking lots where minimum cover shall be 3 feet.

E. The width of the trench shall be sufficient to permit thorough compaction of the backfill under and around the pipe but not exceeding the external diameter of the pipe by more than 12 inches. Excavation for pipes shall be by hand and/or machine and as specified herein and shall confirm to the lines and elevations indicated on the plans.

F. The pipe shall be placed on a uniformly firm and compacted bed of sand, carefully shaped to support the pipe at the desired grade and so that any reaction will be distributed as nearly uniform as possible over a horizontal width of not less than six-tenths (6/10) of the outside diameter and all possibility of concentration of the reaction at or near the vertical diameter eliminated. The bed shall be shaped as to fit the lower part of the pipe exterior for at least 10 percent of its overall height.

G. The pipe shall be placed on a firm foundation. Any muck or other objectionable material found during excavation and preparation of the bed shall be removed and replaced with suitable bed material directed by the Architect.

H. All trenches and excavation shall be backfilled in a reasonable time after the pipes are installed unless otherwise directed by the Architect. Special care shall be taken in placing the backfill and extra care shall be used to obtain compaction under and along sides to the top of the pipe.

I. The backfill shall be placed in loose layers not exceeding 6 inches in depth under and around the pipe and not exceeding 8 inches over the pipe. Each layer shall be compacted to the compaction requirements as specified by the Architect.

J. Compaction shall be by hand and pneumatic tampers and the successive layers shall be added and compacted until the trench is completely filled and brought to elevation as directed. Back-filling shall be done in such a manner as to avoid injurious top or side pressures on the pipe.

K. Improper backfilling and compacting shall be cause to have the trench opened to expose the pipe for inspection then properly backfilled and compacted with fill material.

L. Where trenching is for piping, the bottom of the trench shall have minimum 95 percent compaction and shall be bedded with a minimum 12 inches compacted sand, crushed stone or shell on undisturbed soil (minimum 95 percent compaction).

1.15 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.16 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.17 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.18 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.19 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.20 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guideline. (Chlorination, chemical treatment, etc.)

1.21 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.22 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major plumbing equipment (water heaters, pumps, starters, mixing valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to

Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.23 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction.

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes.

1.24 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, etc., and leave entire installation in good working order.

1.25 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of his contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color samples). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.26 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.27 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.28 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all plumbing systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.29 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques.

B. Contractor shall use factory start-up personnel to train the Owner's maintenance personnel.

1.30 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspections.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.31 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.32 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
   c. Contractor, name of responsible principal, address and telephone number.
   d. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
   e. Provide owner with contact information for warranties which extend beyond one year.

1.33 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.34 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.35 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 22 05 00

FORD FIELDS CONCESSION STAND
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SECTION 22 05 03 - BASIC MATERIALS AND METHODS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 SANITARY SEWER WASTE AND VENT LINES

A. All sanitary sewer waste and vent lines above and below building slab shall be constructed of service weight bell and spigot cast iron pipe and fittings. Where space requirements do not allow the use of the above materials, government type DWV copper pipe shall be used. All cast iron pipes shall comply with Commercial Standards CS 188-59 coated with tar inside and out and marked with manufacturer's identification and proper weight classification. Joints shall be made with neoprene gaskets.

B. At contractor's option, all sanitary sewer waste and vent lines **excluding grease waste piping** may be Schedule 40 PVC plastic lines and fittings with solvent weld joints (solid core allowed only; foam or cell core not acceptable). Grease waste piping shall remain cast iron.

C. Sanitary sewer lines exterior of building (5 feet from building) **excluding grease waste piping** shall be constructed of ABS or PVC Schedule 40 type "DWV" plastic pipe and fittings (solid core allowed only; foam or cell core not acceptable). Do not mix PVC and ABS materials. Grease waste piping shall remain cast iron.

D. At contractor's option, sanitary sewer vent lines above grade may be constructed of "no hub" service weight cast iron pipe with neoprene/stainless steel clamp couplings.

2.2 DOMESTIC WATER PIPE/WATER HEATER RELIEF PIPE/EQUIPMENT DRAIN PIPE/TRAP PRIMER

A. All domestic cold water lines/hot water lines within building, water heater relief lines and equipment drain piping shall be government type "L" hard copper water tube of standard weight and thickness, unless indicated otherwise. Use 95-5 "lead free" solder on all piping above slab. Use Silfos 1000 degrees Fahrenheit solder on all piping beneath slabs. "Press-Fit" or "Pro-Press" piping is not acceptable.

B. Site water piping (beyond 5 feet of building footprint) shall be Schedule 40 PVC pipe and fittings solvent weld joints (solid core allowed only; foam or cell core not acceptable).

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for domestic water lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe unless other material is approved by the Structural Engineer. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers for cast iron pipes shall be 5 feet; for other than soil, use 10 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported piping or accessories will not be accepted.

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2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures.

B. Valves and unions shall be as follows:

COPPER PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 1320	115	Crane 461	M-2882
Globe Valve	Crane 1310	1590T	Crane 359	F-2981
Unions	Crane 633		Crane Std. Gal.	
Check Valve	Crane 1303	1509	Crane 373	2974M

IRON PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 440	148	Crane 461	F2882-M
Globe Valve	Crane 7	590	Crane 359	F
Unions	Crane 633			
Check Valve	Crane 1303	1509	Crane 373	2974M

C. The following valves are considered equal to Crane Company:

CRANE	POWELL	NIBCO	HAMMOND	STOCKHAM	MV
7	150	T-235-Y	1B413T	B-22	590T
359	301	F-718-Y	1R126	G514	F2981
373	559	F918B	1R1124	G931	M2974
440	500	T113	1B640	B114	148
461	1787	F619	1R1138	G612	M-2882
1303	1825	S413(BWY)	1B943	B309	1509
1310	1823	S211(YW)	424	B14	1502
1320	1822	S113	1B647	B112	115

D. All valves, unions, etc., where pipe is chrome plated shall have similar finish. All exposed supplies to plumbing fixtures shall be chrome plated.

E. Ball valves shall be as manufactured by Milwaukee Valve (MV), Watts, Stockham, Powell, NIBCO, Neles-Jamesbury or Hammond.

	2" and Smaller	2-1/2 to 4"	Over 4"
Watts	Series B-6800	Series G-4000	Series G-4000
Neles-Jamesbury	Series 4000	Full Port Series	Full Port Series
Milwaukee Valve	BA-300	F-20CS	F-20CS

F. All valves over 2 inches shall be flanged type and full port type. All valves 2 inches and smaller shall be screw type, sweat type or flanged type as appropriate for type of pipe.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Plumbing Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Plumbing Contractor. The Electrical Contractor shall do all power wiring required for the installation of all equipment including equipment interlocking power wiring, etc. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Plumbing Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

D. Plumbing contractor shall provide and install transformers and low voltage wiring (below 120-1-60) from transformer to equipment. Electrical contractor shall provide and install power wiring to transformers.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall or ceiling where located.

B. Access panels located in rated walls, floors, ceilings, shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 SANITARY SEWER PIPE

A. Pipe ends shall be square cut. Ends of pipes shall be reamed and shall be wiped clean to remove cuttings. Before installation, pipe shall be stood on end and tapped sharply to remove cuttings and other foreign materials from interior. Pipe shall be thoroughly cleaned inside and outside. Bending or springing of pipe shall not be permitted.

B. Various service pipes, valves, fittings, etc., running parallel with each other and near together shall be in line with each other and shall be kept at a sufficient distance from

each other and other work to permit no less than 1/2 inch between finished coverings on different services.

C. Each contractor shall furnish all foundations, structural or pipe supports indicated, called for specifically or that may be required to support his particular equipment and material unless hangers are definitely indicated as being furnished by others. Sewer waste and vent lines shall be supported every 4 feet.

D. Perforated strap hangers shall not be allowed for any part of the hangers.

E. Drainage and vent pipes: Horizontal soil and waste pipes 3 inches and smaller shall have a grade of 1/4 inch per foot and line 4 inches and larger shall have a grade of 1/8 inch per foot unless otherwise specified. The main vertical soil and waste vent shall be extended full size through the wall. Cast-iron pipe inside the building shall be extended 6 inches above the floor.

F. Fittings: Changes in pipe size on soil, waste, and drain lines shall be made with reducing fittings of recessed reducers. All changes in direction shall be made by the appropriate use of 45 degree wyes, long or short sweep 1/4 bends, 1/6, 1/8, or 1/16 bends, or by a combination of those or equivalent fitting, except that single and double sanitary tees may be used in drainage lines only where the direction of flow is from horizontal to vertical. Short sweeps not less than 3 inches in diameter may be used where the change in direction of flow is either from horizontal to vertical or from vertical to horizontal.

G. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.

4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

H. Make connections to equipment and branch mains with unions.

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Install each fixture with trap, easily removable for servicing and cleaning. Each trap shall be placed as near the fixture as possible, and no fixture shall be double trapped. At completion thoroughly clean plumbing fixtures and equipment.

K. Fixture connections: Connections between earthenware fixtures and flanges on soil pipes shall be made absolutely gas tight and water tight with a closet-setting compound or gasket. Bolts shall be not less than 1/4 inch in diameter and shall be equipped with chromium-plated nuts and washers.

L. Test sanitary drainage, condensate drains and vent systems with water or air in accordance with requirements of the State Sanitary Code, International Plumbing Code and all applicable local codes. Water test may be applied to entire drainage systems or sections of systems. All openings shall be tightly closed in section to be tested except at highest opening. All portions of systems shall be subject to a minimum of 10 feet head of water. Water must have been in the system two hours prior to inspection. Air test in accordance with the Plumbing Code may be used at contractor's option.

M. Sanitary sewer or storm drain pipe penetrating concrete slabs shall be wrapped with foam insulation tape.

3.2 DOMESTIC WATER PIPE

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.

5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide non-conducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Domestic cold water lines penetrating concrete slabs shall be wrapped with vinyl flexible tube. Domestic hot or return water piping penetrating concrete slabs shall be insulated at all penetrations through slab (refer to insulation specifications).

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Hydrostatically test entire domestic water system to 200 psig or 2-1/2 times normal working pressure.

K. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

L. Sealing or flashing the building envelope due to penetrations in building shall be the responsibility of the general contractor.

M. Water service to fixtures or groups of fixtures shall have 12 inch long air chambers at the same diameter as header or service pipe on both hot and cold water lines. Air chamber shall be installed close to fixture. Provide and install shock arrestors on sterilizer water supplies or supplies with quick closing valves such as flush valves, dishwashers, tempering valves, etc. Location and size of shock arrestor shall be as per manufacturer's instructions.

END OF SECTION 22 05 03

FORD FIELDS CONCESSION STAND
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SECTION 22 05 93 - SYSTEM TESTING AND BALANCING FOR PLUMBING

PART 1 - GENERAL

1.1 SCOPE

A. Includes But Not Limited To -

1. Witnessing of all plumbing system testing required of Plumbing Subcontractor.
2. Test and Balance agency shall be present for factory start-up of equipment when factory start-up is required.

B. Related Work Specified Elsewhere -

1. The plumbing subcontractor shall address all issues as recommended by Air Balance and Testing Agency at no additional cost to Owner.

1.2 QUALITY ASSURANCE

A. Testing Agency -

1. **General Contractor shall procure services of an independent AABC or NEBB Air Balance and Testing Agency which specializes in balancing and testing of heating, ventilating, and cooling systems. These services shall not be provided by the installing Plumbing Contractor on the project but shall be direct subcontractor of the general contractor. This shall be the same contractor providing Air Balance and Testing services as indicated in Division 23.**
2. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Technician employed by Agency.
3. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
4. If requested, conduct tests in presence of Engineer.
5. Agency shall be approved in writing by Engineer. Plumbing Contractor shall not be permitted to do this work. Submit qualifications for review.

B. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of balancing test report.**

1.3 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

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PART 2 - EXECUTION

2.1 Begin balance and testing upon completion of plumbing systems including installation of all specialties and devices.

A. General Contractor shall put systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance Manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

2.2 STANDARDS

A. Perform testing and balancing in complete accordance with the Associated Air Balance Council Standards for Field Measurement and Instructions, Form P1266, Volume I. Record test data on AABC standard forms or facsimile thereof.

2.3 TESTING PROCEDURE

A. Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when piping installation begins.**

B. The following minimum information shall be included in the finished report:

1. Plumbing:
The Test and Balance Contractor shall observe witness and record all plumbing tests required by these specs. The Plumbing Contractor shall contact the Test and Balance Contractor when testing is done. FAILURE TO DO SO WILL REQUIRE TESTING OF THE ENTIRE SYSTEM.

END OF SECTION 22 05 93

FORD FIELDS CONCESSION STAND
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SECTION 22 07 00 – PLUMBING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 DOMESTIC WATER PIPING

A. Cover cold water lines above ceilings and in exterior walls with 1 inch thick and all hot water lines with 1-1/2 inch thick closed cell rubber type insulation. At contractor's option, fiberglass insulation with white universal jacket may be used. All flanges, valves and fittings shall be insulated with closed cell rubber type molded fittings insulation, fabricated mitered segments of pipe insulation or closed cell rubber type insulation equivalent in thickness to insulation of adjoining pipe.

B. All water lines exposed in mechanical rooms shall be covered with 0.020 color coded PVC jacket with solvent welded seams and joints.

C. All water lines outside of building exposed to the weather shall have 1 inch thick closed cell rubber type insulation covered with 0.016 smooth aluminum jacket and elbows.

D. All water lines below building slab shall be insulated with 1 inch thick closed cell insulation with two (2) coats of mastic.

2.2 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, shall be insulated with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.3 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.4 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 22 07 00

FORD FIELDS CONCESSION STAND
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SECTION 22 10 00 - PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish all labor and materials as hereinbefore specified, indicated or reasonably implied for the complete installation of the following systems:

1. Cold Water
2. Hot Water System
3. Sanitary Drainage System

PART 2 - MATERIALS

2.1 FLOOR DRAINS

A. All floor drains shall be constructed of cast iron and shall be complete with clamping devices as required.

B. Floor drains (Marked "FD"): shall be bottom outlet with duracoated cast iron body with clamping collar and 6 inch diameter nickel bronze strainer adjustable vertically to floor level, with square perforations and vandal proof screws. Refer to fixture schedule for specific types.

2.2 CLEANOUTS

A. Cleanouts shall be provided where shown on plans, at each change of direction of the building drain greater than 45 degrees and at or near the foot of each vertical waste or soil stack. Location of all cleanouts shall be same size as piping up to 4 inches. Larger pipes shall have 4 inch cleanouts unless noted otherwise. Every cleanout shall be installed so that the cleanout opens in the direction of flow of the drainage line or at right angles thereto. Floor cleanouts shall be adjustable type, double drainage flange, clamping collar (above ground installations), 2 pound lead flashing, nickel bronze cover. Top of cleanout shall be level with top of finished floor so there is a continuous surface. Floor cleanouts shall be Jay R. Smith, Josam or Wade. Wall cleanouts shall be nickel bronze access frame and cover Zurn, Jay R. Smith, Josam or Wade. Outside cleanouts shall be installed with cover, set flush with finished grade, or as detailed on plans.

2.3 FLASHING

A. Flash around all pipes passing through roof in connection with this contract with sheet lead, not less than 2-1/2 pound to the square foot, built 6 inches into the waterproofing, running 10 inches up the pipe and turned over into the pipe cavity. Flashing around roof

drains shall be not less than 2-1/2 pound lead extending at least 12 inches from the drain rim into membrane waterproofing. Fasten flashing to drain clamp device making watertight durable joint.

2.4 EQUIPMENT FURNISHED BY OWNER AND/OR BY OTHER TRADES

A. This equipment and other miscellaneous equipment shall be furnished and set in place under other sections of these Specifications and/or by the Owner, unless specified otherwise.

B. Plumbing Contractor shall provide necessary rough-in required for the equipment and shall completely connect all plumbing services for this equipment providing cut-off valves and unions for each plumbing supply service to each piece of equipment. It is the obligation of the Plumbing Contractor to obtain correct rough-in dimension plans for this equipment as well as the equipment furnished under this contractor.

C. The various Equipment Contractors shall provide access holes for service lines that enter his equipment. This work to be performed on the job site, as necessary. Plumbing Contractor shall furnish and install escutcheons, locknut type, at these locations.

2.5 PLUMBING FIXTURES

A. Plumbing Contractor shall furnish and install all plumbing fixtures shown on accompanying drawings. Refer to both plumbing and architectural drawings and provide all fixtures shown on either. Fixtures shall be complete with all necessary brass and accessories required for a complete installation including traps, escutcheons, angle supplies, basin cocks, etc. All fixtures shall be new and must be delivered to the building properly crated in perfect condition.

B. All brass must be of the best quality, lightweight goods will not be accepted. All brass pipe shall be seamless brass tubing and nipples shall be extra heavy. All fittings and trim shall be chromium plated heavy brass unless otherwise specified. "P" traps shall be cast brass with cleanouts. All exposed piping shall be chromium plated. Provide cutoff valves at each fixture in both hot and cold water piping.

C. For the purpose of establishing type and class of fixtures required, the scheduled plate numbers have been taken from the indicated catalog. Approved equals shall be as follows: Fixtures: Kohler, Briggs, American Standard, Crane, Eljer, Elkay, Dayton, Just or Universal Rundle. Flush Valves: Sloan, Zurn. Faucets: Elkay, Just, Chicago, Kohler, American Standard, Delta Commercial, Zurn, Speakman. Water Heaters: A.O. Smith, Ruud/Rheem, State, Bradford White. Drains: Wade, J.R. Smith, Zurn, Josam. Hose Bibbs: Josam, Woodford, J.R. Smith, Wade, Zurn.

D. All vitreous china plumbing fixtures shall be manufactured in the United States, Canada or Mexico.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Prior to all work of this section, carefully inspect the installed work of adjacent trades and verify that all such work is complete to the point where fixture installation may properly commence.
2. Verify that all hangers and fixture supports are properly installed to receive plumbing fixtures.

3.2 PLUMBING FIXTURE

A. Each plumbing fixture shall be fitted with all necessary and proper fittings, trimmings and operating devices, and shall be in perfect operating condition.

B. Refer to architectural drawings for any other information that may be necessary or required in connection with plumbing installation.

C. Before setting any fixtures, obtain the exact mounting height, as desired, from the Architect.

D. Wall mounted water closets, urinals, and lavatories shall have a floor anchored carrier to fit in available wall space (coordinate requirements in drawings).

END OF SECTION 22 10 00

FORD FIELDS CONCESSION STAND
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SECTION 22 11 00 - WATER SUPPLY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Install water supply piping as indicated on plans.

PART 2 - MATERIALS

2.1 PIPING

A. All water supply piping shall be of materials hereinbefore specified.

B. All water lines shall be disinfected in accordance with the State Sanitary Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water lines run underground shall have a minimum of 24 inches cover to finished grade.

B. Make up complete water supply system. Connect to all fixtures and outlets requiring water.

C. At each fixture or group of fixtures furnish and install a 12 inch high air chamber of same size as branch feed line except at fixtures with quick closing valves such as flush valves, dishwashers, etc., in which cases provide "Shock Arrester" properly sized for each unit.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 11 00

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SECTION 22 13 00 - WASTE WATER DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Extend sanitary sewer lines to the location as shown on the plans.

PART 2 - MATERIALS

2.1 PIPING

A. The system of sewage and drainage shall be of materials as hereinbefore specified except where space requirements necessitate the use of Type "DWV" copper.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All work shall be in strict conformity with the International Plumbing Code and in accordance with all local codes. Piping shall be routed as shown on plans or in acceptable manner to meet building conditions. Venting shall be as shown on plumbing riser diagrams.

B. Connections between traps and cast iron pipes are to be made with heavy brass ferrules.

C. Provide reducers, increasers, special flanges, and fittings where required between piping work and fixtures in order to connect and complete work and render it ready for use. Make any offsets required to avoid construction.

D. All lines 3 inches and smaller shall be sloped 1/4 inch per foot, lines 4 inches shall be sloped 1/8 inch per foot, lines 6 inches shall be sloped 1/16 inch per foot and all lines 8 inches and larger shall be sloped 0.4 percent. Piping shall be laid so slope is continuous.

E. All vents shall extend 10 inches above roof and terminate in an appropriate flashing collar. No vents shall penetrate roof within 48 inches of an exterior wall. Offset in ceiling as required. All back vents shall be taken off as near trap as possible.

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3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 13 00

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SECTION 22 16 00 – NATURAL GAS PIPING/DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Fuel gas systems, including piping, equipment and all necessary accessories as designated in this section. Fuel gas piping to equipment shall be routed as shown on plans.

1.2 RELATED WORK

A. FIRESTOPPING: Penetrations in rated enclosures.

B. PAINTING: Preparation and finish painting and identification of piping systems.

C. COMMON WORK RESULTS FOR PLUMBING.

D. GENERAL DUTY VALVES FOR PLUMBING PIPING

1.3 SUBMITTALS

A. Submit SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.

B. Manufacturer's Literature and Data:

1. Pipe & Fittings.
2. Valves.
3. Strainers.
4. All items listed in Part 2 - Products.

C. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Use the edition listed or most recent edition adopted by Local, State or Federal agencies having jurisdiction.

B. Federal Specifications (Fed. Spec.):
A-A-59617 ..... Unions, Brass or Bronze Threaded, Pipe Connections and Solder-Joint Tube Connections

C. American National Standards Institute (ANSI):
American Society of Mechanical Engineers (ASME): (Copyrighted Society)
A13.1-(2007) ..... Scheme for Identification of Piping Systems
B16.3-(2006) ..... Malleable Iron Threaded Fittings: Classes 150 and 300 ANSI/ASME
B16.9-2007 ..... Factory-Made Wrought Steel Buttwelding Fittings ANSI/ASME
B16.11-2009 ..... Forged Steel Fittings, Socket-Welding and Threaded ANSI/ASME
B16.15-2006 ..... Cast Copper Alloy Threaded Fittings: Classes 125 and 250 ANSI/ASME
B31.8-2010 ..... Gas Transmission and Distribution Piping Systems ANSI/ASME

D. American Society for Testing and Materials (ASTM):
A47-99(2009) ..... Standard Specification for Ferritic Malleable Iron Castings
A53-10 ..... Standard Specification for Pipe, Steel, Black And Hot-Dipped, Zinc- coated Welded and Seamless
A183-09 ..... Standard Specification for Carbon Steel Track Bolts and Nuts
A536-09 ..... Standard Specification for Ductile Iron Castings
A733-03(2009)e1 ..... Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples
B687-99(2005)e1 ..... Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

E. National Fire Protection Association (NFPA):
54-2009 ..... National Fuel Gas Code

F. International Code Council
IPC 2009 ..... International Plumbing Code
IFGC 2009 ..... International Fuel Gas Code

G. International Association of Plumbing and Mechanical Officials (IAPMO):
Uniform Plumbing Code – 2009
IS6-06 ..... Installation Standard

H. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):
SP-72-2010 ..... Ball Valves with Flanged or Butt-Welding For General Service
SP-110-2010 ..... Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

1.5 SYSTEM PRESSURE

A. Natural gas systems, unless otherwise noted are designed and materials and equipment selected to prevent failure under gas pressure at downstream side of pressure regulator.

PART 2 - MATERIALS

2.1 FUEL GAS SERVICE CONNECTIONS TO BUILDING (UNDERGROUND AND/OR EXPOSED TO WEATHER)

A. From inside face of exterior wall (outside of building), use coated piping as herein before and/or herein after specified.

B. Pipe: Black Steel, ASTM A53, Schedule 40. Shop-applied pipe coating shall be one of the following types:

1. Coal Tar Enamel Coating: Exterior of pipe and fittings shall be cleaned, primed with Type B primer and coated with hot-applied coal tar enamel with bonded layer of felt wrap in accordance with AWWA C203. **Asbestos felt shall not be used**; felt material shall be fibrous glass mat as specified in Appendix Section A2.1 of AWWA C203.
2. Adhesive-thermoplastic Resin Coating: Fed. Spec. L-C-530, Type I
3. Thermosetting Epoxy Coating: Fed. Spec. L-C-530, Type II
4. Field-applied plastic tape material used on pipe joints and for repairing damaged areas of shop-applied coatings, Fed. Spec. L-T-1512, Type I, 10 mils nominal thickness for pipe joints, and Type II, 20 mils nominal thickness for coating repairs.

C. Holiday Inspections: Procedure for holiday inspection: Holiday Inspection shall be conducted on all coatings to determine the presence and number of discontinuities in those coatings referenced in 2.6/B - 1, 2, 3, and 4 using a Tinker & Rasor model AP/W Holiday Detector. Holiday inspection shall be performed in a manner spelled out in the Tinker & Rasor operating instructions and at a voltage level recommended by the coating manufacturer or applicable NACE International Standard such as RPO 274-93 or RPO 490-90 in the case thermosetting epoxy coating. Holiday Detectors shall be calibrated and supplied with a certificate of calibration from the factory. A calibration of the Holiday Detector shall be performed once every 6 months to verify output voltages are true and correct.

D. Fittings:

1. Butt weld fittings, wrought steel, ANSI B16.9.
2. Socket weld and threaded fittings forged steel, ANSI B16.11.
3. Grooved End: Ductile iron (ASTM A536, Grade 65-45-12), malleable iron (ASTM A47, Grade 32510), or steel (ASTM A53, Type F or Type E or S, Grade B).

E. Joints: Welded, ANSI B31.8.

2.2. FUEL GAS PIPING

A. Pipe: Black steel, ASTM A53, Schedule 40.

B. Nipples: Steel, ASTM A733, Schedule 40.

C. Fittings:

1. Sizes 2 inches under ANSI B 16.3 threaded malleable iron.
2. Over 2 inches and up to 4 inches ANSI B16.11 socket welded.
3. Over 4 inches ANSI 16.9 butt welded.

D. Joints: Provide welded or threaded joints.

2.3 EXPOSED FUEL GAS PIPING

A. Finished Room: Use full iron pipe size chrome plated brass piping for exposed fuel gas piping connecting fixtures, casework, cabinets, equipment and reagent racks when not concealed by apron including those furnished by the Government or specified in other sections.

1. Pipe: Fed. Spec. WW-P-351, standard weight
2. Fittings: ANSI B16.15 cast bronze threaded fittings with chrome finish, (125 and 250).
3. Nipples: ASTM B 687, Chromium-plated.
4. Unions: 2 inches and smaller Mss SP-72, SP-110, Brass or Bronze threaded with chrome finish. Unions 2-1/2 inches and larger shall be flange type with approved gaskets.
5. Valves: Mss SP-72, SP-110, Brass or bronze with chrome finish.

B. Unfinished Rooms, Mechanical Rooms and Kitchens: Chrome-plated brass piping is not required. Paint piping systems as specified in Section PAINTING.

2.4 VALVES

A. Ball Valve: Bronze body, rated for 1025 kPA at 185°C (150 psi at 365°F), 1725 kPa at 121°C (250 psi at 250°F), reinforced TFE seat, stem seal and thrust washer; end entry, threaded ends, UL-listed for natural or LP gas shut off service when used on those services.

B. Gas Vent Cocks: Type 701: Bronze body, tee handle, rated for 205 kPa at 38°C (30 psi at 100°F), ground plug, rated for tight shut-off on fuel gas service.

2.5. WATERPROOFING

A. Provide at points where pipes pass through membrane waterproofed floors or walls in contact with earth.

B. Floors: Provide cast iron stack sleeve with flashing device and a underdeck clamp. After stack is passed through sleeve, provide a waterproofed caulked joint at top hub.

C. Walls: See detail shown on drawings.

2.6 STRAINERS

A. Provide on high pressure side of pressure reducing valves, on inlet side of indicating and control instruments and equipment subject to sediment damage and where shown on drawings. Strainer element shall be removable without disconnection of piping.

B. Gas Lines: "Y" type with removable mesh lined brass strainer sleeve.

C. Body: Smaller than 3 inches, brass or bronze; 3 inches and larger, cast iron or semi-steel.

2.7 DIELECTRIC FITTINGS

A. Provide dielectric couplings or unions between ferrous and non-ferrous pipe.

2.8 GAS EQUIPMENT CONNECTORS

A. Flexible connectors with teflon core, interlocked galvanized steel protective casing, AGA certified design.

2.9 REGULATORS

A. Provide all pressure regulators for the project. Contractor shall be responsible for providing regulators properly selected for pressure, flow, and location. All regulators shall be field adjustable. All regulators shall be vented type. Regulators installed inside buildings shall have vent piping extended to the exterior of the building.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with the International Fuel Gas Code and the following:

1. Install branch piping for fuel gas and connect to all fixtures, valves, cocks, outlets, casework, cabinets and equipment, including those furnished by the Government or specified in other sections.
2. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe, shall be reamed to full size after cutting.
3. All pipe runs shall be laid out to avoid interference with other work.
4. Install valves with stem in horizontal position whenever possible. All valves shall be easily accessible.
5. Install union and shut-off valve on pressure piping at connections to equipment.
6. Pipe Hangers, Supports and Accessories:
   a. All piping shall be supported per the International Fuel Gas Code, Chapter No. 4.
   b. Shop Painting and Plating: Hangers, supports, rods, inserts and accessories used for Pipe supports shall be shop coated with zinc Chromate primer paint. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.
   c. Floor, Wall and Ceiling Plates, Supports, Hangers:
      1) Solid or split unplated cast iron, chrome plated in finished areas.
      2) All plates shall be provided with set screws.
      3) Pipe Hangers: Height adjustable clevis type.
      4) Adjustable Floor Rests and Base Flanges: Steel.
      5) Concrete Inserts: "Universal" or continuous slotted type.
      6) Hanger Rods: Mild, low carbon steel, fully threaded or Threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.
      7) Riser Clamps: Malleable iron or steel.
      8) Rollers: Cast iron.
      9) Self-drilling type expansion shields shall be "Phillips" type, with case hardened steel expander plugs.
      10) Miscellaneous Materials: As specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories.
7. Install cast chrome plated escutcheon with set screw at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.
8. Penetrations:
   a. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases. Completely fill and seal clearances between piping and openings with the fire stopping materials.
   b. Waterproofing: At floor penetrations, completely seal clearances around the pipe and make watertight with appropriate sealant.

B. Piping shall conform to the following:

1. Fuel Gas:
   a. Entire fuel gas piping installation shall be in accordance with requirements of NFPA 54.
   b. Provide fuel gas piping with plugged drip pockets at low points.

3.2. CLEANING OF SYSTEM AFTER INSTALLATION

A. Clean all piping systems to remove all dirt, coatings and debris.

3.3 TESTING

A. General: Test system either in its entirety or in sections after system is installed and cleaned.

B. Test shall be made in accordance with Section 406 of the International Fuel Gas Code. The system shall be tested at a minimum of 1.5 times maximum working pressure, but not less than 30 psig (20 kPa) gage).

END OF SECTION 22 16 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

CERTIFICATION OF RESPONSIBILITY FOR

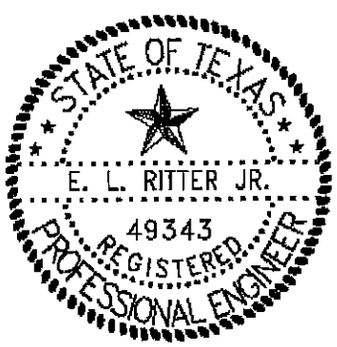
DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC



Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 00 - GENERAL PROVISIONS FOR HVAC

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Mechanical subcontractor shall be the sole source responsible party to furnish and install the mechanical system. Mechanical contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 23 of these specifications, it is intended to mean the Mechanical Contractor as appropriate. These are sub-contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 23 – Mechanical) under the contract with the owner. The General contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete mechanical portion of this contract, including air conditioning, heating, and ventilating systems as called for herein and on accompanying drawings. Parts of the mechanical division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items

covered in the Mechanical Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Plumbing and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all mechanical systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than seven days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Mechanical Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect/Engineer. After initial surfacing has

been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The HVAC piping shall be run in such a manner as to avoid conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire mechanical work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all mechanical work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. American Society of Heating, Refrigeration and Air Conditioning Engineers
2. National Electric Code
3. National Fire Protection Association
4. American Society of Mechanical Engineers
5. Underwriters's Laboratories
6. American Gas Association
7. Energy Code for Commercial and High Rise Residential Buildings
8. International Energy Conservation Code
9. International Building Code
10. International Mechanical Code
11. SMACNA Guidelines

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift ducts or pipes or to change the shape of ducts and these changes shall be made as required. All such changes shall be referred to the Architect for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Mechanical Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

E. Materials and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between mechanical and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the HVAC ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. **Any resizing required shall be part of this project and done without any additional cost to the Owner. DO NOT MAKE DUCTWORK WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of HVAC piping with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per instructions and details of the structural engineer.

F. All pipng shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.
4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. **HVAC ductwork shop drawings shall be prepared showing all conditions of installation coordinated with structure, lights, sprinklers, ceiling, etc. These shop drawings shall be prepared within 45 days of the award of the general contract for the project. Drawings shall be done at minimum 1/8 inch scale on 24 inch x 36 inch sheets.**

I. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

J. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

K. All submittals shall be submitted prepaid and in ample time for review before installation.

L. Six (6) copies of each submittal shall be submitted to the Architect.

M. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted (except in the case of the HVAC ductwork shop drawings).**

N. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

O. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

P. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done as per the Federal, State of Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.13 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.14 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect/Engineer prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.15 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.16 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

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1.17 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any mechanical equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.18 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guidelines (chlorination, chemical treatment, etc.).

1.19 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.20 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major mechanical equipment (pumps, AHUs, starters, valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.21 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction. **Contractor shall provide temporary dehumidification and drying equipment as required to maintain clean, dry air during construction.**

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes, operation of refrigeration and heating system for short periods to adjust controls and temperature regulation, or the operation of fans for air balance.

1.22 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, ductwork, etc., and leave entire installation in good working order.

1.23 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of the contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, ducts, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color sample). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.24 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.25 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.26 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all mechanical systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.27 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques of the air conditioning unit.

B. Contractor shall use factory start-up personnel to train the owner's maintenance personnel.

1.28 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspection.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.29 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters. Additional warranties beyond the above shall be furnished as specified elsewhere in these specifications.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.30 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
7. Contractor, name of responsible principal, address and telephone number.
8. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
9. Provide owner with contact information for warranties which extend beyond one year.

1.31 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.32 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.33 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 23 05 00

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SECTION 23 05 03 - BASIC MATERIALS AND METHODS FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 REFRIGERANT PIPING/EQUIPMENT DRAIN PIPING

A. All refrigerant and equipment drain piping shall be government type "L" hard copper tube standard weight and thickness as made by Mueller, Chase, Anaconda or equivalent, unless indicated otherwise. Use Silfos 1000 degrees Fahrenheit solder on all joints.

B. Tubing shall be brought to the site with ends sealed.

2.2 A/C CONDENSATE DRAIN PIPING

A. All A/C condensate drain piping shall be government type "L" hard copper water tube of standard weight and thickness. Fittings shall be compatible with pipe. Use Silfos 1000 degrees Fahrenheit solder on all joints.

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for refrigerant piping and other copper lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers shall be 5 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported fixtures or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures, refer to Division 22.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Mechanical Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Mechanical Contractor. The Electrical Contractor shall do all power wiring required for the installation of all mechanical equipment including equipment interlocking power wiring, etc. Temperature control wiring shall be furnished and installed by the Mechanical Contractor. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Mechanical Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All motors for the mechanical equipment shall be of the 40 degrees Celsius rise type and shall be furnished and installed by the Mechanical Contractor. All motors shall be wound for +/- 10 percent of the specified voltage. Motors shall be voltages indicated on drawings. All motors shall have copper windings, Class F insulation and shall be rated for continuous duty service. All three-phase motors shall be inverter-duty type motors.

D. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

E. Starters for single phase motors 1/2 HP and below shall be furnished with pilot light and "hand-off-auto" selector switch where required.

F. Starters for three-phase, single speed motors shall be stepless solid state soft starter with "hand-off-auto" selector switch, three overload relays and auxiliary contacts as required. The starter shall operate at manufacturers ratings with 10 percent and -15 percent applied voltage tolerance and be capable of operating continuously under ambient temperatures of 0 to 50 degrees Celsius. The starter control circuitry shall be designed for current ramp operation and utilize current feedback for closed loop operation to minimize variation of acceleration time with varying load conditions. The starter shall use metal oxide varistors to clip transient voltage spikes on incoming power lines with protection to limit the rate of rise of voltage spikes to protect the SCR's from damage. The starter shall provide electronic motor overload protection. The starter shall shut down (or shall not start) to protect itself from either phase loss or phase rotation. The starter shall have adjustments for initial torque, pulse, ramp up time, ramp down time, and current limit. The starter shall have a main trip breaker to act as a disconnect and necessary contactors. The starter shall have contacts for remote starting from a building energy management system.

G. Mechanical contractor shall provide and install all smoke dampers and smoke or duct detectors. The electrical contractor shall provide and install all wiring/interlocks with fire alarm.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor, Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall of ceiling where located.

B. Access panels located in rated walls, floors, or ceilings shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

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PART 3 - EXECUTION

3.1 PIPING

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be

repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.

a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.

2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide nonconducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Provide drain valves at main shutoff valves, low points of piping and apparatus.

I. Provide and install air vents with shutoff valve at all high points in the system.

J. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

END OF SECTION 23 05 03

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SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Division 23 Specification Sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.2 SCOPE OF WORK

A. The General Contractor shall obtain the services of an independent test and balance company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s). These services shall not be provided by the installing mechanical contractor on the project but shall be a direct subcontractor of the general contractor.

1. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Heating and Ventilating Technician employed by Agency.
2. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
3. If requested, conduct tests in presence of Engineer.
4. Agency shall be approved in writing by Engineer. Mechanical Contractor shall not be permitted to do this work. Submit qualifications for review.

B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems, as described in these Specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. Refer to Plumbing Division 22 for additional work required of Air System Test and Balance agency.

C. **Test and Balance agency shall be present for factory start-up of equipment when factory startup is required.**

D. Representatives of the test and balance company shall visit the job site at 60 percent and 90 percent completion of installation of the HVAC equipment, piping and ductwork to review the installation. After each site visit, the test and balance company shall report to the Architect any items that are not installed properly, are missing from the Contract Documents or items that are required to enable him to perform the testing and balancing of the HVAC systems as per normal standard practice. After review, the Architect shall instruct the contractor to implement the recommendations at no additional cost to the Owner if these items were specified in the original scope of the project.

E. Upon completion of the HVAC system installation, the test and balance company shall perform all testing and balancing with the full cooperation of the contractor and his

subcontractors. The contractor shall make changes and/or adjustments to the HVAC system components that are required by the test and balance company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work by the contractor shall be performed at no additional cost to the Owner.

F. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of air balancing test report.**

G. Engineer will choose and direct spot balancing of one zone. Differences between the spot balance and test report will be justification for requiring repeat of testing and balancing for entire building.

1. Be prepared to spot smoke test one ducted system as directed by Architect's Engineer.
2. Rebalancing shall be done in presence of Architect and subject to his approval.
3. Spot balance and rebalance shall be performed at no additional cost to Owner.

H. The test and balance report shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. If he does not concur with the report, he shall meet with the Test and Balance Company to determine what needs to be done to obtain a properly balanced system.

I. After the Mechanical Engineer signs the testing and balancing report, the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.

1.3 The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

A. AIR SYSTEMS:
Air Handling Units
Fans
Zone Branch and Main Ducts
Diffusers, Registers, Grilles and Dampers
Coils (Air Temperatures)
Valves
Vibration Isolators
Duct Smoke/Pressure Leak Testing

1.4 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

1.5 DEFINITIONS, REFERENCES, STANDARDS

A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.6 QUALIFICATIONS

A. Agency Qualifications: The TAB agency shall be a current member of the AABC,NEBB or TABB.

B. Prior to working on this project, the technicians shall attend training provided by the manufacturer of the various equipment on this project on the specific aspects of balancing the equipment. Include letters or certificates from the manufacturer on attendance and satisfactory completion of the factory training. These certifications may be used for continuing education. At a minimum, the technicians shall receive training from the air distribution equipment manufacturer, air unit manufacturer, and temperature controls manufacturer. This should be done prior to any equipment start-ups.

1.7 SUBMITTALS

A. Qualifications: The TAB agency shall submit a company resume listing personnel and project experience in air and hydronic system balancing and a copy of the agency's test and balance engineer (TBE) or technician certificate.

B. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.

C. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

D. Submit continuing educations training on each lead technician working on the project.

1.8 TAB PREPARATION AND COORDINATION

A. Shop drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days prior to the start of TAB work.

B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.

C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all

necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution. The BCA contractor shall provide all necessary software to the TAB Agency at no additional cost.

D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.

E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

F. If, upon commencing the work, the TAB contractor finds that the systems are not ready, or if a dispute occurs as to the readiness of the systems, the TAB contractor may request an inspection to be made by the Designer's Mechanical Engineer. This inspection shall establish to the satisfaction of the represented parties whether or not the systems meet the basic requirements for testing and balancing. Items that are determined to be not ready for testing and balancing shall be completed by the Mechanical Contractor and placed in operational readiness before TAB services are again requested.

1.9 TAB REPORTS

A. Final TAB Report: The TAB agency shall submit the final TAB report for review by the Engineer. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified, along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC or NEBB "National Project Performance Guaranty" assuring that the project systems were tested, adjusted and balanced in accordance with the project Specifications and AABC or NEBB National Standards.

B. Submit four (4) copies of the final TAB report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

2.1 All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC or NEBB National Standards.

PART 3 - EXECUTION

3.1 GENERAL

A. General Contractor with Mechanical Contractor shall put heating, ventilating, and cooling systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Air Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

D. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC or NEBB National Standards. Adjustment tolerances shall be + or -10 percent unless otherwise stated.

E. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.

F. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.

G. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.

H. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 AIR SYSTEMS

A. **TESTING PROCEDURE**
Air Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements. Perform the following tests at high and low speeds of multi-speed systems and single speed system.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when ductwork installation begins. Coordinate and verify the installation of all balancing dampers, fire dampers, etc.**
2. Smoke test or pressure test each low pressure steel duct system to test for air tightness. Use zinc chloride smoke candles or titanium tetrachloride ampules (sticks) to generate smoke.

a. If ducted systems leak, do not continue with air balance. Report findings to Engineer in writing and begin testing again after Mechanical Contractor has repaired ducts or applied duct sealers.
b. If ducted systems appear air tight, proceed with air balance procedure as outlined below.
c. Include in air balance report a letter indicating smoke testing has been accomplished and a report of findings regarding airtightness of each ducted system.
d. Maximum leakage loss shall not exceed 2 percent. If losses are greater, the Mechanical Contractor shall correct the leakage, then the test and balance agency shall retest the ductwork.

3. Test and adjust blower rpm to design requirements.
4. Test and record motor full load amperes.
5. Make Pitot Tube traverse of main supply and return and obtain design cfm.
6. Test and record system static pressures, suction, and discharge.
7. Test and adjust system for design cfm air.
8. Test and adjust system for design cfm outside air.
9. Test and record entering air temperatures (db heating and cooling).
10. Test and record entering air temperatures (wb cooling).
11. Test and record leaving air temperatures (db heating and cooling).
12. Test and record leaving air temperatures (wb cooling).
13. Adjust main supply and return air ducts to proper design cfm.
14. Adjust zones to proper design cfm, supply and return.
15. Test and adjust each diffuser, grille, and register to within 10 percent of design requirements.
16. Identify each diffuser, grille, and register to location and area.
17. Identify and list size, type, and Manufacturer of diffusers, grilles, registers, and testing equipment. Use Manufacturer's rating on equipment to make required calculations.
18. In readings and tests of diffusers, grilles, and registers, include required fpm velocity and test fpm velocity and required cfm and test cfm after adjustments.
19. In cooperation with Mechanical Contractor, set adjustments of automatically operated dampers to operate as specified, indicated, or noted.
20. Adjust diffusers, grilles, and registers to minimize drafts.
21. Verify the calibration of temperature control devices, thermostats, etc.
22. Verify all control sequences with specifications.
23. Include manufacturer's performance data with reports.
24. Schedule three inspections to verify original test and balance of systems within 90 days of acceptance by Owner. Make opposite season adjustment and inspection of systems at one year after acceptance by Owner. Submit reports after each inspection. Submit schedule as part of initial report.

B. Where systems supplied to job site provides over 5 percent more air than schedule requirements, rooms supplied by that system shall have their supply air quantities increased by the ratio of the actual total air quantity supplied to the minimum air quantity required by the schedule.

C. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall

perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:

1. Fans
   a. Fan Speeds--Test and adjust fan RPM to achieve design cfm requirements.
   b. Current and Voltage--Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
   c. Pitot-Tube Traverse--Perform pitot-tube traverse of the main exhaust ducts to obtain total CFM. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
   d. Static Pressure--Test and record system static pressure, including the static pressure profile of each exhaust fan.
2. Zone, Branch, and Main Ducts
   a. Adjust ducts to within design cfm requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.
3. Diffusers, Registers, and Grilles
   a. Tolerances--Test, adjust, and balance each diffuser, grille, and register to within 10 percent of design requirements. Minimize drafts.
   b. Identification--Identify the type, location, and size of each grille, diffuser and register. This information shall be recorded on air outlet data sheets.
4. Coils
   a. Air Temperature--Once air flow are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry bulb temperature shall be taken on the entering and leaving side of each heating coil.
5. Air Handling Units:
   a. Location, manufacturer, model number, serial number, motor manufacturer, fan and motor sheaves, belts. Required and test data with unit operating at full air flow conditions (all space thermostats calling for cooling) for each of following: total CFM, return and outside air CFM, total static pressure, suction and discharge static pressures across unit fan, HP, amperage, voltage, fan RPM. Verify performance of static pressure controls, vane operators, dampers and controls. Adjust and/or change pulleys and belts as required to obtain delivery of system specified or required full load air quantities.
6. Diffusers and Grilles:
   a. Space served; type and size of diffuser or grille, specified CFM, initial test CFM and final test CFM. Each air outlet shall be adjusted for +/- 5 percent of required quantity as shown on plans.
7. Control Systems:
   a. Verify all control sequences and calibration of all thermostats and sensors.
8. Equipment Start-up:
   a. The Test and Balance Contractor shall be on site to witness and record all factory start-up of mechanical equipment. Include start-up reports in final balancing report.
9. Plumbing:
   a. Refer to Plumbing Division 22 for additional work required by the Air System Testing and Balancing Agency.

3.3 INDOOR AIR QUALITY VERIFICATION:

A. The TAB agency shall take measurements at minimum outside air. It shall measure temperature and humidity uniformity throughout the space, check filter installation for proper fit, seal and operation and verify condensate drain operation. The TAB agency shall note any water damage or obvious contamination sources from inside or outside.

B. The TAB agency shall prepare a short report showing the results and location of each test, a summary of the HVAC operating conditions, and a listing of any discrepancies.

3.4 ADDITIONAL TAB SERVICES:

A. Job Site Inspections:
During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems. Inspections shall be conducted a minimum of two times. (Typically, these are performed when 60 percent of the total system is installed and again when 90 percent of the total system is installed, prior to insulation of the duct and piping.) The TAB agency shall submit a written report of each inspection to the Architect.

B. Duct Leakage Testing:
The Installing Contractor shall isolate and seal sections of ductwork for testing. The pressurization fan and test apparatus shall be connected to the test section and the test performed. The test pressure required and the amount of duct to be tested shall be described by the engineer in the appropriate duct classification section. All testing shall be based on one test per section.

C. Verification of HVAC Controls:

1. The TAB agency shall be assisted by the building control Systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
2. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
3. Verify that all controlling instruments are calibrated and set for design operating conditions.

D. Temperature Testing:
To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than 2 degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.

E. TAB Report Verification:
At the time of final inspection, the TAB agency may be required to recheck, in the presence of the Owner's representative, specific and random selections of data, air

quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the Owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10 percent of the total number tabulated in the report.

F. Kitchen Hood Testing:
The TAB agency shall test and adjust kitchen hood total air flow by duct pitot-tube traverse if applicable under local code. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. All sealing of test holes in the exhaust duct to be by others per local code requirements. The TAB agency shall test and record face velocities in accordance with design requirements. It shall test and adjust makeup air flow (if included) to meet design face velocities and pressurization and to minimize turbulence.

G. Building/Zone Pressurization:
The TAB agency shall test and adjust building/zone pressurization by setting the design flows to meet the required flow direction and pressure differential. For positive pressure areas, it shall set the supply air to design flow, and gradually reduce the exhaust air rate to obtain the required flow or pressure difference. For negative pressure areas, it shall set the supply air to design flow, and gradually increase the exhaust air rate to obtain the required flow or pressure difference.

END OF SECTION 25 05 93

FORD FIELDS CONCESSION STAND
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SECTION 23 07 00 - MECHANICAL INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 CONDENSATE DRAIN PIPING

A. Insulate condensate drain piping with 3/4 inch thick closed cell rubber type insulation.

2.2 REFRIGERANT LINES

A. Insulate all refrigerant suction lines with 1 inch thick closed cell rubber insulation. Apply two (2) coats of black mastic where the lines are exposed to the weather. Refrigerant piping below grade shall be installed in watertight PVC sleeve.

2.3 AIR CONDITIONING DUCTWORK

A. Insulate all ducts above ceiling with one layer of 3 inch thick, 3/4 pound density flexible Fiberglass duct insulation with aluminum foil facing. Duct insulation to be applied with 2 inches lap of facing sealed with tape and outward clinch staples. Seal all joints with 2 inch wide vapor barrier tape. An additional band of tape shall be applied between the circumferential joints for a maximum 2 foot spacing of taped bands.

B. The ductwrap shall have a minimum installed R-value of 8.5 and shall comply with Energy Code requirements..

2.4 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, roof drain bodies, shall be insulated same with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.5 KITCHEN HOOD EXHAUST DUCTWORK

A. Refer to Kitchen Hood specifications section.

2.6 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.7 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 23 07 00

FORD FIELDS CONCESSION STAND
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SECTION 23 09 00 - TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Refer to Section 23 05 00, Section 23 05 03, Section 23 30 00 and Section 23 70 00, provisions of which apply to work under this Section.

B. All control systems shall be furnished complete and functioning.

C. Coordinate all control work with the mechanical and electrical contractors. Contact the Test and Balance Contractor and notify them as to when controls work shall be installed. Test and Balance controller shall verify controls systems installation and proper operations.

1.2 DESCRIPTION OF WORK

A. Provide a complete system of "hard-wired" automatic controls (wireless unacceptable) as indicated herein. Control system shall consist of all thermostats, sensors, actuators, operators, wiring, switches, relays and control panels necessary to accomplish the control sequence specified herein.

1.3 RELATED WORK IN OTHER SECTIONS

A. For extent of power wiring and connection to mechanical equipment under Electrical Work, refer to Division 26.

B. For control devices furnished with equipment, refer to equipment specifications and schedules. Any controls equipment not specifically called for elsewhere shall be provided by controls contractor. All control wiring shall be done by controls contractor.

C. All power for control devices such as actuators, operators, fire/smoke dampers, control dampers, etc. shall be furnished, installed and wired by the Controls Contractor. Controls Contractor may use 24 VAC or 120 VAC for the control system. The controls contractor shall be responsible for obtaining the necessary power and pay all costs associated with obtaining power to controls and controls equipment.

D. All interior control wiring shall be installed in galvanized EMT conduit. The last 6 inches at connection to equipment shall be flexible metal conduit. All control wiring on exterior of building shall be in Seal-Tite conduit and/ or Liquid Tight flexible conduit.

E. All control wiring shall be furnished and installed by this contractor.

1.4 SERVICE

A. Installing Contractor (Mechanical Contractor or subcontractor under the Mechanical Contractor) shall maintain adequate automatic control personnel on his payroll to provide back-up project control service on the automatic control system provided under this contract.

1.5 WARRANTY

A. Contractor shall warranty all work performed under this contract to be free of any defects in workmanship or material for a period of one year after final acceptance by the Owner's representative. The installing controls contractor shall include a second year of extended warranty to cover all parts and labor. The warranty and extended warranty shall include quarterly calibration and set-up checks of all controls. THIS WARRANTY DOES NOT START ON DATE THAT THE MECHANICAL EQUIPMENT IS STARTED.

1.6 SUBMITTAL

A. Submit shop drawings and product data sheets indicating configuration, general assembly, and materials used in fabrication.

B. Submit manufacturer's installation instructions. Instructions shall include complete wiring diagrams drawn specifically for this project.

1.7 OPERATION AND MAINTENANCE

A. Include manufacturer's descriptive literature, operating instructions, and maintenance data.

1.8 QUALITY ASSURANCE

A. Manufacturer shall be a company specializing in products of the type specified in this section. All components shall be Class A quality commercial or industrial grade for installation in locations or environments shown on plans.

1.9 SYSTEM RESPONSIBILITY

A. The entire control system, shall be furnished by a single source manufacturer who shall be responsible for the entire system. The installations shall be by technicians employed by the controls system manufacturer.

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PART 2 - PRODUCTS

2.1 FIRESTATS AND SMOKE DETECTORS

A. Duct smoke detectors shall be furnished and installed by mechanical contractor. Install a smoke detector in the supply air section/duct and return air section/ duct of each unit delivering over 2000 cfm to stop the fan and close the outside air dampers in the event of excessive temperature or smoke. Firestats to be provided in the return air units of all units over 600 cfm.

B. Smoke detectors shall be addressable and compatible with the fire alarm system.

C. Where and when the building does not have a fire alarm system, provide a remote annunciator with remote reset for each detector.

D. All smoke detectors shall have remote reset.

2.2 TEMPERATURE CONTROLLER

A. Refer to Section 23 70 00, Packaged Outside Air Unit for controller.

2.3 WIRING

A. Factory mount and wire controls. Mount electrical components in control box with removable cover. Provide clearance for access to controls (36 inch clearance).

B. Provide terminal strip(s) for field wiring of thermostat, communications and power source. DO NOT USE WIRE NUTS IN JUNCTION BOX.

C. All wiring shall comply with local and national electric codes and the manufacturer's published installation manual.

D. Provide terminal strip(s) for field wiring of air conditioning unit input connections, duct temperature sensor, velocity sensor, static pressure sensor, communications, start/stop devices, VFD controls, time clock, bypass damper motor and power wiring, etc. Do not use wire nuts on loose wire. All wire shall be in conduit, flexible conduit or wiring harness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Division 26, ELECTRICAL, shall be responsible for point to point wiring of all starters and starting switches not factory installed in the HVAC equipment.

B. Install all components of control systems under this Section using experienced control mechanics, all in the regular employ of the Installing Contractor, or the apparatus manufacturer.

3.2 WIRING

A. Install all control, pilot circuit and interlock wiring, including wiring through interposed safety or other auxiliary control devices within the confines of the mechanical equipment only. Wiring of thermostats shall be by the Mechanical Contractor.

B. All wiring shall conform to the Local and National Electrical Codes.

C. All control and interlock wiring shall be fused at conductor capacity as shown in the National Electrical Code.

D. No splices will be allowed except at junction boxes and control centers.

E. All wires to each control device must be different colors. All wires to each device must be laced or tied at point of entry into control panel and tagged as to its point of origin.

F. All wires shall be run directly from controller or controlled device to control center. There shall be no looping of wires from one device to another external to the control centers.

G. Control voltage shall be a maximum of 120-volt, unless otherwise indicated herein.

H. Control or interlock wiring shall not be run in conduit with any power wiring other than that serving the equipment controlled.

I. Refer to Division 26, ELECTRICAL, for extent of work under that Division. Provide other wiring systems required to accomplish the work of this Section, following requirements of Division 26 for products and execution.

J. Wiring connection to terminal posts shall be made by means of compression type lugs. Wire splices shall be made with sketch locks.

K. Safety devices in motor control circuits shall be wired to interrupt the holding coil circuit regardless of the position of any selector switches in the circuit.

L. Control circuit conductors shall be sized for a maximum voltage drop of 10 percent of the circuit voltage.

M. All electrical power wiring shall conform in all respects with the provisions of the National Electrical Code and Division 26, ELECTRICAL, of the Specifications.

N. Provide all necessary contactors, switches, transformers to accomplish operating sequences.

3.3 SYSTEM CHECK-OUT

A. Check-out each system for control function through entire sequence, check calibration of instruments, reset instruments control points.

B. Owner maintenance personnel shall be made thoroughly familiar, by the contractor, with the operation and service of the project automatic temperature control circuits.

3.4 SOFTWARE FOR CONTROLS SYSTEMS

A. All software required for the operation of the temperature control system shall be furnished with the control system. The temperature controls manufacturer/contractor shall furnish the software plus two years of software updates.

B. The software shall be provided in original sealed packaging with all written/printed documentation to the Test and Balance Contractor for use in balancing the project. The temperature controls contractor shall turn the software over to the owner upon completion of the project.

END OF SECTION 23 09 00

FORD FIELDS CONCESSION STAND
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SECTION 23 28 13 - COMMERCIAL KITCHEN HOODS

PART 1 - GENERAL

1.1 GENERAL

A. The General Section the Mechanical Specification is a part of the Commercial Kitchen Hood Specification and applies same as if herein specified.

1.2 SCOPE OF WORK

A. Furnish and install all materials, labor, tools, equipment and working plans as required to install and place in operation the complete Kitchen Hood System.

1.3 WORK INCLUDED

A. The work shall include but not be limited to the following:

1. All exhaust/make-up air ductwork
2. Fan packages
3. Kitchen hoods (Existing)
4. Insulation and controls

1.4 PLANS AND DIAGRAM

A. Working plans (drawings) shall be prepared by the contractor before commencing hood installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

1. State Fire Marshal/AHJ

B. Drawings must first be submitted to the Mechanical Engineer (POR) for approval. POR will then forward the plans to the State Fire Marshal/AHJ. Drawings must be submitted in conjunction with hood Fire Suppression Drawings. Refer to the State Fire Marshal's website for all fees, checklists, forms and requirements for submittal.

1.5 PERMITS, INSPECTIONS AND TESTS

A. All permits, fees, etc., for the installation, inspection, review or construction of the work which are required by any authority and/or agencies having jurisdiction, shall be obtained and paid for by the contractor.

B. All inspections, examinations and tests required shall be arranged and paid for by the contractor as necessary to obtain complete and final acceptance.

PART 2 - MATERIALS

2.1 KITCHEN HOOD EXHAUST DUCTWORK

A. All kitchen hood exhaust ductwork shall be constructed of 16 gauge black iron with weld seams and joints. All seams and joints shall be liquid tight. All construction of ductwork shall be in compliance with NFPA 96.

B. Cover the kitchen exhaust with a flexible wrap system listed and labeled (labeling on scrim shall include product name and certification mark) by a NRTL, Nationally Recognized Testing Laboratory. System shall be tested per internal fire test ASTM E 2336 and per ASTM E 119 engulfment test and achieve a 2 hour fire resistance rating. Wrap system shall be fully encapsulated to resist moisture absorption. System shall provide zero clearance to combustible protection at all locations on the system surface. Access doors shall be installed per the manufacturer's instructions to comply with local code. A listed and labeled firestop system must be available to seal the opening where the protected grease duct penetrates a fire rated floor or wall. The field applied grease duct enclosure system must be mechanically attached to the duct using steel banding and/or weld pins per manufacturer's instructions. System shall be NFPA 96 approved. Material shall be Unifrax FryeWrap® Elite® 1.5 3M Fire Barrier 615+ or prior approved equivalent.

2.2 KITCHEN HOOD FAN PACKAGE

A. Provide roof top pre-engineered exhaust and supply fan package(s) in sizes and quantities as shown on plans. The fan packages shall be a complete system manufactured and assembled by Greenheck, (Accurex) or prior approved equal.

B. The exhaust fan shall be constructed of heavy gauge aluminum. The fan wheel and cone shall be aluminum and of the high performance, centrifugal blower type, statically and dynamically balanced. The exhaust fan shall be constructed as to include a built-in grease drain. Motor and drives shall be isolated from the exhaust airstream and shall be located in a chamber cooled by air brought in through a tube from a location free of discharge contaminates. The entire drive assembly and wheel as unit shall be serviceable and removable through the support structure without dismantling the fan housing. The wheel shaft shall be mounted in heavy duty ball bearings. Drives shall be sized for 165 percent of driven horsepower. Motor pulleys shall be of the adjustable type for final system balancing made of cast iron and be keyed to motor and wheel shafts. The entire drive assembly shall be mounted in rubber vibration isolators. The exhaust fan assembly shall also include a rigid bird screen mounted within the discharge perimeter and a thermal barrier insulating the wheel compartment from the drive compartment. The fan shall be AMCA approved for sound and air performance and also shall be U.L. listed for grease removal in accordance with Underwriters Laboratories standards.

C. The supply fan unit shall be of the belt-driven, double width, double inlet, forward curved centrifugal blower type. The blower assembly shall be mounted on vibration isolators. Drives shall be sized for a minimum of 165 percent of driven horsepower. All exterior housing components of the supply unit shall be constructed of minimum 18 gauge galvanized steel, painted with a weatherproof finish that has been baked for durability. Heavy gauge adjustable angle iron support legs shall be furnished as required. The inlet of the unit shall contain bird screen and a bank of washable, removable air filters. Filters shall be of 1 inch aluminum mesh type, coated with filter adhesive compound and shall be U.L. Classified. The total fan package shall be furnished with a pre-wired control center which shall include, but not be limited to, a master-fused disconnect for main power. Connection, magnetic motor starters with thermal overloads and manual reset, fused 24-volt control transformer and distribution terminal strip for control wiring connection. All electrical components shall be U.L. Listed, Approved or Classified where applicable and wired in compliance with the National Electrical Code. Wiring shall be complete, requiring only one-point field connection for power service (exception: electric heater) and one-point field connection for low-voltage control harness.

D. Furnish motorized backdraft damper as integral part of supply unit. Damper unit shall open upon energization of supply fan and close upon shut-off of supply fan.

E. Furnish pre-fabricated roof curbs constructed of minimum 18 gauge galvanized steel with integral wood nailer, run-off cant and 1 inch rigid insulation. Provide curb extensions as required for exhaust fan to meet N.F.P.A. requirements for discharge height.

2.3 KITCHEN HOOD

A. Kitchen hoods are existing. Installation of existing hoods shall be by Mechanical Contractor. Furnish all hangers and stainless steel wrappers for a complete installation.

B. Contractor shall submit hood shop drawings along with hood suppression system for submittal to the Fire Marshal. Contractor shall obtain a copy of the required checklist for all requirements and shall pay all fees required.

2.4 FIRE PROTECTION SYSTEM - KITCHEN HOODS

A. GENERAL

1. The General Section of the Mechanical Specifications is a part of the Fire Protection System Specification and applies same as if herein included.

B. SCOPE OF WORK

1. Furnish all materials, labor, tools, equipment and working plans to install and place in operation the complete Hood Fire Protection System for the kitchen hood as herein specified. The contractor shall be responsible for preparing the plans, calculations, fees and Fire Marshal review of the system layout.

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C. WORK INCLUDED

1. The work shall include providing hood fire protection system and shall include but not be limited to the following: all piping and fittings; automatic systems; alarm system; testing and approval; and service fees and installation cost.

D. PLAN AND DIAGRAM

1. Working plans (drawings) shall be prepared by the contractor before commencing fire protection installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

   a. State Fire Marshal.

E. HOOD FIRE PROTECTION SYSTEM

1. Furnish and install a fire protection system for the commercial type cooking hood as listed in these specs. The system shall be installed to meet the requirements of NFPA 96, NFPA 17A and UL 300. The Installing Contractor shall also prepare shop drawings for submittal to the State Fire Marshal for review. The Installing Contractor shall be responsible for paying all fees required for submittal to the state and local review agencies. The system shall be installed by all licensed hood fire protection contractor. The Installing Contractor shall be responsible for providing all certificates for Owner's records. The Installing Contractor shall make two (2) inspections of the system during the first year after acceptance by the Owner.
2. The fire protection system shall utilize a wet type fire suppression agent. The liquid agent shall be a potassium carbonate-based solution designed to suppress fires by its saponifying and cooling effects. The agent shall not require periodic replacement. For rapid fire knockdown, the agent shall have an expansion ratio of approximately 2200 to 1. It shall not have an adverse effect on stainless steel appliance, hoods and ducts.
3. The cylinder shall be manufactured and tested in accordance with DOT specifications. It shall be under coated with zinc chromate or red oxide and over coated with white high gloss enamel. The cylinder shall be pressurized to 175 psi to ensure rapid discharge at temperatures as low as 1 degree Fahrenheit. A highly polished metal enclosure shall be provided to conceal the cylinder.
4. The valve shall be heavy duty forged brass, chrome-plated. It shall incorporate an oil-filled bourdon tube gauge to indicate cylinder pressure.
5. The nozzles shall be heavy duty brass, chrome-plated. It shall incorporate a stainless steel strainer to remove scale and foreign matter from pipe or stainless steel tubing. A pure tin foil seal shall protect the nozzle orifice from grease build up. This seal shall be kept tightly in position by a threaded nut to ensure its permanence through the continuous heating-cooling cycle.
6. The system shall be designed for automatic operation with provision for remote and/or local manual control(s). Automatic operation shall be initiated by fusible metallic links, glass bulb links, or electric detectors. The links and glass bulbs are to be utilized with stainless steel cable and corner pulleys employing stainless steel ball bearings. All cable and wiring shall be enclosed in conduit. Where used, the electric detectors are to be utilized with a control panel and an electro-thermal link

that are UL listed for use with the system. All electrical work shall comply with the National Electric Code.

7. Where gas-fired appliances exist, a gas shut-off valve of either the mechanical or electrical type shall be automatically closed upon system actuation. The mechanical type shall be shut-off though the mechanical actuator or a pneumatic release installed in the discharge line. The electric type shall be wired through a manual reset relay to either micro-switch or pressure switch wired through a magnetic contactor. All work shall comply with the National Electric Code.
8. Pipe shall be black steel, stainless steel, or brass standard weight (Schedule 40). Fittings shall be malleable, ductile, or cast iron, steel, stainless steel, or brass and may be standard weight. Stainless steel tubing incorporating bends or stainless steel fittings may also be used. Fittings may be chrome-plated and piping chrome-plated or sleeved. All pipe runs shall be rigidly secured with suitable straps or hangers. Wherever possible, multiple cylinder systems shall be manifolded to minimize pipe.
9. The system shall be installed by an authorized factory trained contractor. The Installing Contractor shall visit the project to take all field measurements and verify the conditions. The Installing Contractor shall acquire and submit all plans, permits and approvals necessary for proper installation and final acceptance. Upon completion, the Installing Contractor shall conduct any and all tests required. The installation shall comply with the manufacturer's installation manual, Underwriters Laboratories listing, National Fire Protection Association Pamphlets 96 and 17A and all applicable regulatory and insurance requirements.

PART 3 - INSTALLATION

3.1 DUCTS

A. Refer to specification section 23 30 00 for any additional comments regarding general duct construction or layout.

PART 4 - EXECUTION

4.1 INSTALLATION

A. The Installing Contractor shall install to meet the manufacturer's instructions.

END OF SECTION 23 28 13

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SECTION 23 30 00 - AIR DISTRIBUTION

PART 1 - GENERAL

1.1 GENERAL

A. Furnish and install all ducts for Air Conditioning, Heating, and Ventilating Systems as shown on the plans and as may be required to provide complete system. Ductwork shall be complete with grilles, vanes, flashings, hangers, flexible connections, splitters, manual dampers, fresh air inlets, louvers, reinforcing angles, etc. All ductwork shall be concealed and insulated as hereinafter specified.

1.2 COORDINATION

A. The General Contractor and Mechanical Contractor shall coordinate the space clearances required for ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. Any re-sizing required shall be part of this project and done without any additional cost to the project. DO NOT MAKE DUCTWORK WITHOUT COORDINATION.

1.3 DUCTWORK SHOP DRAWINGS

A. The Mechanical Contractor/ Sheetmetal Contractor shall prepare complete sheetmetal ductwork shop drawings showing coordination with all trades on the project. The shop drawings shall show all offsets, transitions, size changes to resolve conflict, dampers, fire dampers, grilles, air units, etc. These shop drawings shall be submitted prior to starting work and ductwork fabrication.

1.4 Sealing or flashing the building envelope due to penetrations in the building shall be the responsibility of the general contractor.

PART 2 - MATERIALS

2.1 DUCT HANGERS AND SUPPORTS

A. All ductwork shall be properly braced to prevent rattling, breathing, or other unnecessary noise. No sharp edges or obstructions shall project into air stream.

2.2 LOW PRESSURE DUCTWORK

A. All ductwork shall be galvanized steel and shall be of gauges and construction as recommended by ASHRAE Guide and Data Book and SMACNA guidelines. Gauges are as follows with longest side governing.

Dimension of longest side	Low Pressure Ductwork Sheet Metal Gauge
0"-12"	26 gauge
13"-30"	24 gauge
31"-54"	22 gauge
55"-84"	20 gauge

B. Low pressure ductwork shall be all exhaust ducts, return air ducts, fresh air ducts and supply ducts.

C. Joints and reinforcing shall be as per ASHRAE Guide and Data Book and all slips shall be installed without edge of internal part of slip facing downstream.

D. Construction standard of Article 110, of the National Board of Fire Underwriters Bulletin 90, latest edition, shall apply throughout.

E. Flashings shall be of sheet copper and shall be furnished and installed around all outside openings used for ducts of fans and wherever required. Roof flashings shall extend at least 8 inches above roof.

F. All ducts shall be straight and true and installed in a neat and workmanlike manner.

G. All edges shall be straight and true and all bends shall be made with veined turns. Where long radius turns cannot be used, the contractor shall use square turns and use air splitters spaced not more than 3 inches center to center, and of a length so air will be properly distributed over ducts.

H. All ducts shown are metal to metal dimensions.

I. Mastic shall be applied to both male and female connections (all seams and joints) to make all duct joints air tight (applies to all ductwork; round or rectangular). Surplus mastic shall be removed. Tape and re-mastic joints if necessary. Mastic (hard-cast or equivalent duct sealer : tape not acceptable) shall be applied to the joints during assembly so that sealant is on all mating surfaces of the joint.

2.3 DUCT LINERS

A. Low pressure rectangular supply ductwork shall not be lined. All supply and return air ductwork shall be wrapped with same insulation as specified for round ductwork. Exhaust ductwork shall not be insulated. LINED DUCTWORK IS NOT PERMITTED IN THIS PROJECT. WRAP ALL DUCTWORK.

2.4 FILTERS--PRIMARY

A. Units shall be equipped with low velocity filter section with 30 percent efficient 2 inches thick pleated type (Continental air filters "cono pleat" FARR 3030, American Air Filter or equal) throwaway filters.

B. Provide and install one set of filters as called for in these Specifications for initial testing and start-up and another complete set upon completion of the project.

2.5 DUCT ACCESSORIES

A. Dampers of the fusible link operated type shall be provided in all ductwork passing through floor or fire walls.

B. Provide quadrant or adjustable splitters and mark shaft to give position of splitter damper in duct.

C. Provide vanes behind every supply grille or diffuser. Splitters shall be provided where shown on plans and where located in concealed non-accessible space provided Young Regulators to operate splitter. Vanes shall be Tuttle and Bailey "Ducturns", Barber-Coleman, Uniflo, or equivalent. Shop fabricated vanes will be acceptable. All dampers shall be constructed of 14 gauge steel.

2.6 REGISTERS, GRILLES AND DIFFUSERS

A. Ceiling supply outlets, unless otherwise indicated on plans shall be Titus, Price, Nailor or approved equal. Outlets shall be mounted tight to the construction, and shall have frame suitable for type of ceiling used unless otherwise noted.

B. Return air grilles shall be as manufactured by Titus, Price, Nailor or approved equivalent and shall be of style called for on plans.

C. All supply outlets shall have sponge rubber gaskets.

D. All grilles, diffusers, and registers shall be of sizes indicated on plans or scheduled on drawings.

E. Unless otherwise shown on drawings, all grilles installed in the ceiling shall be furnished with white baked-on enamel finish.

2.7 FIRE DAMPERS

A. Furnish and install, at locations shown on plans, fire dampers constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 hour fire protection rating, 212 degrees Fahrenheit fusible link, and shall include a UL label in accordance with established UL labeling procedures. Damper manufacturer's literature

submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with AMCA Standard 500 and shall illustrate pressure drops for all sizes of dampers required at all anticipated air flow rates. Fire dampers shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing steel sleeves, angles, other materials, and practices required to provide an installation equivalent to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. Fire dampers shall be Ruskin type IBD, Arrow, Cesco, Pref-Co, or equal.

B. Fire dampers installed within 10 feet of the air handling unit or where velocities exceed 2000 fpm. Dampers shall be static type for systems with duct smoke detectors, dynamic for systems without duct detector fan shut down.

1. Furnish and install at locations within 10 feet of the air handling unit multi blade fire dampers constructed and tested in accordance with UL safety standard 555 (dynamic) that meet or exceed the following specifications:
   a. Frame shall be a minimum of 16 gauge galvanized (1.52) steel formed into a structural hat and tabbed with tabbed corners for reinforcement. The blades shall be air foil-shaped double skin with 14 gauge (1.90) equivalent thickness. Bearing shall be stainless steel sleeve turning in an extruded hole in the frame.
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in accordance with established labeling procedure.
   c. Damper manufacturers' literature submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with the UL 555 standard.
   d. Fire dampers shall have been tested to close under dynamic air flow conditions with pressures up to 4 inches w.g. and to 4,000 fpm air velocity.
   e. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
   f. Fire dampers shall be installed in a wall or floor opening using steel sleeves, angles and other materials and practices required to provide an installation equivalent used by manufacturer when damper was tested at UL. Installation shall be in accordance with the damper manufacturers' instructions.

C. Fire dampers installed beyond 10 feet of the air handling unit and where velocities are under 2000 fpm.

1. Furnish and install at locations shown on plan fire dampers constructed and tested in accordance with UL safety standard 555.
   a. Fire dampers shall have been tested to close under dynamic air flow conditions and be labeled as a dynamic fire damper (static fire dampers are not allowed).
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in this specification accordance with UL 555 standards, and a dynamic label that shall illustrate maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable at 4 inches static pressure for un-ducted, in-wall mounting.

c. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
d. Fire dampers shall be installed in wall and floor openings using steel sleeves, angles and other materials and practices required to provide an installation equivalent to that used by the manufacturer when dampers were tested at UL. Installation shall be in accordance with damper manufacturers' instructions.

D. Round fire dampers: All systems with pressures to 6 inches w.q. and velocities to 4000 fpm.

1. Furnish and install at locations shown on plans, or as described in schedules, round fire dampers meeting or exceeding the following specifications.
   a. Frame shall be a minimum of 20 gauge galvanized steel and blade shall be two piece equivalent to 14 gauge minimum galvanized. Bearings shall be stainless steel sleeve with grooves to receive the 20 gauge retaining plate for damper mounting.
   b. Each round fire damper shall be 1-1/2 hour fire rated under UL standard 555, and bear a UL label attesting to same.
   c. Each round fire damper shall be equipped with a Fuse Link which shall activate at (specifier select one) 165 degrees, 212 degrees, causing damper to close in a locked position.
   d. Manufacturer must provide UL installation instructions for both masonry walls and metal stud drywall partitions.

2.8 PRE-INSULATED FLEXIBLE DUCT

A. Flexible duct shall be rated for a maximum pressure of 16 inches (4-10 inches I.D.) or 10 inches (12-16 inches I.D.) water column positive pressure and 2 inches water column maximum negative pressure and 6000 FPM maximum velocity and listed by Underwriters Laboratories, Inc. under UL Standard 181 as a Class 1 air duct complying with NFPA Standards 90A and 90B. Flexible air duct shall be factory-made and composed of an inner duct of woven and coated fiber glass fabric providing an air seal and permanently bonded to coated steel wire helix, a fiber glass insulating blanket with minimum R-8.0 value (minimum 2 inch thickness) and low permeability outer vapor barrier of fiberglass reinforced metalized film laminate. Flexible air ducts shall be Thermaflex M-KC or Flexmaster type 4M with minimum R-8.0 insulation to meet ASHRAE 90.1 energy code. Maximum installed length shall not exceed 3 feet-0 inches without approval.

PART 3 - INSTALLATION

3.1 DUCTS

A. Ductwork shall be constructed and installed as follows:

1. Straight and smooth on inside with joints neatly finished unless otherwise directed.

2. Duct panels through 48 inch dimension having acoustic duct liner need not be crossbroken or beaded.
3. Crossbreak unlined ducts and duct panels larger than 48 inches or bead 12 inches on center.
4. Securely anchor ducts to building structure with specified duct hangers attached with screws.
5. Brace and install ducts so they shall be free of vibration under all conditions of operation.
6. Ducts shall not bear on the top of structural member.
7. Make duct take-offs to branches, registers, grilles, and diffusers as detailed on Drawings.
8. Properly flash where ducts protrude above roof.
9. Install internal ends of slip joints in direction of flow. Make joints air tight using specified duct sealer.

B. Install flexible duct connections to each air handling unit.

C. Provide each take-off with an adjustable volume damper to balance that branch.

1. Anchor dampers securely to duct.
2. Install dampers in main ducts within insulation.
3. Dampers in branch ducts shall fit against sheet metal walls, bottom and top of duct, and be securely fastened.
4. Where concealed ceiling damper regulators are installed, provide a cover plate.

D. Install grilles, registers, and diffusers.

3.2 AIR TURNS

A. Permanently installed, consisting of curved metal blades or vanes arranged to permit air to make abrupt turn without appreciable turbulence, in elbows of supply and above ground return ductwork.

B. Air turns shall be quiet and free from vibration when system is in operation.

END OF SECTION 23 30 00

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SECTION 23 70 00 - AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Air Conditioning System, in general, shall be for the entire building providing cooling and dehumidification in summer and heating in winter. A constant amount of fresh air shall be taken into the system and all air shall be filtered.

B. The General Contractor (Prime Contractor) who has the contracts with the Owner shall be responsible for installing the mechanical systems using qualified subcontractors and/or employees. Any incorrect or improper work shall be corrected by the General Contractor.

C. The General Contractor shall be the sole source responsible party to furnish and install the mechanical system. General Contractor shall be properly licensed to perform this work.

1.2 STANDARDS

A. All air conditioning equipment shall comply with the requirements of applicable ARI standards and shall be tested, rated, labeled, and listed accordingly.

1.3 SPACE REQUIREMENTS

A. General Contractor and Mechanical Contractor shall refer to architectural, structural and electrical drawings and install all equipment, piping, etc. to meet building and space requirements. No equipment shall be bid on or submitted for approval if it will not fit into the space provided or coordinate with other trades involved on the project.

1.4 COMPRESSOR WARRANTIES

A. On all packaged and/or split system DX equipment 5 tons and below, the manufacturer shall provide a full 10 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

B. On all packaged and/or split system DX equipment 6 tons and larger, the manufacturer shall provide a full 5 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

C. The manufacturer shall warranty all parts, labor and refrigerant systems on the entire unit for the warranty period. In addition, annually, the manufacturer's service technicians

shall make a warranty check inspection of the unit with report to the Owner. This warranty shall not include any equipment maintenance; all equipment maintenance is the responsibility of the Owner. The manufacturer shall have full access to the units during the construction period.

D. If a longer warranty period is required elsewhere in these specs, the longer warranty period shall apply.

PART 2 - MATERIALS

2.1 PIPING

A. All piping shall be of materials as hereinbefore specified.

2.2 PACKAGED OUTSIDE AIR UNIT (100% OUTSIDE AIR)

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

1. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
2. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
3. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
4. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
5. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.
6. Unit shall be approved for use in and outside High Velocity Hurricane Zones (HVHZ) by the Florida Building Code (FL# 15031), when using the required steel rooftop curb and attachment methods. Maximum allowable lateral wind pressure is +100psf/-100psf. Maximum allowable uplift is +50psf/-50psf. Positive and negative required design pressures calculated for use with this system shall be determined by others on a job specific basis, in accordance with the governing code. Site specific pressures shall be less than or equal to the listed positive or negative allowable lateral wind design pressure and allowable uplift values for the product.

B. Manufacturer shall provide a limited "parts only" warranty for a period of 24 months from the date of equipment startup or 30 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for Installation, Operation, and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and filters.

C. Products shall be provided by the following manufacturers:

1. AAON, Addison or approved Equal
2. Substitute equipment may be considered for approval that includes at a minimum:
   a. R-410A refrigerant
   b. Variable capacity compressor with 10-100% capacity control
   c. Direct drive supply fans
   d. Double wall cabinet construction
   e. Insulation with a minimum R-value of 13
   f. Stainless steel drain pans
   g. Hinged access doors with lockable handles
   h. All other provisions of the specifications must be satisfactorily addressed

D. General Description

1. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, gas heaters, and unit controls.
2. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.
3. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
4. Unit components shall be labeled, including refrigeration system components and electrical and controls components.
5. Estimated sound power levels (dB) shall be shown on the unit ratings sheet.
6. Installation, Operation, and Maintenance manual shall be supplied within the unit.
7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

E. Construction

1. All cabinet walls, access doors, and roof shall be fabricated of double wall, impact resistant, rigid polyurethane foam panels.
2. Unit insulation shall have a minimum thermal resistance R-value of 13. Foam insulation shall have a minimum density of 2 pounds/cubic foot and shall be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.
3. Unit construction shall be double wall with G90 galvanized steel on both sides and a thermal break. Double wall construction with a thermal break prevents moisture accumulation on the insulation, provides a cleanable interior, prevents heat transfer through the panel, and prevents exterior condensation on the panel.
4. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel

deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width. Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

5. Roof of the air tunnel shall be sloped to provide complete drainage. Cabinet shall have rain break overhangs above access doors.
6. Access to filters, dampers, cooling coils, reheat coil, heaters, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges shall be included on the doors.
7. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
8. Units with cooling coils shall include double sloped 304 stainless steel drain pans.
9. Unit shall be provided with base discharge and return air openings. All openings through the base pan of the unit shall have upturned flanges of at least 1/2 inch in height around the opening.
10. Unit shall include lifting lugs on the top of the unit.
11. Unit base pan shall be provided with 1/2 inch thick foam insulation.

F. Electrical

1. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.
2. Unit shall be provided with a factory installed and factory wired 115V, 13 amp GFI outlet disconnect switch in the unit control panel.

G. Supply Fans

1. Unit shall include direct drive, unhoused, backward curved, plenum supply fans.
2. Blowers and motors shall be dynamically balance and mounted on rubber isolators.
3. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
4. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

H. Cooling Coils

1. Evaporator Coils
   a. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled.
   b. Coils shall have interlaced circuitry and shall be 6 row high capacity.
   c. Coils shall be hydrogen or helium leak tested.
   d. Coils shall be furnished with factory installed expansion valves.

I. Refrigeration System

1. Unit shall be factory charged with R-410A refrigerant.
2. Compressors shall be scroll type with thermal overload protection and carry a 10 year non-prorated warranty, from the date of original equipment shipment from the factory.
3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors shall be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.
4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
5. Each refrigeration circuit shall be equipped with expansion valve type refrigerant flow control.
6. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides and a factory installed replaceable core liquid line filter driers.
7. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
8. Lead refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
9. Each refrigeration circuit shall be equipped with a liquid line sight glass.
10. Each refrigeration circuit shall be equipped with suction and discharge compressor isolation valves.

J. Condensers

1. Air-Cooled Condenser
   a. Condenser fans shall be a vertical discharge, axial flow, direct drive fans.
   b. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.
   c. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
   d. Coils shall be hydrogen or helium leak tested.
   e. Condenser fans shall be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow shall continuously modulate based on head pressure and cooling operation shall be allowed down to 35°F with adjustable compressor lockout.

K. Gas Heating

1. Stainless steel heat exchanger furnace shall carry a 25 year non-prorated warranty, from the date of original equipment shipment from the factory.
2. Gas furnace shall consist of stainless steel heat exchangers with multiple concavities, an induced draft blower and an electronic pressure switch to lockout the gas valve until the combustion chamber is purged and combustion airflow is established.
3. Furnace shall include a gas ignition system consisting of an electronic igniter to a

pilot system, which will be continuous when the heater is operating, but will shut off the pilot when heating is not required.

4. Unit shall include a single gas connection and have gas supply piping entrances in the unit base for through-the-curb gas piping and in the outside cabinet wall for across the roof gas piping.
5. Natural gas furnace shall be equipped with modulating gas valves, adjustable speed combustion blowers, stainless steel tubular heat exchangers, and electronic controller. Combustion blowers and gas valves shall be capable of modulation. Electronic controller includes a factory wired, field installed supply air temperature sensor. Sensor shall be field installed in the supply air ductwork. Supply air temperature setpoint shall be adjustable on the electronic controller within the controls compartment.

L. Filters

1. Unit shall include 2 inch thick, pleated panel filters with an ASHRAE efficiency of 30% and MERV rating of 8, upstream of the cooling coil.
2. Unit shall include 1 inch aluminum mesh pre filters upstream of the outside air opening.

M. Outside Air/Economizer

1. Unit shall include 100% motor operated outside air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge and end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return, 2 position actuator. Unit shall include outside air opening bird screen and outside air hood.

N. Controls

1. Factory Installed and Factory Provided Controller
   a. Unit controller shall be capable of controlling all features and options of the unit. Controller shall be factory installed in the unit controls compartment and factory tested. Controller shall be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.
   b. Controller shall have an onboard clock and calendar functions that allow for occupancy scheduling.
   c. Controller shall include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.
   d. Makeup Air Controller
      1) Unit shall modulate cooling with constant airflow to meet ventilation outside air loads. Cooling capacity shall modulate based on supply air temperature.
      2) With modulating hot gas reheat, unit shall modulate cooling and hot gas reheat as efficiently as possible, to meet outside air humidity loads and prevent supply air temperature swings and overcooling of the space.

3) Unit shall modulate heating with constant airflow to meet ventilation outside air loads. Heating capacity shall modulate based on supply air temperature.

e. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling shall be accomplished with connection to interface module with LCD screen and input keypad, interface module with touch screen, or with connection to PC with free configuration software. Controller shall be capable of connection with other factory installed and factory provided unit controllers with individual unit configuration, setpoint adjustment, sensor status viewing, and occupancy scheduling available from a single unit. Connection between unit controllers shall be with a modular cable. Controller shall be capable of communicating and integrating with a LonWorks or BACnet network.

O. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.

P. Installation, Operation, and Maintenance manual shall be supplied with the unit. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install air conditioning systems in accordance with Section 23 05 00.

B. Mount equipment complete with piping system, roof curbs and air distribution system, and provide for power connection.

C. Complete structural, mechanical, and electrical connections in accordance with manufacturer's installation instructions.

3.2 TESTING

A. Refrigerant lines shall be tested under 200 psi carbon dioxide pressure for 5 hours using soap suds at joints to test for leaks. Evacuate system and charge with refrigerant.

B. All line testing shall be witnessed by the Test and Balance Agency (TAB). TAB Agency shall record results and include in final TAB report.

END OF SECTION 23 70 00

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SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 , Type XHHW-2 and Type SO.

C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

F. Branch Circuits Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

H. Flexible Connections to Lighting Fixtures: Type MC cable with maximum length of six feet.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

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3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

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SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. ILSCO.
4. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Pad-Mounted Transformers and Switches: Install two ground rods around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for taps to equipment grounding terminals.

3.4 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

3.5 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION 260526

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SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
2. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Mechanical-Expansion Anchors: Insert-wedge-type, **[zinc-coated] [stainless]** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

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SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.2 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. GRC: Comply with ANSI C80.1 and UL 6.

C. EMT: Comply with ANSI C80.3 and UL 797.

D. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

E. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Fittings for EMT:

a. Material: die cast.
b. Type: compression.

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

F. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Continuous HDPE: Comply with UL 651B.

D. Fittings for RNC: Comply with NEMA TC 3; match to conduit type and material.

E. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5.

C. Tele-Power Poles:

1. Material: Aluminum with clear anodized finish.
2. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials (top and bottom), and other fittings shall match and mate with tele-power pole as required for complete system. This project uses both sides for power raceways.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Metal Floor Boxes:

1. Material: Cast metal.
2. Type: Fully adjustable.
3. Shape: Square.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

K. Gangable boxes are prohibited.

L. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

M. Cabinets:

1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC or RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried or concrete encased.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Damp or Wet Locations: GRC.
7. Boxes and Enclosures: NEMA 250, Type 1.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use compression, cast-metal fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Raceways Shall not be Embedded in Slabs:

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

K. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

M. Surface Raceways:

1. Install surface raceway with a minimum 2-inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

N. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.

O. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

P. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC in damp or wet locations not subject to severe physical damage.

Q. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

R. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.

S. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

T. Locate boxes so that cover or plate will not span different building finishes.

U. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

V. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

W. Set metal floor boxes level and flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit.
2. Install backfill as specified in Section 312000 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
4. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

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SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Warning labels and signs.
3. Equipment identification labels.
4. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.3 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.4 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.5 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

F. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
   1. Power.

B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

   1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

      a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
      b. Colors for 208/120-V Circuits:

         1) Phase A: Black.
         2) Phase B: Red.
         3) Phase C: Blue.

      c. Colors for 480/277-V Circuits:

         1) Phase A: Brown.
         2) Phase B: Orange.
         3) Phase C: Yellow.

      d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

C. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

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1. Labeling Instructions:

   a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
   b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
   c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
   d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

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SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Distribution, dry-type transformers rated 600 V and less, with capacities up to 1500 kVA.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Source quality-control reports.

B. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company.
2. Square D; by Schneider Electric.

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Transformers Rated 15 kVA and Larger: Comply with NEMA TP 1 energy-efficiency levels as verified by testing according to NEMA TP 2.

1. Coil Material: Copper.

D. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated.

2.3 DISTRIBUTION TRANSFORMERS

A. Comply with NFPA 70, and list and label as complying with UL 1561.

B. Cores: One leg per phase.

C. Enclosure: Ventilated.

1. NEMA 250, Type 3R: Core and coil shall be encapsulated within resin compound utilizing a vacuum pressure impregnation process to seal out moisture and air.

D. Transformer Enclosure Finish: Comply with NEMA 250.

1. Finish Color: NSF/ANSI 49 gray.

E. Taps for Transformers 3 kVA and Smaller: One 5 percent tap above normal full capacity.

F. Taps for Transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.

G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

H. Insulation Class, Smaller than 30 kVA: 185 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

I. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

2.4 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical Systems."

2.5 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from adjacent wall surface.

D. Construct concrete bases according to Section 033000 "Cast-in-Place Concrete" and anchor floor-mounted transformers according to manufacturer's written instructions and requirements in Section 260529 "Hangers and Supports for Electrical Systems."

1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

E. Secure transformer to concrete base according to manufacturer's written instructions.

F. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.

G. Remove shipping bolts, blocking, and wedges.

3.2 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS for dry-type, air-cooled, low-voltage transformers. Certify compliance with test parameters.

B. Remove and replace units that do not pass tests or inspections and retest as specified above.

C. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.

1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

3.4 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.

C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 262200

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SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

C. Field quality-control reports.

D. Panelboard schedules for installation in panelboards.

E. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

a. Indoor Dry and Clean Locations: NEMA 250, Type 1 or Type 12. See drawings.
b. Outdoor Locations: NEMA 250, Type 3R.

2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
3. Directory Card: Inside panelboard door, mounted in transparent card holder.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus Configured Terminators: Mechanical type.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, power and feeder distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

D. Mains: Circuit breaker, as indicated on plans.

E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs as indicated on plans.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

a. Standard frame sizes, trip ratings, and number of poles.
b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
f. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
g. Handle Lock Device: Loose attachment, for holding circuit-breaker handle in on position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.

B. Mount top of trim 90 inches above finished floor unless otherwise indicated.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262416

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SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.5 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Single Pole:

1) Cooper; AH1221.
2) Hubbell; HBL1221.
3) Leviton; 1221-2.
4) Pass & Seymour; CSB20AC1.

b. Two Pole:

1) Cooper; AH1222.
2) Hubbell; HBL1222.
3) Leviton; 1222-2.
4) Pass & Seymour; CSB20AC2.

c. Three Way:

1) Cooper; AH1223.
2) Hubbell; HBL1223.
3) Leviton; 1223-2.
4) Pass & Seymour; CSB20AC3.

d. Four Way:

1) Cooper; AH1224.
2) Hubbell; HBL1224.
3) Leviton; 1224-2.
4) Pass & Seymour; CSB20AC4.

C. Pilot-Light Switches, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "on."

2.6 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. Fluorescent Lamp and LED Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 5 percent of full brightness.

2.7 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with in-use, lockable cover.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect on a room by room basis unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

FORD FIELDS CONCESSION STAND
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SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:

a. Control circuits.
b. Enclosed switches.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Bussmann; a division of Cooper Industries.
2. Edison; a brand of Cooper Bussmann; a division of Cooper Industries.
3. Littelfuse, Inc.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
3. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Fuse rating shall be in accordance with equipment nameplate.

3.2 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

FORD FIELDS CONCESSION STAND
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SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Molded-case circuit breakers (MCCBs).
4. Enclosures.

1.2 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Lugs: Suitable for number, size, and conductor material.

2.2 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Lugs: Suitable for number, size, and conductor material.

2.3 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

D. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Suitable for number, size, trip ratings, and conductor material.
3. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
4. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.

2.4 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

B. Install fuses in fusible devices. Verify exact fuse rating with equipment nameplate.

C. Comply with NECA 1.

3.2 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262913 - ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following enclosed controllers rated 600 V and less:

1. Full-voltage manual.
2. Full-voltage magnetic.

1.2 DEFINITIONS

A. CPT: Control power transformer.

B. MCCB: Molded-case circuit breaker.

C. MCP: Motor circuit protector.

D. N.C.: Normally closed.

E. N.O.: Normally open.

F. OCPD: Overcurrent protective device.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed controller.

B. Shop Drawings: For each enclosed controller. Include dimensioned plans, elevations, sections, details, and required clearances and service spaces around controller enclosures.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

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1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FULL-VOLTAGE CONTROLLERS

A. General Requirements for Full-Voltage Controllers: Comply with NEMA ICS 2, general purpose, Class A.

B. Motor-Starting Switches: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off or on.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Nonreversing.
3. Surface mounting.
4. Pilot light.

C. Fractional Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Two speed.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

D. Integral Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters and sensors in each phase, matched to nameplate full-load current of actual protected motor and having appropriate adjustment for duty cycle; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

E. Magnetic Controllers: Full voltage, across the line, electrically held.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Contactor Coils: Pressure-encapsulated type.

    a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.

4. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
5. Control Circuits: 120-V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices. (100VA extra minimum.)

6. Solid-State Overload Relay:

    a. Switch or dial selectable for motor running overload protection.
    b. Sensors in each phase.
    c. Class 10/20 selectable tripping characteristic selected to protect motor against voltage and current unbalance and single phasing.

7. External overload reset push button.

F. Combination Magnetic Controller: Factory-assembled combination of magnetic controller, OCPD, and disconnecting means.

G. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

4. MCP Disconnecting Means:

   a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents, instantaneous-only circuit breaker with front-mounted, field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
   b. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
   c. Auxiliary contacts "a" arranged to activate with MCP handle.

2.2 ENCLOSURES

A. Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.

1. Dry and Clean Indoor Locations: Type 1.
2. Outdoor Locations: Type 3R.

2.3 ACCESSORIES

A. Push Buttons, Pilot Lights, and Selector Switches: NEMA ICS 5; heavy-duty type; factory installed in controller enclosure cover unless otherwise indicated. (Start-Stop, HOA, Red Pilot Light)

B. Control Relays: Auxiliary and adjustable time-delay relays.

C. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays: Solid-state sensing circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage, overvoltage, and time-delay settings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Wall-Mounted Controllers: Install enclosed controllers on walls with tops at uniform height, and with disconnect operating handles not higher than 79 inches above finished floor, unless otherwise indicated, and by bolting units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks complying with Section 260529 "Hangers and Supports for Electrical Systems."

B. Install fuses in each fusible-switch enclosed controller.

C. Install fuses in control circuits if not factory installed. Comply with requirements in Section 262813 "Fuses."

D. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been installed.

E. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

3.3 CONTROL WIRING INSTALLATION

A. Install wiring between enclosed controllers and remote devices and facility's central control system. Comply with requirements in Section 260523 "Control-Voltage Electrical Power Cables."

B. Bundle, train, and support wiring in enclosures.

C. Connect selector switches and other automatic-control selection devices where applicable.

1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switch is in manual-control position.
2. Connect selector switches with enclosed-controller circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed controller, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Inspect controllers, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
2. Test insulation resistance for each enclosed-controller element, component, connecting motor supply, feeder, and control circuits.
3. Test continuity of each circuit.
4. Verify that voltages at controller locations are within plus or minus 10 percent of motor nameplate rated voltages. If outside this range for any motor, notify Engineer before starting the motor(s).
5. Test each motor for proper phase rotation.
6. Perform each electrical test and visual and mechanical inspection stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed controllers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Set field-adjustable switches and overload-relay pickup and trip ranges.

B. Adjust the trip settings of MCPs and thermal-magnetic circuit breakers with adjustable instantaneous trip elements. Initially adjust to six times the motor nameplate full-load ampere ratings and attempt to start motors several times, allowing for motor cooldown between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed eight times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Engineer before increasing settings.

3.6 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain enclosed controllers.

END OF SECTION 262913

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 264313 - SURGE PROTECTION FOR LOW-VOLTAGE POWER CIRCUITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For manufacturer's special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

A. SPDs: Comply with UL 1449, Type 2.

1. Include LED indicator lights for power and protection status.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.

B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:

1. Line to Neutral: 700 V for 208Y/120 V.
2. Line to Ground: 700 V for 208Y/120 V.
3. Neutral to Ground: 700 V for 208Y/120 V.
4. Line to Line: 1200 V for 208Y/120 V

D. SCCR: Equal or exceed 100 kA.

E. Inominal Rating: 20 kA.

2.3 ENCLOSURES

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.

1. Compare equipment nameplate data for compliance with Drawings and Specifications.
2. Inspect anchorage, alignment, grounding, and clearances.
3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.3 DEMONSTRATION

A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 264313

FORD FIELDS CONCESSION STAND
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SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

1.2 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, arranged by designation.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires and lamps. See Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of luminaire.

B. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Recessed Fixtures: Comply with NEMA LE 4.

C. CRI of minimum 80. CCT of 4100 K.

D. Rated lamp life of 50,000 hours.

E. Lamps dimmable from 100 percent to 0 percent of maximum light output.

F. Internal driver.

G. Nominal Operating Voltage: 120 V ac or 277 V ac. See Drawings.

1. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

H. Housings:

1. Extruded-aluminum housing and heat sink.
2. White, painted finish.

2.2 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging

B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools.

Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers, and Globes:

1. Clear, UV-stabilized acrylic.
2. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear per plan, powder-coat finish.

2.3 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.4 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports: Sized and rated for luminaire weight.

E. Flush-Mounted Luminaire Support: Secured to outlet box.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

G. Ceiling-Mounted Luminaire Support:

1. Ceiling mount with two 5/32-inch diameter aircraft cable supports adjustable to 120 inches in length.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

J. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 265119

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Addressable interface device.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Locate detectors according to manufacturer's written recommendations.

12. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

a. Trained and certified by manufacturer in fire-alarm system design.
b. NICET-certified, fire-alarm technician; Level III minimum.
c. Licensed or certified by authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

C. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment.
d. Riser diagram.
e. Record copy of site-specific software.
f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

g. Manufacturer's required maintenance related to system warranty requirements.
h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Fire-extinguishing system operation.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
5. Record events in the system memory.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, or remote annunciator.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 FIRE-ALARM CONTROL UNIT

A. The Fire Alarm Control Unit is an existing system and this project shall provide the additional components to expand system to include the new facility..

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38.

1. Dual-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
    c. Multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

C. Ionization Smoke Detector:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.6 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature or a rate of rise.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.

SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Boring Number: B-1
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY								
							71	26	45		0.75	
											0.25	
5				CH	33	80	91	32	59		0.25	0.30
				Gray and Tan CLAY with ferrous nodules								
											0.25	
				.. tan and gray with slickensides	36	89	90	31	59		0.75	0.90
10												
					38	78	109	36	73		0.75	0.43
					42	81	112	40	72		0.75	0.51
15				CH								
				Gray SANDY CLAY								
				CL	22	99	39	19	20		0.50	0.30
20				Bottom at 20 feet								

1. Water was not encountered during drilling.
2. Bore hole dry upon completion.

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Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

Boring Number: B-2
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY							0.50	
					34	85	100	33	67		0.25	0.37
5				CH							0.25	
				Tan and Gray CLAY with ferrous nodules and slickensides	32	91	87	26	61		0.35	0.40
					29	88					0.65	0.60
10												
					39	78	108	34	74		0.75	0.50
15				CH								
				Tan and Gray SANDY CLAY								
				CL	22	107					1.00	0.85
20				Bottom at 20 feet								

1. Water was not encountered during drilling.
2. Bore hole dry upon completion.

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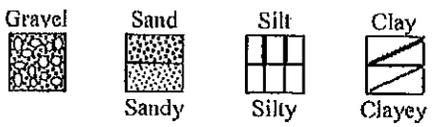
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

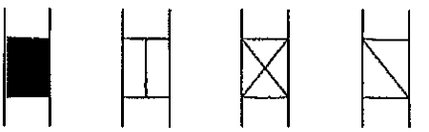
KEY TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPE



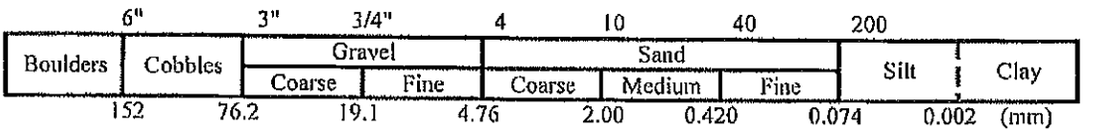
Predominant type shown heavy

SAMPLE TYPE

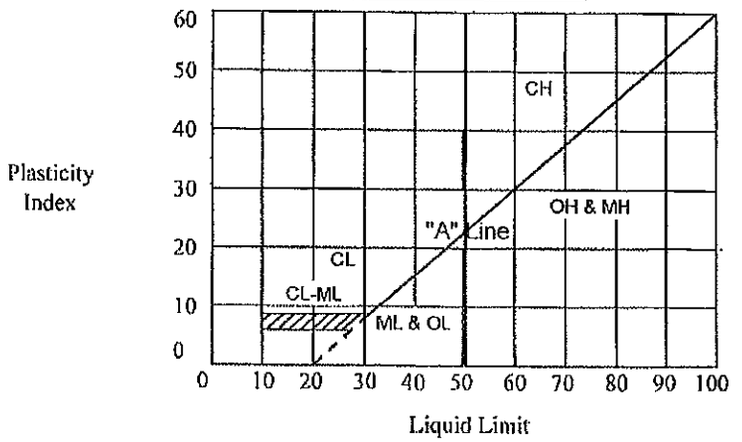


SOIL GRAIN SIZE

U.S. Standard Sieve



PLASTICITY CHART



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance, blows per foot	Consistency	Cohesion TSF	Plasticity Index	Degree of Plasticity
0 - 2	Very Soft	0 - 0.125	0 - 5	None
2 - 4	Soft	0.125 - 0.25	5 - 10	Low
4 - 8	Firm	0.25 - 0.5	10 - 20	Moderate
8 - 15	Stiff	0.5 - 1.0	20 - 40	Plastic
15 -30	Very Stiff	1.0 - 2.0	> 40	Highly Plastic
> 30	Hard	> 2.0		

RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance, blows per foot	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

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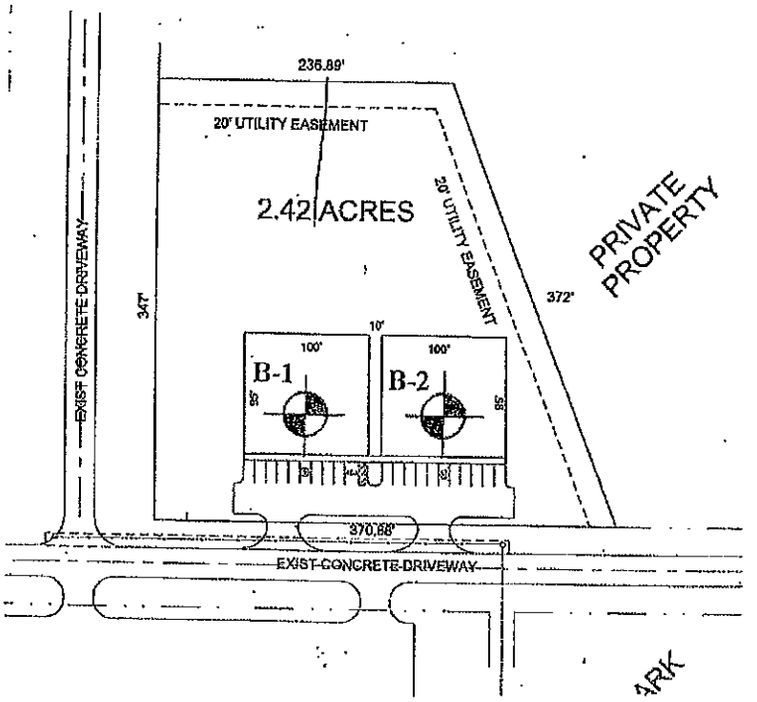
SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

Report Number 14260



FORD PARK MULTI-SPORTS FACILTIY
BEAUMONT, TEXAS

BORING PLAN

NOVEMBER 2014

NOT TO SCALE

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

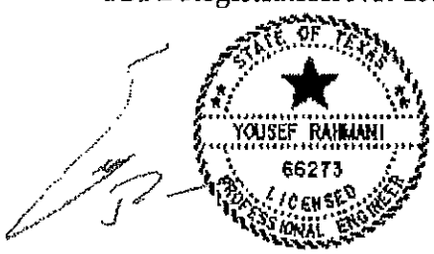
LIMITATIONS

The conclusions and recommendations given in this report are based on the analysis of the data collected for this project. Additive conclusions or recommendations made from this data by others are their responsibility.

Our study is based on the data obtained from soil borings made at the locations shown on borings plan. The nature and extent of variations between borings may become evident during construction. We should be requested to observe exposed conditions. After making these observations, and noting the engineering significance of variations, we will advise you of any changes in recommendations believed appropriate.

We appreciate this opportunity to provide our services to this project. Please let us know if you require additional information. Thank you.

Respectfully submitted for the firm,
TBPE Registration No. 4060



Yousef Rahmani, P.E.
President

Encl.: Boring Plan
Boring Logs 1 and 2
Geotechnical Chart/Symbols

Copies: 2 – Client
1- Fittz & Shipman, Inc.
1- SEL File 14260

YR/nb

FOUNDATION SETTLEMENT

A detailed settlement analysis was not within the scope of this study. It is anticipated that the footings designed, using the recommended allowable bearing pressures, will experience small settlements that will be well within the tolerable limit for the proposed structure.

FLOOR SLABS AND GRADE BEAMS

Review of the Atterberg Limits determinations indicates that the surface soils are "CH" type soils, with high plasticity, which may exhibit expansion during seasonal wetting and drying cycles. We believe that conventional "slab-on-fill" construction may be used for the interior portion of the structures built at the site. Select fill, a minimum of thirty-six-inch (36") thickness should be used to bring the structure to grade.

Prior to placement of select fill, strip site sufficiently to remove all topsoil, existing vegetation and roots larger than ½" in diameter to an approximate depth of twelve (12) inches. Then scarify the subgrade, add moisture, if necessary, and recompact to 95% of the maximum dry density as determined by ASTM D-698 (Standard Proctor). The moisture content at the time of compaction of subgrade soils should be within +1 to +3% of the proctor optimum value.

Select fill should then be placed, under laboratory control, in no greater than eight-inch (8") loose layers, and compacted to a minimum of 95% of the maximum dry unit weight, as obtained in the laboratory by means ASTM D-698 procedure. Moisture content of ±2% optimum should be maintained during placement of the select fill material. A vapor barrier consisting of six (6) mil Polyethylene shall be placed between the select fill and concrete slab.

The material used as select fill should consist of a non-active sandy clay or clayey sand type substance, having a Liquid Limit of 36 or less and Plasticity Index (P.I.) varying from 10 to 20.

SITE PREPARATION

In order to remedy construction problems, which may develop if attempts are made to work the surface materials following prolonged periods of rainfall which are common to this area, it is recommended that prior to starting any work at the site that proper construction drainage is to be provided to maintain a relatively dry construction site. (Use a minimum slope of 5% within 10 feet of the foundation).

DESIGN ANALYSIS AND RECOMMENDATIONS

Information available to this office indicates that the proposed construction at the site will consist of a new multi-sports facility.

DRILLED FOOTINGS (UNDERREAMS)

From analysis of the borings logs and laboratory tests results, it is recommended that the structural loads be transmitted to the foundation soils by the use of drilled and underreamed type footings. Footings should extend to a depth of nine feet (9') below existing ground surface to be located in Tan and Gray Clay. Utilizing a minimum factor of safety of three for dead load, or a minimum factor of two for total load, the allowable bearing capacity of the foundation soils for circular type footings is given as follows. 2,500 Pounds per square foot (PSF) for dead load, plus long term live loads and 3,700 PSF for total load. Whichever is critical should be used. The allowable loads given can be increased by thirty percent (30%) for wind or temporary lateral loading.

Due to the presence of slickensides at the recommended depth, we suggest that the bell to shaft ratio for the footings be limited to one to two (1:2).

There is potential for upward movement of the plastic clays in contact with the sides of the piers; the pier shafts should be well reinforced throughout their length resist tensional force.

STRUCTURE FOUNDATION

Each footing excavation should be inspected by the project's Engineer, Architect or Owner's representative prior to placing concrete to insure that (a) the footing has been constructed at the correct depth and the correct formation established by previously mentioned criteria, (b) the footing is concentric with the pier shaft or column, and (c) excessive cuttings, build-up or any soft-compressible material(s) have been removed from the bottom of the excavation.

Placement of concrete should be accomplished as soon as possible to prevent changes in the state of stress and the caving of the foundation soils. No footings should be poured without the prior approval of the projects' Engineer, Architect or Owner's representative.

LABORATORY TESTS	STANDARD TESTS
Atterberg Limits (L.L., P. L., P.I.)	ASTM D-4318
Soil Moisture Content	ASTM D-2216
Unconfined Compressive Strength	ASTM D-2266
Soils Classification	ASTM D-2487

Undrained shear strength of selective cohesive soils was determined by unconfined compression tests. Water content and dry unit weight of the foundation soils were determined as routine parts of the unconfined compression tests. Atterberg limits tests were performed on appropriate cohesive samples. The results of these tests are shown on the attached boring logs.

SUBSURFACE CONDITIONS

Specific types and depths of subsurface strata encountered on the site are shown on the attached boring logs. Review of the boring logs indicates that generalized stratography is approximately as follows:

Stratum No.	Average Depth, feet	Description of Strata
I	0.00 - 6.00	Dark Gray CLAY (CH)
II	6.00 - 17.00	Tan and Gray CLAY (CH) with ferrous nodules and slickensides
III	17.00 - 20.00	Tan and Gray SANDY CLAY (CL)

The near surface soils are "CH" type soils when classified by the unified soils classification system. This type soil normally exhibits high swell potential during seasonal moisture variations.

Hydrostatic water was not encountered at the time of drilling.

CONSTRUCTION VARIATIONS

The information contained in this report summarizes conditions found on the date that the borings was drilled. The depth to the static water table may be expected to vary with the environmental variations, such as frequency and magnitude of precipitation and the time of year that construction begins.

GEOTECHNICAL INVESTIGATION
Multi-Sports Facility
Beaumont, Texas

INTRODUCTION

The study reported herein is a preliminary investigation of subsurface conditions for the new Ford Park Multi-Sports Facility in Beaumont, Texas.

AUTHORIZATION

This investigation was authorized by Mr. Don King, P.E. by e-mail dated November 5, 2014.

SUBSURFACE EXPLORATION

The subsurface exploration at the site was accomplished by means of two (2) undisturbed sample core borings drilled to depths of approximately twenty (20) feet below existing ground surface. Approximate locations of the borings are shown on the attached boring plan.

SUBSURFACE INVESTIGATION

The subsurface investigation consisted of drilling three-inch nominal diameter core borings. Undisturbed samples of the cohesive soils were obtained from the borings by means of thin-wall, seamless steel Shelby tube samplers, in accordance with the ASTM D-1587 method. The shear strength of the cohesive soil samples was estimated by hand pentrometer in the field.

All undisturbed samples were extracted mechanically from the core barrels in the field, classified, wrapped in aluminum foil, and sealed in airtight plastic bags to prevent moisture loss and disturbance. The samples were transported to our laboratory for testing and further study.

LABORATORY INVESTIGATIONS

All samples from borings were examined and classified in the laboratory by a soil engineer, according to procedures outlined in ASTM D-2488. Laboratory tests were performed on selected soil samples in order to evaluate the engineering properties of the soil in accordance with the indicated standard procedures.

SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

GEOTECHNICAL INVESTIGATION

FOR

FORD PARK MULTI-SPORTS FACILITY

IN

BEAUMONT, TEXAS

REPORT NUMBER 14260

REPORTED TO:

AMERICAN BUILDERS
9405 COLLEGE STREET
BEAUMONT, TEXAS 77707

NOVEMBER 2014

PREPARED BY:
SCIENCE ENGINEERING, LTD.

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 310000 - GEO-TECHNICAL INVESTIGATION REPORTS

GENERAL

A. The report reproduced on the following pages is an exact copy of the original Subsurface Investigation Report for the Ford Park Multi-Sports Facility, Beaumont, Texas, prepared by Science Engineering, Inc.

B. Procedures and precautions recommended in the following Subsurface Investigation Report and attachments are to be strictly followed by the contractor. Where the technical sections of these specifications differ from the recommendations of the Subsurface Investigation Report, the more stringent requirement shall govern.

C. The Contractor is responsible for examining the site and determining the nature of the materials to be excavated.

D. Contractor shall be responsible for paying for all failed tests. Geo-Technical inspection service will bill all failed tests directly to the Contractor. Evidence of payment shall be a requirement for substantial completion.

SUBSURFACE SOILS INVESTIGATION REPORT FOLLOWS IN ITS ENTIRETY AND COMPLETES SECTION 310000.

3.7 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111

3.5 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect and authorities having jurisdiction.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

    a. Inspection shall be based on completed record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter.
    b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

2. Exposed pathways conductors shall be red.

B. Pathways shall be installed in EMT.

C. Exposed EMT junction boxes shall be painted red enamel.

3.3 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Smoke dampers in air ducts of designated HVAC duct systems.
2. Magnetically held-open doors.
3. Electronically locked doors and access gates.
4. Alarm-initiating connection to elevator recall system and components.
5. Supervisory connections at valve supervisory switches.
6. Supervisory connections at elevator shunt-trip breaker.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

2. Store an internal identifying code for control panel use to identify the module type.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

C. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

D. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

E. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

G. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.7 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464.

C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- high letters on the lens.

1. Mounting: Wall mounted unless otherwise indicated.
2. Flashing shall be in a temporal pattern, synchronized with other units.
3. Strobe Leads: Factory connected to screw terminals.
4. Mounting Faceplate: Factory finished, red.

2.8 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.9 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks, pavements.
5. Excavating and backfilling for utility trenches.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

3.3 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Removal of underground utilities is included in Division 22 and Division 26 Sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
2. Use only hand methods for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of [washed]crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." during earthwork operations.

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit or as indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete".

D. Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).
3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

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SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Soil treatment with termiticide.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include the EPA-Registered Label.

B. Product certificates.

C. Soil Treatment Application Report: Include the following:

1. Date and time of application.
2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Five years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Termiticides:

a. Aventis Environmental Science USA LP; Termidor.
b. Bayer Corporation; Premise 75.
c. Dow AgroSciences LLC; Dursban TC.
d. FMC Corporation, Agricultural Products Group; Prevail FT.
e. Syngenta; Demon TC.

2.2 SOIL TREATMENT

A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

B. Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

3.2 APPLYING SOIL TREATMENT

A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

1. Slabs-on-Grade: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

D. Post warning signs in areas of application.

E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

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SECTION 316329 - DRILLED CONCRETE PIERS AND SHAFTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes dry-installed drilled piers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For concrete reinforcement.

D. Welding certificates.

E. Material certificates & test reports.

1.3 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.4, "Structural Welding Code - Reinforcing Steel."

B. Drilled-Pier Standard: Comply with ACI 336.1 unless modified in this Section.

1.4 PROJECT CONDITIONS

A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for drilled piers.
2. The geotechnical report is included in Section 310000 – Geotechnical Investigation elsewhere in the Project Manual.

B. Survey Work: Engage a qualified land surveyor or professional engineer to perform surveys, layouts, and measurements for drilled piers. Before excavating, lay out each drilled pier to lines and levels required. Record actual measurements of each drilled

pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.

1. Record and maintain information pertinent to each drilled pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I. Supplement with the following:

a. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33, graded, 1-inch nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94 and potable.

D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
3. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
4. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.3 CONCRETE MIXTURES AND MIXING

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 limits as if concrete were exposed to deicing chemicals.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Proportion normal-weight concrete mixture as follows:

1. Compressive Strength (28 Days): 3000 psi.
2. Air Content: Do not air entrain concrete.

E. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Classified Excavation: Excavation is classified as standard excavation, special excavation, and obstruction removal and includes excavation to bearing elevations as follows:

1. Standard excavation includes excavation accomplished with conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work.
2. Special excavation includes excavation that requires special equipment or procedures above or below indicated depth of drilled piers where drilled-pier excavation equipment used in standard excavation, operating at maximum power, torque, and downthrust, cannot advance the shaft.
3. Obstructions: Payment for removing unanticipated boulders, concrete, masonry, or other subsurface obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.

B. Excavate shafts for drilled piers to indicated elevations. Remove loose material from bottom of excavation.

C. Notify and allow testing and inspecting agency to test and inspect bottom of excavation. If unsuitable bearing stratum is encountered, make adjustments to drilled piers as determined by Architect.

1. Do not excavate shafts deeper than elevations indicated unless approved by Architect.
2. Payment for additional authorized excavation will be according to Contract provisions for changes in the Work.

D. Temporary Casings: Install watertight steel casings of sufficient length and thickness to prevent water seepage into shaft; to withstand compressive, displacement, and withdrawal stresses; and to maintain stability of shaft walls.

1. Remove temporary casings, maintained in plumb position, during concrete placement and before initial set of concrete.

E. Bells: Excavate bells for drilled piers to shape, base thickness, and slope angle indicated. Excavate bottom of bells to level plane and remove loose material before placing concrete.

F. Tolerances: Construct drilled piers to remain within ACI 336.1 tolerances.

3.2 INSTALLATION

A. Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Place concrete in continuous operation and without segregation immediately after inspection and approval of shaft by Owner's independent testing and inspecting agency.

C. Place concrete to fall vertically down the center of drilled pier without striking sides of shaft or steel reinforcement. Vibrate top 60 inches of concrete.

D. Coordinate withdrawal of temporary casings with concrete placement to maintain at least a 60-inch head of concrete above bottom of casing. Vibrate top 60 inches of concrete after withdrawal of temporary casing.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Drilled piers.
2. Excavation.
3. Concrete.
4. Steel reinforcement welding.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Drilled-Pier Tests and Inspections: For each drilled pier, before concrete placement.

1. Soil Testing: Bottom elevations, bearing capacities, and lengths of drilled piers indicated have been estimated from available soil data. Actual elevations and drilled-pier lengths and bearing capacities will be determined by testing and inspecting agency. Final evaluations and approval of data will be determined by Architect.

D. Concrete Tests and Inspections: ACI 301.

END OF SECTION 316329

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SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Driveways and roadways.
2. Walkways.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:]

a. Fly Ash: ASTM C 618, Class C or F.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded, from a single source coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).
4. Air Content: 4-1/2 percent plus or minus 1.5 percent.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. (0.60 kg/cu. m).

C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on pavement surface according to manufacturer's written instructions.

1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch (6 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/4 inch (6 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

B. wheel stop.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

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SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type and color of joint sealant required.

C. Product certificates & test reports.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

A. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

1. Products:

a. Sonneborn, Div. of ChemRex, Inc.; Sonomeric SL-1.

2.4 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 321373

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SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:
   1. Chain-Link Fences: Industrial
   2. Gates: Motor operated, horizontal slide (two required)

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate framework shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

   1. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified and on the following:

      a. Wind Loads: 120 MPH.
      b. Fence Height: to match existing.
      c. Material Group: IA, ASTM F 1043, Schedule 40 steel pipe.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

   1. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

C. Product Certificates: For each type of chain-link fence and gate, from manufacturer.

D. Product Test Reports: For framing strength according to ASTM F 1043.

E. Operation and maintenance data.

1.4 QUALITY INSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70. Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. UL Standard: Provide gate operators that comply with UL 325.

C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators serving as a required means of access.

1.5 WARRANTY

F. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: to match existing w/ inserts.
2. Steel Wire Fabric: 0.148 inch (3.76 mm)

a. Mesh Size: 2 inches (50 mm).

b. Zinc-Coated Fabric: ASTM A 392, Type II

3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

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1. Fence Height: to match existing.

2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

   a. Line Post: 2.25 by 1.70 inches..
   b. End, Corner and Pull Post: 2.375 inches in diameter.

3. Horizontal Framework Members: Top and bottom rails complying with ASTM F 1043.

4. Horizontal-Slide Gate Post: According to ASTM F 1184.
5. Brace Rails: Comply with ASTM F 1043.
6. Metallic Coating for Steel Framing:

   a. Type B zinc with organic overcoat.

2.3 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- (4.5-mm-) diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:

1. Type III, Zn-5-Al-MM alloy with minimum coating weight matching chain-link fabric coating weight

2.4 INDUSTRIAL HORIZONTAL-SLIDE GATES

A. General: Comply with ASTM F 1184 for single slide gated types (two required)
   1. Classification: Type II Cantilever Slide, Class 1 with external roller assemblies.
   2. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1184 for materials and protective coatings.
   3. Metal Pipe and Tubing Aluminum. Comply with ASTM F 699 for materials and protective coatings.

B. Frames and Bracing: Fabricate members from round, aluminum tubing with outside dimension and weight according to ASTM F 1184 and the following:
   1. Gate Fabric Height: As indicated.
   2. Gate Opening Width: As indicated.
   3. Frame Members:
      a) Tubular Aluminum: 2 inches rectangular.

   4. Bracing Members:
      a.) Tubular Aluminum: 2 inches rectangular.

C. Frame Corner Construction:
   1. Welded frame with panels assembled with bolted or riveted corner

Fitting and 5/16" diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame as indicated as required to attach barbed wire assemblies.
E. Overhead Track Assembly: Manufacture's standard track, with overhead framing supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.
F. Roller Guards: As required per ASTM F 1184 for Type II, Class 2 gates.
G. Hardware: Latches permitting operation from both sides of gate, locking devices, hangers, roller assemblies and stops fabricated from mill-finished Grade 319 aluminum-alloy casting with stainless-steel fastners.

2.4 FITTINGS

A. General: Comply with ASTM F 626.

B. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.

a. Polymer coating over metallic coating.

2. Aluminum: Mill finish.

2.5 BARBED WIRE

A. Steel Barbed Wire: Comply with ASTM A 121, for two-strand barbed wire, 0.099-inch-(2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, four-point round barbs spaced not more than 5 inches (127 mm) o.c.

1. Zinc Coating: Type Z, Class 3.

2.6 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at

Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

2.7 GATE OPERATORS

A. General: Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
   1. Provide HySecurity, Model 222 E-ST (02827 HYS), Extra Duty Slide Gate Operator with Smart Touch Controller.

B. Comply with NFPA 70.

C. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG-1 and the following:

   1. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
   2. Horsepower: 1 HP.
   3. Phase: One.

D. Gate Operators: Concrete base/pad mounted and as follows:

   1. Hydraulic Slide Gate Operators:

      a. Duty: Heavy-duty, commercial/industrial.

E. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure and with space for additional optional equipment. Provide station remote-control device(s).

F. Vehicle Detector: Exit Gate Only, (east gate). Presence system including automatic closing timer with adjustable time delay before closing and timer cut-off switch; designed to open and close gate.

G. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.

H. Accessories:

   1. Warning Module: Audio/Visual, ADA-compliant, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.

2. Battery Backup System: Battery-powered drive and access control system, independent of primary drive system.
3. Intercom System:
4. Instructional, Safety, and Warning Labels and Signs: According to UL 325.

I. Tie Wires: Attach wire per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothinh.

J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

K. Barbed Wire: Uniformly spaced, angled toward security side of fence. Pull wire taut and install securely to extension arms and secure to end post or terminal arms.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

D. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

E. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

G. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment.

H. Line Posts: Space line posts uniformly at 10 feet o.c.

I. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing.

J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage unless otherwise indicated.

K. Barbed Wire: Install barbed wire uniformly spaced, angled toward security side of fence. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.

L. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

M. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 323113

GOSS
Building Incorporated
P.O. Box 12158
Beaumont, Texas 77726

Jefferson County Purchasing Dept.
Attn: Purchasing Agent
1001 Pearl Street, 3rd Floor
Beaumont, Texas 77701

BID #IFB 16-002/JW
FORD FIELDS CONCESSION STAND
BID DUE: 02-16-16

RECEIVED 10:55 AM FEB 16 2016

HB Neira

CONSTRUCTION MANUAL

Ford Fields

FORD FIELDS

CONCESSION STAND

5115 IH-10 South, Beaumont, Texas

PROJECT #15036

The LaBiche
ARCHITECTURAL GROUP, INC.

7999 Gladys Ave., Suite 101
Beaumont, Texas 77706
409-860-0197

REGISTERED ARCHITECT
DOHN H. LaBICHE
11592
STATE OF TEXAS

11/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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REGISTERED ARCHITECT
JOHN H. LaBICHE
STATE OF TEXAS
11501
1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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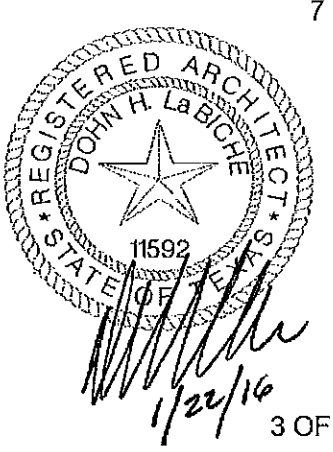

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1001 Pearl Street, 3rd Floor, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

January 19, 2016

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for IFB 16-002/JW, Ford Fields Concession Stand. **Construction Documents for this project may be obtained from the office of The LaBiche Architectural Group, Inc. by calling 409-860-0197 for access to the online drawings and specifications.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Commissioners' Courtroom at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Ford Fields Concession Stand**
BID NO:	**IFB 16-002/JW**
DUE DATE/TIME:	**11:00 AM CDT, Tuesday, February 16, 2016**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1001 Pearl Street, 3rd Floor** **Beaumont, Texas 77701**

There will be a pre-bid conference and walk-through at 10:00 AM CDT on Tuesday, February 2, 2016 at the Ford Park Ball Fields, 5115 IH10 South, Beaumont, Texas 77705.

Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these requirements should be directed to Jamey West, Assistant Purchasing Agent, at 409-835-8593.

Jefferson County encourages Disadvantaged Business Enterprises to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provisions of services. Individuals requiring special accommodations are requested to contact our office at 409-835-8593 to make arrangements no later than seven (7) calendar days prior to the submittal deadline. Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.

Deborah Clark

Deborah L. Clark
Purchasing Agent
Jefferson County, Texas
Publish: Beaumont Enterprise & Port Arthur News – January 20th & January 27th, 2016

IFB 16-002/JW
Ford Fields Concession Stand
Bids due: 11:00 AM CDT, February 16, 2016

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BIDDER IS RESPONSIBLE FOR RETURNING ALL REQUIRED PAGES (MARKED WITH AN "X" ABOVE) WITH THE BID. ADDITIONALLY, BIDDER MUST MONITOR THE PURCHASING WEB SITE (HTTP://WWW.CO.JEFFERSON.TX.US/PURCHASING/MAIN.HTM) TO SEE IF ADDENDA OR ADDITIONAL INSTRUCTIONS HAVE BEEN POSTED. FAILURE TO RETURN ALL REQUIRED FORMS COULD RESULT IN A BID BEING DECLARED AS NON-RESPONSIVE.

Instructions to Bidders

1. Bid Submission

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, TX 77701

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

All bids shall be tightly sealed in an opaque envelope and plainly marked with the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

2. Courthouse Security

Bidders are advised that all visitors to the Courthouse must pass through Security. **Bidders planning to hand deliver bids must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal.** Mondays and Tuesdays are particularly heavy days. Bidders are strongly urged to plan accordingly.

3. Preparation of Bids

The bid shall be legibly printed in ink or typed.

If a unit price or extension already entered is to be altered, it shall be crossed out and initialed in ink by the bidder.

The bid shall be legally signed and shall include the complete address of the bidder.

Jefferson County is exempt from Federal and State Sales Taxes, and such taxes shall not be included in bid prices.

4. Signatures

All bids, notifications, claims, and statements must be signed by an individual authorized to bind the bidder. The individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

5. County Holidays – 2016:

January 1	Friday	New Year's Day
January 18	Monday	Martin Luther King, Jr. Day
February 15	Monday	President's Day
March 25	Friday	Good Friday
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24 & 25	Thursday & Friday	Thanksgiving
December 26-27	Monday & Tuesday	Christmas

6. Rejection or Withdrawal

Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive any informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date.

7. Emergency/Declared Disaster Requirements

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s). Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

8. Award

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected. Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial nonconformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

9. Contract

A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by mutually agreed terms and conditions in the contract documents.

10. Waiver of Subrogation

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

11. Fiscal Funding

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

12. Bid Results

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page (http://co.jefferson.tx.us/ purchasing/main.htm) as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

13. Changes and Addenda to Bid Documents

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

14. Specifications

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

15. Delivery

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

16. Interpretation of Bid and/or Contract Documents

All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

17. Currency

Prices calculated by the bidder shall be stated in U.S. dollars.

18. Pricing

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

19. Notice to Proceed/Purchase Order

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

20. Certification

By signing the offer section of the Offer and Acceptance page, bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.

- The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.

21. Definitions

"County" – Jefferson County, Texas.

"Contractor" – The bidder whose proposal is accepted by Jefferson County.

22. Minority-Women Business Enterprise Participation

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

General Conditions of Bidding and Terms of Contract

By execution of this document, the vendor accepts all general and special conditions of the contract as outlined below and in the specifications and plans.

1. Bidding

1.1 Bids. All bids must be submitted on the bid form furnished in this package.

1.2 Authorized Signatures. The bid must be executed personally by the vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the vendor shall accompany the bid to become a valid bid.

1.3 Late Bids. Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.4 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 Withdrawal of Bids after Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.6 Bid Amounts. Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.7 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.8 Alternates. The Invitation for Bid and/or specifications may expressly allow bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.9 Descriptions. Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.10 Bid Alterations. Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.11 Tax Exempt Status. Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.12 Quantities. Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.13 Bid Award. Award of contract shall be made to the most responsible, responsive bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended. Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.14 Silence of Specifications for Complete Units. All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.15 Addenda. Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.16 General Bid Bond/Surety Requirements. Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.17 General Insurance Requirements. Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 Responsiveness. A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 Responsible Standing of Bidder. To be considered for award, bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.20 Proprietary Data. Bidder may, by written request, indicate as confidential any portion(s) of a bid that contain proprietary information, including manufacturing and/or design processes exclusive to the vendor. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.

1.21 Public Bid Opening. Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. Performance

2.1 Design, Strength, and Quality. Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be

regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 Age and Manufacture. All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 Delivery Location. All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 Delivery Charges. All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 Installation Charges. All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 Operating Instructions and Training. Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 Compliance with Federal, State, County, and Local Laws. Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA. The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 Samples, Demonstrations and Testing. At Jefferson County's request and direction, bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the bidder/vendor.

2.13 Acceptability. All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 Maintenance. Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on

the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 Material Safety Data Sheets. Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 Evaluation. Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. Purchase Orders and Payment

3.1 Purchase Orders. A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 Invoices. All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful bidder(s) is required to pay subcontractors within ten (10) days after the successful bidder receives payment from the County.

3.4 Funding. Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. Contract

4.1 Contract Definition. The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful bidder and Jefferson County.

4.2 Change Order. No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 Price Re-determination. A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The bidder's past experience of honor-

ing contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 Termination. Jefferson County reserves the right to terminate the contract for default if the bidder breached any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the bidder in default.

4.5 Conflict of Interest. Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 Injuries or Damages Resulting from Negligence. Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 Interest by Public Officials. No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 Warranty. The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 Uniform Commercial Code. The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 Venue. This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 Sale, Assignment, or Transfer of Contract. The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 Silence of Specifications. The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Special Requirements/Instructions

The following requirements and instructions supersede General Requirements where applicable.

1. Bid Requirement

Each bidder shall insure that all parts of the bid are **completed and returned.** The Table of Contents indicates specifically which pages need to be returned; these pages shall constitute the vendor's bid.

Vendor shall use an opaque envelope, clearly indicating on the outside the **Bid Number, Bid Description, and marked "SEALED BID".** Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB. All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court. **Bidders** shall submit (1) one original, and (2) two copies of the bid.

2. Vendor Registration: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov

Bid Respondents are highly encouraged to check their firm's SAM (System for Award Management) status prior to Bid Submission; as it is a requirement for vendors doing business with Jefferson County to be registered.

3. Awarded Vendor(s): Submission of FORM 1295 (Texas Ethics Commission)

As of January 1, 2016, per House Bill 1295, the Texas Ethics Commission (TEC) requires **all awarded vendors** to complete a Certificate of Interested Parties (FORM 1295) at time of notification of award. **Awarded Vendors** must visit the TEC website link below, enter the required information on Form 1295, and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

At the time of award, the Jefferson County Purchasing Department will submit a request to the Awarded Vendor to both:

1. Submit FORM 1295 online via the Texas Ethics Commission website link below.

2. Submit a printed copy of FORM 1295, signed by an Authorized Agent of the Awarded Vendor and notarized to the Jefferson County Purchasing Department.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at:https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4. Multiple Vendor Award

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. Delivery

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. Payment

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to: Jefferson County Auditing Department, Attention: Accounts Payable, 1149 Pearl Street, 7th floor, Beaumont, TX 77701.

7. Usage Reports

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. Insurance

The contractor (including any and all subcontractors as defined in Section 7.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

Minimum Insurance Requirements

Public Liability	$1,000,000.00
Excess Liability	$1,000,000.00

Property Insurance (policy below that is applicable to this project):
Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)
Builder's Risk Policy: Structural Coverage for Construction Projects
Installation Floater Policy: Improvements/Alterations to Existing Structure

Workers' Compensation	Statutory Coverage (see attached)

9. Workers' Compensation Insurance

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 6 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

Minimum Specifications

The following requirements and specifications supersede General Requirements where applicable. Contact Dohn H. LaBiche, FAIA (e-mail: dlabiche@labiche.com; phone: 409-860-0197), regarding any questions or comments. Please reference bid number **IFB 16-002/JW**.

Scope

FURNISH ALL MATERIALS AND LABOR FOR THE CONSTRUCTION OF A NEW CONCESSION STAND TO BE LOCATED AT FORD FIELDS.

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): 1, 2, 3, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

H.B. Neild & Sons, Inc.
Company Name

P.O. Box 22555
Address

Beaumont, TX 77720
City State Zip

Signature of Person Authorized to Sign

John A. Neild, Jr.
Printed Name

President
Title

For clarification of this offer, contact:

John A. Neild, Jr.
Name

409-842-2272 409-842-0369
Phone Fax

jneild@hbneild.com
E-mail

Bidder Shall Return Completed Form with Offer.

Bid Form

We propose to furnish all labor, material and equipment, and to perform all work necessary to construct the **Ford Fields Concession Stand** including Mechanical, Plumbing and Electrical Work, in accordance with drawings and specifications prepared by The LaBiche Architectural Group, Inc., for the following sum:

BASE BID : Four hundred sixty two thousand dollars

Dollars $ 462,000.00

Materials $ 255,000.00

Labor $ 207,000.00

We have examined the site of the Work and the nature and kind of work to be performed and have informed ourselves of all local conditions and other things that might affect the cost or difficulty of performing the Work, and we represent and warrant that we have experience in the use of materials and methods of performance specified, and that we can and will do the Work and construct the improvements with the specified materials as contemplated and indicated by the Drawings and Specifications.

Upon receipt of notice of acceptance of our bid, we agree to execute the Contract within 10 (ten) days after such notice, deliver Performance and Payment Bonds for the faithful performance of the Work, to begin work on or before the date of commencement of the Work established in the Notice to Proceed, and to complete the Work in 150 calendar days.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project on or before the date of completion shown on the "Notice to Proceed". Bidder further agrees to pay as liquidated damages, the sum of **$300.00** for each consecutive calendar day thereafter.

Acknowledgment of Addenda (if any):

Addendum 1 X Date Received Feb. 8, 2016

Addendum 2 X Date Received Feb. 11, 2016

Addendum 3 X Date Received Feb. 15, 2016

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, H.B. Neild & Sons, Inc.
P O Box 22555, Beaumont, TX 77720
as PRINCIPAL, AND Hartford Fire Insurance Company, P O Box 2070, Mandeville, LA 70470

as SURETY are held and firmly bound unto Commissioners' Court of Jefferson County hereinafter called the "Owner," in the penal sum of Five Percent of Amount Bid Dollars, ($ ---5%---), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas the Principal has submitted the Accompanying Bid, dated February 16, 2016, for FORD FIELDS CONCESSION STAND, BEAUMONT, TEXAS.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this 16th day of February, 2016, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

H.B. Neild & Sons, Inc. (SEAL)

(SEAL)

Attest:

By: Hartford Fire Insurance Company

Douglas N. McElveen, Attorney-in-Fact

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

By: _____ Affix Corporate Seal

_____

Attest:

_____

By: _____ Affix Corporate Seal

Countersigned
by Christine Baker

*Attorney-in-Fact, State of LA

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, Tom Neild, certify that I am the Vice President Treasurer, Secretary of the Corporation named as Principal in the within bond; that John Neild, Jr., who signed the said bond on behalf of the Principal was then President of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

Tom N _____ (Corporate Seal)

Title Vice President

* Power-of-attorney for person signing for surety company must be attached to bond.

POWER OF ATTORNEY

Direct Inquiries/Claims to:
THE HARTFORD
Bond T-4
One Hartford Plaza
Hartford, Connecticut 06155
call: **888-266-3488** *or fax:* **860-757-5835)**

KNOW ALL PERSONS BY THESE PRESENTS THAT: **Agency Code:** 43-483928

- [X] **Hartford Fire Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [X] **Hartford Casualty Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [X] **Hartford Accident and Indemnity Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Hartford Underwriters Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Twin City Fire Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of Illinois**, a corporation duly organized under the laws of the State of Illinois
- [ ] **Hartford Insurance Company of the Midwest**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of the Southeast**, a corporation duly organized under the laws of the State of Florida

having their home office in Hartford, Connecticut (hereinafter collectively referred to as the "Companies") do hereby make, constitute and appoint, ***up to the amount of*** Unlimited :

Christine Baker, Amanda McElveen, Douglas N. McElveen, Kathy Peters of LAKE CHARLES, Louisiana

their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign its name as surety(ies) only as delineated above by ☒, and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

In Witness Whereof, and as authorized by a Resolution of the Board of Directors of the Companies on August 1, 2009, the Companies have caused these presents to be signed by its Vice President and its corporate seals to be hereto affixed, duly attested by its Assistant Secretary. Further, pursuant to Resolution of the Board of Directors of the Companies, the Companies hereby unambiguously affirm that they are and will be bound by any mechanically applied signatures applied to this Power of Attorney.

Wesley W. Cowling, Assistant Secretary

M. Ross Fisher, Vice President

STATE OF CONNECTICUT }
COUNTY OF HARTFORD } ss. Hartford

On this 12th day of July, 2012, before me personally came M. Ross Fisher, to me known, who being by me duly sworn, did depose and say: that he resides in the County of Hartford, State of Connecticut; that he is the Vice President of the Companies, the corporations described in and which executed the above instrument; that he knows the seals of the said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed by authority of the Boards of Directors of said corporations and that he signed his name thereto by like authority.

Kathleen T. Maynard
Notary Public
My Commission Expires July 31, 2016

CERTIFICATE

I, the undersigned, Vice President of the Companies, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force effective as of February 16, 2016

Signed and sealed at the City of Hartford.

Gary W. Stumper, Vice President

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: M & D Supply

Address: 4580 College Street, Beaumont,Texas 77707

Contact Person and Title: Scott Hatcher

Phone: 409-842-2731 Fax: 409-842-8361

Contract Period: _____ Scope of Work: Materials & Supplies

REFERENCE TWO

Government/Company Name: Alcode Plumbing

Address: 1285 West Cardinal Drive, Beaumont, Texas

Contact Person and Title: David DeVore - Owner

Phone: 409-840-6063 Fax: 409-840-6085

Contract Period: _____ Scope of Work: Plumbing

REFERENCE THREE

Government/Company Name: Corbell Masonry

Address: 6365 Washington Blvd., Beaumont, Texas 77701

Contact Person and Title: Jeff Corbell

Phone: 409-842-3354 Fax: 409-842-1078

Contract Period: _____ Scope of Work: Masonry

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☐ **No** ☒

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

H.B. Neild & Sons, Inc.
Bidder (Entity Name)

Signature

5950 Walden Rd./P.O. Box 22555
Street & Mailing Address

John A. Neild
Print Name

Beaumont, Texas 77707/20
City, State & Zip

February 16, 2016
Date Signed

409-842-2272
Telephone Number

409-842-0369
Fax Number

jneild@hbneild.com
E-mail Address

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

N/A

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

NA

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

N/A
Signature of vendor doing business with the governmental entity

_____
Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☒ Yes	☐ No	1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?
☒ Yes	☐ No	2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?
☒ Yes	☐ No	3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?
☒ Yes	☐ No	4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?
☒ Yes	☐ No	5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?
☒ Yes	☐ No	6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid.
If necessary, please use a separate sheet to answer the above questions.

John A. Neild, Jr.
Printed Name of Authorized Representative

Signature

President
Title

2/16/2016
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: H.B. Neild & Sons, Inc. HUB: ☐ Yes ☒ No

Address: 5950 Walden Rd. (Street) Beaumont, (City) Texas (State) 77707 (Zip)

Phone (with area code): 409-842-2272 Fax (with area code): 409-842-0369

Project Title & No.: Ford Fields Concession Stand - Project # 15036

Prime Contract Amount: $

HUB Subcontractor Name:

HUB Status (Gender & Ethnicity):

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: (Street) (City) (State) (Zip)

Phone (with area code): Fax (with area code):

Proposed Subcontract Amount: $ Percentage of Prime Contract: %

Description of Subcontract Work to be Performed:

John A. Neild, Jr. — Printed Name of Contractor Representative

Signature of Representative

2/16/2016 — Date

Printed Name of HUB

Signature of Representative

Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Prime Contractor: H.B. Neild & Sons, Inc. HUB: ☐ Yes ☒ No

HUB Status (Gender & Ethnicity): N/A

Address: 5950 Walden Rd. (Street) Beaumont, (City) Texas (State) 77707 (Zip)

Phone (with area code): 409-842-2272 Fax (with area code): 409-842-0369

Project Title & No.: Ford Fields Concession Stand IFB/RFP No.: 15036

Total Contract: $ Total HUB Subcontract(s): $

Construction HUB Goals: 12.8% MBE:: % 12.6% WBE: %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American. Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: Initials:

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name:

HUB Status (Gender & Ethnicity):

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: (Street) (City) (State) (Zip)

Contact person: Title:

Phone (with area code): Fax (with area code):

Proposed Subcontract Amount: $ Percentage of Prime Contract: %

Description of Subcontract Work to be Performed:

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $_____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $_____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required.** I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): John A. Neild, Jr.

Title: President

Signature: _____

Date: 2/16/2016

E-mail address: jneild@hbneild.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Jason Gay

Title: Controller

Date: 2/16/2016

E-mail address: jgay@hbneild.com

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that H.B. Neild & Sons, Inc. [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	76-0003324
Company Name submitting bid/proposal:	H.B. Neild & Sons, Inc.
Mailing address:	P.O. Box 22555, Beaumont, Texas 77720
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
189602	P.O. Box 22555, Beaumont, Texas 77720

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas,

on this day personally appeared John A. Neild, Jr. (name), who

after being by me duly sworn, did depose and say:

"I, John A. Neild, Jr (name) am a duly authorized officer of/agent

for H.B. Neild & Sons, Inc. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said H.B. Neild & Sons, Inc. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: H.B. Neild & Sons, Inc.

P.O. Box 22555, Beaumont, Texas

Fax: 409-842-0369 Telephone# 409-842-2272

by: John A. Neild, Jr. (print name) Title: President

Signature: John A Neild

SUBSCRIBED AND SWORN to before me by the above-named John A. Neild, Jr. on

this the 16 day of February, 2016.

Debbie D. Harrison

Notary Public in and for the State of Texas

DEBBIE D. HARRISON
My Notary ID # 11530364
Expires December 16, 2019

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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END OF INDEX OF DRAWINGS

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The project is located at 5115 IH-10 South, in Beaumont, Texas.

B. The Work of this Contract consists of the furnishing of all labor, materials, services, equipment and appliances as indicated in the Drawings and Specifications.

1. **Base Bid:** Construct a new concession stand on the grounds of Ford Park Fields.

C. The Drawings and Specifications do not necessarily indicate or describe all Work required for completion of the Project. Contractor shall provide and install all incidentals reasonably inferable from the Contract Documents that are required for a complete Project.

D. These documents describe the essential elements sufficiently to determine the scope of the Project.

E. Provide all items required for complete operating systems including items not necessarily shown in these documents, but that can be reasonably inferred as being required for the complete operating system.

F. The Drawings and Specifications indicate the basic quality of materials and quality of construction required for the entire project.

G. Site Inspection: Offers' can access the site at any day and time. Access to the Sub Courthouse requires contacting County Maintenance Supervisor Mark Bernard at (409) 466-1790.

H. Inquiries Concerning Proposal and Contract Documents: Prior to submitting a proposal, technical questions concerning the proposal documents shall be directed to:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
dlabiche@labiche.com
Tel: 409/860-0197
Fax: 409/860-0198

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

1.03 CONTRACT

A. The Contract will be executed as a lump-sum agreement on the forms provided.

B. Employ subcontractors for the disconnection, re-connection and installation of all mechanical and electrical Work in conjunction with all Work required, or implied, to be performed by licensed mechanics of these disciplines:
   1. Subcontractors of Contractor shall furnish to Contractor bonds covering faithful performance of subcontract Work and payment of all obligations there under, when Contractor is required to furnish such bonds to the Owner.
   2. Subcontractors of Contractor shall purchase and maintain liability insurance as will protect him from claims, for not less than limits of liability which Contractor is required to provide to Owner.
   3. The Contractor shall include in Contract Amount costs of supervision, coordination and monitoring Work of his selected Subcontractors.

1.04 CONTRACTOR'S USE OF PREMISES

A. Contractor shall be responsible for monitoring the use of premises by Contractor's employees and Subcontractors.

B. Access routes for delivery of materials and equipment shall be as indicated by Owner. Do not use access routes other than those indicated without written permission of the Owner.

C. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site. Store materials and products only in those areas indicated for staging.

D. Protect existing lawns, sidewalks, pavements, curbs and utilities subject to damage by Work under this Contract. Repair or replace any existing Work damaged by the Contractor.

E. Parking areas for Contractor's personnel shall be on the project site to the extent it does not interfere with on-going contract Work and in areas designated by the Owner.

1.05 WORK ON PROPERTY

A. Obtain and pay all fees required applicable governing authorities, prior to commencing Work on this Project.

B. Post all notices and warning signs required by applicable governing authorities.

C. Perform Work on this Project in accordance with local codes and ordinance and utility company requirements.

1.06 WORK SEQUENCE AND CLAIMS FOR ADDITIONAL TIME

A. Construct Work in phases to accommodate Owner's occupancy requirements. During the construction period, coordinate construction schedule and operation with the Architect.

B. Claims for additional time as a result of adverse weather conditions will be considered only for weather conditions which are abnormal and if such weather conditions had an adverse effect on the scheduled construction: Rain Day claims for day(s) when Contractor is normally not on site are not legitimate. The Contractor shall document rain delays on a regular basis and submit an itemized listing to the Owner at each payment application meeting. Only requests for extra time, which prevents Work on critical activities for fifty percent (50%) or more of a scheduled workday will be considered. If no request is submitted for a given month, it will be assumed that no time was lost and the contract time shall not be adjusted.

C. No extension of time shall be deemed as waiver by the Owner of its right to terminate the contract for abandonment or delay by the Contractor. Once the Work has begun the contractor shall properly man the project in a continuous manner and proceed with all diligence to complete the project within the contract time. The Contractor must Work continuously and will not be allowed to stop activity on any weekday unless due to adverse weather of to reason pre-approved in writing by the Owner.

1.07 OWNER OCCUPANCY

A. The Owner may occupy all portions of the building and conduct normal operations during the Work. Owner occupancy shall be during the course of the normal Work day and not include evenings. Owner activities may occur on weekends. The Contractor shall fully clean the site and remove all debris and materials from the grounds on days when scheduled Owner's activities will conflict with the Work.

B. Cooperate with the Owner and schedule the Work to minimize conflicts, and to facilitate Owner's normal operations.

C. All electrical, HVAC units and controls shall remain in operation during times the building is occupied.

1.08 OWNER'S OPERATIONS

A. The Contractor shall conduct its Work in a manner to provide minimal interruption of the school campus during all construction Work. The Work shall be done at such times and in such manner and locations as to cause a minimum of inconvenience for the students, instructors, and staff. Limit operations to specific Work areas. A system of barricades, fences and enclosures shall be used by the Contractor to avoid conflict between construction and operations of the facility.

1.09 HAZARDOUS MATERIALS

A. If, during the progress of the Work, Contractor uncovers work which he believes contains asbestos or other hazardous materials, he shall immediately cease operations in the area of such discovery and notify the both the Architect and the Owner's Representative in writing.

B. Owner will arrange with the Abatement Contractor to perform necessary testing, barricades, enclosures, filtering, and ventilation in areas containing hazardous materials; decontamination, or removal and disposal of hazardous materials in accordance with requirements of authorities having jurisdiction.

C. Owner's Abatement Consultant will notify Owner's Representative and Architect in writing when it is safe to resume construction operations in the areas in question.

D. Contractor shall identify potential lead containing material hazards at the Site and oversee appropriate protective measures, including protection of persons, establishing

END OF SECTION 01010

FORD FIELDS CONCESSION STAND
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SECTION 010300 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 REFERENCES

A. References to known standard specifications shall mean and shall refer to the latest edition of such specifications adopted and published at date of invitation to submit proposals.

B. Reference to technical society, organization or body is made in these Specifications in accordance with the following abbreviations:

AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
ANAAMM	National Association Architectural Metals Manufacturers
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
FS	Federal Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NFPA	National Fire Protection Association
NRCA	National Roofing Contractors Association
UL	Underwriters' Laboratories, Inc.

1.02 CONDITIONS

A. "General Conditions" apply with equal force to the General Contractor, Subcontractors, Work, extra Work, and the like that may be specified herein or performed in or about the building or site under this Contract.

B. For convenience of reference and to facilitate letting of subcontracts, these Specifications are separated into sections. Such separation shall not operate to make Owner an arbitrator to establish subcontract limits between subcontractors.

C. Execute Work as per Contract Documents. Make no changes therefore without having first received written permission. Where detailed information is lacking before proceeding with Work, refer matter to Architect for clarification.

D. All Work shall be executed by mechanics skilled in their respective trades. Mechanics whose Work is unsatisfactory to the Owner and/or Architect, or who are considered by the Owner to be careless, incompetent, unskilled, or otherwise objectionable, are to be dismissed from Work upon notice from the Owner.

E. The Owner will provide temporary water and electrical power required for the Work at no cost to the Contractor. The Contractor shall make necessary connections to existing fireplugs and/or tap the existing water service, and to power transformer or

other power sources at each building or site as required for performance of his Work. Coordinate all connections with the Owner's Maintenance Department.

F. Contractor shall be responsible for furnishing storage trailers, temporary security fencing, temporary fire protection, telephones, etc., as required to carry out construction operations.

G. Construction related access to the site, shall be limited to areas permitted by the Owner and/or as shown on the Drawings. It shall be the responsibility of the Contractor to prevent damage to the existing paving, to repair all damage, and to recognize and respect all traffic safety requirements and signage. Any loss or damage to the Owner's property caused by the Contractor or his workmen shall be repaired or replaced at no cost to the Owner. Restore the grounds to original condition at the completion of the Project. Remove all fences, barricades, etc. Replace all vegetation damaged by construction operations, including grass, shrubs, and trees, to the satisfaction of the Owner.

H. Work hours in general are between 7:00 am and 6:00 pm, Monday through Friday, unless an exception is granted by the Owner and Architect, or as otherwise defined by various Section of these Specifications.

I. The Contractor shall remove trash and rubbish from the Owner's premises at the end of each Workday. This shall mean that these materials shall be cleaned from the grounds and shall not be left in areas or locations other that containers specified for this purpose. Burning of combustibles will not be permitted.

1.03 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.04 PROJECT SUPERINTENDENT

A. In addition to other duties imposed by these Specifications the Project Superintendent shall meet the following requirements:

B. Show prior to the start of Work references from Owners of a minimum of five (5) previously completed jobs of similar size, complexity and construction cost.

C. Show proficiency prior to the start of the Work that the Superintendent is fluent in the English language, or if not, provide a competent and approved interpreter for such purposes. The purpose of this clause is to assure adequate communications with all parties involved in the Work.

D. The Project Superintendent shall be present at the project site at all times that any Work of this contract is underway. In the case that the Project Superintendent must be away from the project site the Contractor shall first file written documentation of the absence with the Architect at least 48-hours in advance of the new replacement. The replacement, or acting Project Superintendent, shall meet the minimum requirements defined above and elsewhere in the Specifications for the Project Superintendent. The only exception to this shall be when the Contractor, an officer of the company with

a majority share of ownership, shall be permitted to act as the Project Superintendent. A majority owner of the contracting company may act as the Project Superintendent for the entirety of the project.

E. No Work shall be performed and no subcontractor(s) shall be permitted to Work at any time when the Project Superintendent is not present.

1.05 INSURANCE CLAIMS FOR PROPERTY DAMAGES

A. In the event that any damage is incurred to the Owner's or employees property due to any act of the Contractor, the Contractor shall make payment of the claim through its own resources or via its insurance carrier within thirty (30) days of the claim occurrence.

1.06 ADDITIONAL INSPECTIONS BY ARCHITECT

A. In the event that the Contractor exceeds the completion date for whatever reason he/she shall be responsible for reimbursing the Owner through authorized change order for all costs of the Architect's staff and expenses to carry on inspection duties at the rate performed during the project before the completion date.

B. The rate of reimbursement shall be as follows:

Construction Observer	$ 65.00 per hour
Architect / Roofing Consultant	$135.00 per hour
Re-Inspection Following Substantial or Final Completion	$135.00 per hour
Mileage	$ 0.45 per mile
Other Expenses	Cost plus 10%

END OF SECTION 010300

FORD FIELDS CONCESSION STAND
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SECTION 010410 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Coordinate Work with that of other contractors and trades and on-going Work by Owner under administration of the Architect.

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 VISIT TO SITE

A. Prior to submitting his quotation for Work under this project, the Contractor shall visit the site to examine all conditions related to his Work, and to acquaint himself with these conditions. FIELD MEASUREMENTS ARE REQUIRED FOR THIS PROJECT.

B. The Contractor shall verify that existing facilities, utilities and/or conditions are adequate and if equipment, utilities, facilities or conditions are such that other items and services, in addition to those specified, are required to achieve operational systems as described herein, the Contractor shall advise the Architect of the scope and costs of necessary additional Work or services at the time of proposal submittal.

1.04 CONSTRUCTION MOBILIZATION

A. The Contractor shall attend the scheduled pre-construction conference as directed by the Architect and Owner for the purpose of project coordination.

B. Cooperate with the Owner and Architect in location of mobilization areas on site for access, traffic, and parking facilities. During construction coordinate use of site and facilities through the Architect and Owner.

C. Comply with the Architect's procedures for intra-project communications: Submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Architect for use of temporary facilities.

E. Coordinate field and layout Work under instructions of the Architect.

1.05 SUBMITTALS TO THE ARCHITECT

A. All submittals for this project will be required to be submitted at the same time and shall be in accordance with requirements of Section 010300. The Contractor shall provide submittals covering all materials specified in the Specifications. Any changes from the existing Work or sheet metal profiles shown in the Drawings will be forwarded in the

form of shop drawings to the Architect by facsimile prior to beginning fabrication or installation. Update and provide revised schedules at each pay application meeting.

B. Deliver submittals to the Architect for transmittal to all required parties. The office of the Architect is located as follows:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
Tel: 409/860-0197
Fax: 409/860-0198

C. Submit written requests for interpretation of Contract Documents and obtain instructions through the Architect.

1.06 COORDINATION DRAWINGS

A. Provide information required by the Architect for preparation of coordination drawings.

B. Review Drawings carefully prior to submission of all submittals to the Architect.

1.07 CLOSEOUT PROCEDURES

Submit in accordance with Section 017000.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 010410

FORD FIELDS CONCESSION STAND
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SECTION 010450 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of Work.

B. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other Work, and subsequent fitting and patching required for restoration of surfaces to their original condition.
   1. "Cutting and patching" is performed for coordination of the Work, to uncover Work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 SUBMITTALS

A. Submit written request in advance of cutting or alteration, which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather-exposed or moisture-resistant element.
   3. Efficiency, maintenance, or safety of any operational equipment.
   4. Visual qualities of sight-exposed elements.
   5. Work of Owner or separate contractor.

B. Include in request:
   1. Identification of Project.
   2. Location and description of affected Work.
   3. Necessity for cutting or alteration.
   4. Description of proposed Work, and products to be used.
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the Work.
      c. Products proposed to be used.
      d. Extent of re-finishing.
      e. Cost proposal when applicable.
      f. Alternatives to cutting and patching.
   5. Effect on Work of Owner or separate contractor, if any
   6. Written permission of affected separate contractor, if any.
   7. Date and time Work will be executed.

1.04 QUALITY ASSURANCE

Requirements for Structural Work: Do not cut or alter any structural Work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.

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PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated, or as directed by the Owner, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Those required for original installation.

C. No substitutions of materials will be accepted after proposals are submitted.

PART 3 - EXECUTION

3.01 GENERAL

A. Execute cutting, fitting and patching including excavation and fill, to complete Work and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

3.02 INSPECTION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the Work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the Work.

B. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

C. After uncovering, inspect conditions affecting performance of Work.

D. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

A. Provide supports to assure structural integrity of surroundings, devices and methods to protect other portions of Work from damage.

B. Provide protection from elements for areas, which may be exposed by uncovering Work; maintain excavations and openings free of water.

C. Prevent debris from entering facility; do not permit product contamination.

3.04 PERFORMANCE

A. Employ skilled workers to perform cutting and patching Work. Except as otherwise indicated or as approved by the Architect, proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut the Work using methods that are least likely to damage Work to be retained or adjoining Work. Where possible review proposed procedures with the original installer and comply with its recommendations.

C. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine, such as a carborundum saw, or core drill, to ensure a neat hole. Cut holes and slots neatly to size required with a minimum disturbance of adjacent Work. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces. Temporarily cover unused openings.

D. Patch with seams, which are durable and as invisible as possible. Comply with specified tolerances for the Work. Where feasible, inspect and test patched areas to demonstrate integrity of Work. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining Work in a manner which will eliminate evidence of patching and re-finishing.

E. Where removal of walls or partitions extends from one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall covering; replace with new materials.

F. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface of wall or ceiling containing patch, after patched area has received prime and base coat. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

G. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through roof, wall, floor or other surfaces.

H. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire rated material, full thickness of the construction element.

I. Do not leave facility open to contamination or rain; close off at end of each Work day.

J. Thoroughly clean areas and spaces where Work is performed or used as access to Work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied.

END OF SECTION 010450

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SECTION 011200 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedural requirements

B. Rehabilitation and renovations of existing spaces and materials.

C. Installation of products removed in Sections as specified.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials shall be as specified in individual Sections

B. Match existing products and Work for patching and extending Work.

C. Determine type and quality of existing products by inspection and any necessary testing, and workmanship by use of existing as a standard. Presence of a product, finish or type of Work requires that patching, extending or matching shall be performed as necessary to make Work complete and consistent with the Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move or remove items as necessary for access to alteration and renovation Work; replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, rusted metals, and deteriorated masonry and concrete; replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new Work and new finishes.

E. Close openings in exterior surfaces to protect existing Work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.03 INSTALLATION

A. Coordinate Work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.

B. Designated areas, rooms and spaces and finishes shall be complete in all respects, including operational mechanical and electrical systems.

C. Remove, cut and patch Work in a manner to minimize damage and to provide means to minimize products and finishes to specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent new finishes.

E. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full operational condition.

F. Install products as specified in individual sections.

3.04 TRANSITIONS

A. Where new Work abuts or aligns with existing make a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to the Architect for completion.

3.05 ADJUSTMENTS

Fit Work at penetrations of surfaces as specified in Section 01045.

3.06 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored or showing other imperfections.

B. Repair substrate prior to patching finish.

3.07 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersection or natural termination point.

3.08 CLEANING

In addition to cleaning specified in Section 01500, clean Owner-occupied areas of Work as required.

END OF SECTION 011200

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SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Section:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Requested substitution will not adversely affect Contractor's construction schedule.
    c. Requested substitution has received necessary approvals of authorities having jurisdiction.
    d. Requested substitution is compatible with other portions of the Work.
    e. Requested substitution has been coordinated with other portions of the Work.
    f. Requested substitution provides specified warranty.
    g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    b. Requested substitution does not require extensive revisions to the Contract Documents.
    c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    d. Requested substitution will not adversely affect Contractor's construction schedule.
    e. Requested substitution has received necessary approvals of authorities having jurisdiction.
    f. Requested substitution is compatible with other portions of the Work.
    g. Requested substitution has been coordinated with other portions of the Work.
    h. Requested substitution provides specified warranty.
    i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

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SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has

changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to Architect by the 23rd of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

    1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
    2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Initial progress report.
11. Report of preconstruction conference.
12. Certificates of insurance and insurance policies.

I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013000 - SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures
B. Construction Progress Schedule
C. Shop Drawings
D. Product Data
E. Samples
F. Manufacturer's Instructions
G. Manufacturer's Certificates
H. Schedule of Required Submittals
I. Request for Substitution Form

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

1.03 PROCEDURES - BEFORE PROPOSAL OPENING

No substitute systems or materials will be considered prior to proposal opening.

1.04 PROCEDURES - AFTER PROPOSAL OPENING

A. Deliver submittals to: The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706

B. All submittals required for the project shall be submitted at the same time.

C. Transmit each item under form acceptable to the Architect in this document. Identify Project, Contractor, Subcontractor and major suppliers. Identify pertinent drawing sheet and detail number, and specification section number as appropriate. Identify any and all deviations from Contract Documents. Provide 3-inch x 5-inch space each for Contractor and Architect review stamps. Provide certification stamp on all submittal sets.

D. Submit Submittal Schedule at the same time as all other submittals.

E. All submittals including shop drawings, product data and samples for this project will be submitted at the same time to the Architect and within ten (10) days after receipt of the Notice to Proceed.

F. After Architect's review of submittal, revise and re-submit as required, identifying changes made since previous submittal.

G. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to

promptly report any inability to comply with provisions.

H. Bind sets of submittals in labeled three-ring binders identified on the outside with the project title, date, Contractor's, Architect's and Owner's names, and including a table of contents corresponding to the Specification format, with all contents correlated.

1.05 CONSTRUCTION PROGRESS SCHEDULES

A. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first Workday of each week.

B. Show submittal dates required for Shop Drawings product data and samples and product delivery dates including those, if any, identified to be furnished by the Owner.

1.06 SHOP DRAWINGS

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all shop drawings on opaque reproductions.

B. Present in a clear and thorough manner. Title each Drawing with Project Name and the same information indicated for 1.04.H above. Identify each element of Drawings by reference to sheet number and detail of the Contract Documents.

C. Identify field dimensions. Show relation to adjacent or critical features or Work or products.

1.07 PRODUCT DATA

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all product data.

B. Submit only pages that are pertinent. Mark each copy of standard printed data with yellow hi-liter to identify pertinent products, reference to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

C. Modify manufacturer standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete or cross-out information not applicable.

D. Any deviation from the Contract Documents must be clearly identified when submitted. Any items not identified will be deemed to be the items exactly as specified in the Contract Documents.

1.08 MANUFACTURER'S INSTRUCTIONS

When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

1.09 SAMPLES

A. Submit full range of manufacturer's standard colors, textures, and patterns for Owner's selection. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all samples unless otherwise indicated by these Specifications.

B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing Work.

C. Include identification on each sample, giving full information.

D. Submit the number specified in respective Specification Section: Two (2) will be retained by the Architect. Reviewed samples that may be used in the Work are indicated in the Specification Section.

1.10 FIELD SAMPLES

Provide field samples of finishes at the project site as required by individual Specification Sections. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.11 CONTRACTOR REVIEW

A. Review submittals prior to transmittal. Determine and verify field measurements, field construction criteria, manufacturer's catalog numbers and conformance of submittal with requirements of Contract Documents.

B. Coordinate submittals with requirements of Work and of Contract Documents.

C. Apply Contractor's stamp on each section of Shop Drawings and Product Data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.

D. The Contractor is encouraged not to fabricate products or begin Work which requires submittals until return of reviewed submittal with Architect's review stamp. Fabrication of items and beginning of Work when submittals have not been reviewed will be at the Contractor's risk.

1.12 SUBMITTAL REQUIREMENTS

A. Transmit submittals in such sequence to avoid delay in the Work or Work of other contracts.

B. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

C. Submit under Architect approved transmittal letter. Identify Project by title and number. Identify Work and product by Specification Section and Article Number.

1.13 RE-SUBMITTAL REQUIREMENTS

A. Make re-submittals under procedures specified for initial submittals. Identify changes made since previous submittal.

B. Re-submittals beyond the initial and a second will be reviewed by the Architect and/or his consultants at the Contractor's expense.

1.14 ARCHITECT AND OWNER REVIEW

A. The Architect and Owner and/or other authorized representative will review all submittals. Submittals will be returned to the Contractor with the Architect's review stamp affixed, and/or with the indication of any changes, which may need to be made, shown thereon, or with disapproval.

B. The Architect's review of any such Submittal shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, nor shall it relieve him from responsibility for errors of any sort in the Submittal, nor shall it in any way diminish the Contractor's obligation to conduct the Work in accordance with the Contract Documents.

C. Approval of samples shall be for design and appearance only, and such approval shall not relieve Contractor from any obligation as provided in the Contract Documents.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

REQUEST FOR SUBSTITUTION
(Attach Additional Sheets As Necessary)

From: _____
_____
To: _____
_____

Date of Request: _____
Project: Project Name
Location: Project Location
Architect's Project No.: 09015

References: Specification Section: _____ Part: _____ Paragraph: _____ Subparagraph: _____
Specified Product Name: _____ Model No.: _____
Drawing Sheet(s): _____ De tail(s): _____

Description of Proposed Substitution:
Substitute Product Name: _____ Model No.: _____
Manufacturer: _____ Address: _____ Phone: _____
Installer: _____ Address: _____ Phone: _____
Reason for not providing specified item: _____
_____
Differences between proposed substitution and specified product: _____
_____
_____
☐ Point-by-point comparative data attached (Required for analysis and review by Architect)

Substitution Product History: ☐ New Product ☐ 2 to 5 Years Old ☐ 5 to 10 Years Old ☐ More than 10 Years Old
Similar Installations of Proposed Product:
Project: _____ Architect: _____ Phone: _____
Project Address: _____ Owner: _____ Phone: _____
_____ Date Product Installed: _____

Effect of Proposed Substitution:
Acceptance of proposed substitute will require the following change in Contract Sum and Contract Time:
☐ No Change in Contract Sum ☐ No Change in Contract Time
☐ Increase Contract Sum By $ _____ ☐ Increase Contract Time By _____ Calendar Days
☐ Decrease Contract Sum By $ _____ ☐ Decrease Contract Time By _____ Calendar Days.
Effect of proposed request for substitution on (Attach additional sheets if necessary):
a. Change in Construction Progress Schedule: ☐ No Effect ☐ _____
_____
b. Changes required in details and construction of related work: ☐ No Change ☐ Yes, Explain: _____
_____
c. Change in warranty requirements: ☐ No Change ☐ _____

Representations by Contractor: (1) Substitute item is equivalent or superior to that specified in quality and durability, design, appearance, function, finish, performance, is of size and weight that will permit installation in spaces provided, and that will allow adequate service access; (2) Substitute item is compatible with other portions of the Work; (3) Substitute item has been coordinated with other portions of the Work; (4) Substitute item has received necessary approvals from authorities having jurisdiction; (5) Substitute item is consistent with the Contract Documents and will produce the intended results; (6) Substitute item provides specified warranty; and (7) If requested substitution involves more than one contractor, or subcontractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors, or subcontractors involved.

_____ _____
(Signature) (Typed or Printed Name and Title) (Date)

END OF SECTION 013000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Project meetings.
3. Requests for Interpretation (RFIs).

B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque copies of each submittal. Architect will return four copies.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. LEED requirements.
    l. Preparation of Record Documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Owner's occupancy requirements.
    p. Responsibility for temporary facilities and controls.
    q. Construction waste management and recycling.
    r. Parking availability.
    s. Office, work, and storage areas.
    t. Equipment deliveries and priorities.
    u. First aid.
    v. Security.
    w. Progress cleaning.
    x. Working hours.

3. Minutes: Record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at monthly intervals in conjunction with the review of the month's payment request. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) RFIs.
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Hard-Copy RFIs:

1. Identify each page of attachments with the RFI number and sequential page number.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Daily construction reports.
4. Field condition reports.

B. See Division 01 Section "Payment Procedures" for submitting the Schedule of Values.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

C. Daily Construction Reports: Submit three copies at monthly intervals.

D. Field Condition Reports: Submit three copies at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than seven days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

6. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

FORD FIELDS CONCESSION STAND
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SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.

C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.

D. See Division 01 Section "Closeout Procedures" for submitting warranties.

E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

a. Project name.
b. Date.
c. Name and address of Architect.
d. Name and address of Contractor.
e. Name and address of subcontractor.
f. Name and address of supplier.
g. Name of manufacturer.
h. Submittal number or other unique identifier, including revision identifier.

1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

i. Number and title of appropriate Specification Section.
j. Drawing number and detail references, as appropriate.
k. Location(s) where product is to be installed, as appropriate.
l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810 or approved Contractor Transmittal Form.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked approved on Architect's Submittal review form attached at the end of this section.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating approval taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Approval by the Architect and Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Wiring diagrams showing factory-installed wiring.
    f. Printed performance curves.
    g. Operational range diagrams.
    h. Compliance with specified referenced standards.
    i. Testing by recognized testing agency.

4. Number of Copies: Submit seven copies of Product Data, unless otherwise indicated. Architect will return five copies. Mark up and retain two returned copies as Project Record Documents.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.
    h. Schedules.
    i. Notation of coordination requirements.
    j. Notation of dimensions established by field measurement.
    k. Relationship to adjoining construction clearly indicated.
    l. Seal and signature of professional engineer if specified.
    m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque (bond) copies of each submittal. Architect will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

    1. Number of Copies: Submit seven copies of product schedule or list, unless otherwise indicated. Architect will return five copies.

F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. See sample of Architect's Shop Drawing Review Sheet at the end of this section.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

Submittals not required by the Contract Documents may not be reviewed and may be discarded.

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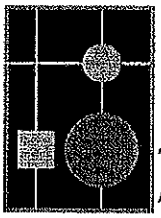

The LaBiche
ARCHITECTURAL GROUP, INC.

Dohn H. LaBiche, FAIA - Principal
Greg Wall, AIA - Principal

7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
(409) 860-0197 • Fax (409) 860-0198

SHOP DRAWING REVIEW

Project Name: XX

Project Number: XX

Submittal For: **XX**

	No Exception		Exceptions Noted		Rejected
	Revise & Resubmit		Submit Specified Item		

NOTE:
Our checking is only to determine general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is solely responsible for confirming and correlating dimensions at the job site; for information which pertains to fabrication processes or construction techniques, and for coordinating the work of all trades. Our checking of shop drawings and submittals shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents nor for errors or emissions in the shop drawings and submittals.

By: Dohn H. LaBiche, FAIA Date:

Remarks:

END OF SECTION 013300

FORD FIELDS CONCESSION STAND
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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those

operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.6 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which situations tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

B. Special Tests and Inspections: Conducted by a qualified testing agency required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers

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AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)

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AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute

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CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FIBA	Federation Internationale de Basketball (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FM Approvals	FM Approvals
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)

GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)

LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association

NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections

RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BOCA	BOCA International, Inc. (See ICC)

IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials (See ICC)
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
SBCCI	Southern Building Code Congress International, Inc. (See ICC)
UBC	Uniform Building Code (See ICC)

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)

NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PBS	Public Building Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA)
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)
FS	Federal Specification
FTMS	Federal Test Method Standard (See FS)
MIL	(See MILSPEC)
MIL-STD	(See MILSPEC)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CCR	California Code of Regulations
CPUC	California Public Utilities Commission
TFS	Texas Forest Service Forest Resource Development

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. See Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.

C. See Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: type written letter on company stationary.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.

b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 7days of the Bid date. Requests received after that time may be considered or rejected at discretion of Architect. In no case will substitutions submitted more than 30 days after the Notice to Proceed be reviewed.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

FORD FIELDS CONCESSION STAND
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SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. See Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 SUBMITTALS

A. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work,

investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. See Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

C. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

D. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

E. See Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.

F. See Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Emergency manuals.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. See Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, water leak, power failure, water outage, equipment failure and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.

4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

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PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

C. See Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit two set(s) of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set of corrected Record Transparencies and two set(s) of marked-up Record Prints. Architect will initial and date each transparency and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.
b. Final Submittal: Submit two set(s) of marked-up Record Prints, and the following:

1) Record Transparencies: One (1) set.
2) Copies printed from Record Transparencies: Two (2). Print each Drawing, whether or not changes and additional information were recorded.
3) Scanned PDF document record set.

B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit two copies of each Product Data submittal.

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PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

FORD FIELDS CONCESSION STAND
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PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

FORD FIELDS CONCESSION STAND
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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For steel reinforcement. Material test reports and certificates.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete".

2. ACI 318, "Building Code Requirements for Reinforced Concrete".
3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
4. CRSI, "Manual of Standard Practice".

C. Preinstallation Conference: Conduct conference with Architect and Testing Laboratory representative at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.

    a. Fly Ash: ASTM C 618.

B. Normal-Weight Aggregates: ASTM C 33, graded, 1-inch (25-mm) nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm) nominal maximum aggregate size.

D. Water: ASTM C 94/C 94M and potable.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

G. Synthetic Fiber: Polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 5 inches maximum.
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after

initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. Testing Services: Tests shall be performed according to ACI 301.

2. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

3. Slump: ASTM C 143, one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

4. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 degrees F (4 deg. C) and below; when 80 degrees F (27 deg. C) and above, and one test for each set of compressive-strength specimens.

6. Compression Test Specimen: ASTM C 31, one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

7. Compressive-Strength Tests: ASTM C 39, one set for each day's pour exceeding 5 cubic yards plus additional sets for 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

B. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

D. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test results falls below specified compressive strength by more than 500 psi.

E. Test Results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for each of the 7-day tests and 28-day tests.

F. Additional Tests: The testing agency will make additional tests of in-place concrete, as directed by Architect, when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed by Architect.

END OF SECTION 033000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Wood blocking, cants, and nailers.
2. Wood furring and grounds.
3. Wood sleepers.
4. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Power-driven fasteners.
5. Powder-actuated fasteners.
6. Expansion anchors.
7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an

agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:
1. Plywood backing panels.

2.3 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exterior, AC in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plastic Wall Panel Backing Panels: Interior grade CD in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Do not splice structural members between supports unless otherwise indicated.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 066400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes plastic sheet paneling.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For plastic paneling and trim accessories.

1.3 QUALITY ASSURANCE

A. Testing Agency: Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. Glass-Fiber-Reinforced Plastic Paneling: Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D 5319.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Crane Composites, Inc.
b. Glasteel.
c. Marlite.
d. Newcourt, Inc.
e. Nudo Products, Inc.
f. Parkland Plastics, Inc.

2. Nominal Thickness: Not less than 0.12 inch.
3. Surface Finish: As selected by Architect from manufacturer's full range.
4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Adhesive: As recommended by plastic paneling manufacturer and with a VOC content of 50g/L or less.

C. Sealant: Mildew-resistant, single-component, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 079200 "Joint Sealants."

1. Sealant shall have a VOC content of 250 g/L or less.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that could impair adhesive bond, including oil, grease, dirt, and dust.

B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

C. Lay out paneling before installing. Locate panel joints so that trimmed panels at corners are not less than 12 inches (300 mm) wide.

3.2 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing panels, and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 066400

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers four samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

D. Product test reports.

E. Preconstruction compatibility and adhesion test reports.

F. Preconstruction field-adhesion test reports.

G. Field-adhesion test reports.

H. Warranties.

1.4 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Minimum Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. BASF Building Systems.
   b. Dow Corning Corporation.
   c. GE Advanced Materials - Silicones.
   d. May National Associates, Inc.
   e. Pecora Corporation.
   f. Polymeric Systems, Inc.
   g. Schnee-Morehead, Inc.
   h. Sika Corporation; Construction Products Division.
   i. Tremco Incorporated.

2. Type: Single component (S).
3. Grade: Nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. BASF Building Systems.
   b. Bostik, Inc.
   c. Lymtal, International, Inc.
   d. May National Associates, Inc.
   e. Pacific Polymers International, Inc.
   f. Pecora Corporation.
   g. Polymeric Systems, Inc.
   h. Schnee-Morehead, Inc.
   i. Sika Corporation; Construction Products Division.
   j. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Traffic (T).

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Bostik, Inc.
    c. May National Associates, Inc.
    d. Pecora Corporation.
    e. Schnee-Morehead, Inc.
    f. Tremco Incorporated.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Pecora Corporation.
    b. USG Corporation.

2.6 JOINT SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

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PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Tile control and expansion joints.
   c. Joints between different materials listed above.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surface.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints between metal panels.
   c. Joints between different materials listed above.
   d. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
   e. Control and expansion joints in ceilings and other overhead surfaces.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation joints in cast-in-place concrete slabs.

b. Control and expansion joints in tile flooring.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings.
c. Tile control and expansion joints.
d. Vertical joints on exposed surfaces of interior unit masonry, concrete, walls and partitions.
e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.

2. Joint Sealant: Latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints.

2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 079200

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SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard hollow metal doors and frames to be supplied by metal building manufacturer.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required.

E. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.3 QUALITY ASSURANCE

A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Metal Building manufacturer's standard.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS, Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, CS, Type B.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I.

H. Glazing: Division 08 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Comply with ANSI/SDI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
   a. Thermal-Rated (Insulated) Doors: R-value of not less than 12.3 deg F x h x sq. ft./Btu (2.166 K x sq. m/W) when tested according to ASTM C 1363.
3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.
5. Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Comply with ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).
   a. Width: 1-3/4 inches (44.5 mm).
   b. Fabricate of metallic-coated sheet.

C. Hardware Reinforcement: ANSI/SDI A250.6.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.

C. Interior Frames: Fabricated from cold-rolled steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
4. Frames for Level 1 Steel Doors: 0.042-inch- (1.0-mm-) thick steel sheet.
5. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
6. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
7. Frames for Borrowed Lights: 0.053-inch- (1.3-mm-) thick steel sheet.

D. Hardware Reinforcement: ANSI/SDI A250.6.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, same material as door face sheet.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, same material as frames.

D. Terminated Stops: Where indicated, terminate stops 6 inches (152 mm) above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

2.8 FABRICATION

A. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.

B. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow Metal Frames: Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) high.
        2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
        3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
        5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

    b. Compression Type: Not less than two anchors in each jamb.
    c. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers.

    a. Single-Door Frames: Three door silencers.
    b. Double-Door Frames: Two door silencers.

D. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 electrical Sections.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: ANSI/SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. At fire-protection-rated openings, install frames according to NFPA 80.
b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
c. Install frames with removable glazing stops located on secure side of opening.
d. Install door silencers in frames before grouting.
e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. In-Place Concrete: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
4. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

B. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

FORD FIELDS CONCESSION STAND
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SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:

1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
2. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. Sound Transmission Characteristics: For STC-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
2. Protective Coating: manufacturer's standard corrosion-resistant zinc coating, unless otherwise indicated.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

   a. Type: Post installed, chemical anchor or Post installed, expansion anchor.

2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.

D. Flat Hangers: Steel sheet, 1 by 3/16 inch (25.4 by 4.76 mm) by length indicated.

E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38 mm).

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges, 3/4 inch (19.1 mm) deep.
2. Steel Studs: ASTM C 645.

   a. Minimum Base-Metal Thickness: 0.0312 inch (0.79 mm).
   b. Depth: 1-5/8 inches (41.3 mm).

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.

   a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).

4. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.

   a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

   a. Armstrong World Industries, Inc.; Drywall Grid Systems.
   b. Chicago Metallic Corporation; Drywall Furring System.

c. USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: As indicated on Drawings.

B. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
b. Products: Subject to compliance with requirements, provide one of the following:

1) Steel Network Inc. (The); VertiClip SLD Series.
2) Superior Metal Trim; Superior Flex Track System (SFT).

C. Firestop Track: As specified in Division 07 Section "Fire-Resistive Joint Systems."

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.027 inch (0.7 mm).

E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38.1 mm).
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: As indicated on Drawings.
2. Depth: 1-1/2 inches (38.1 mm).

G. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

H. Cold-Rolled Furring Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: As indicated on Drawings.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch (0.79 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

I. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare-metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.

2.4 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.2 INSTALLING SUSPENSION SYSTEMS

A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

B. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Do not attach hangers to steel roof deck.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

C. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb, unless otherwise indicated.

b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (12.7-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

C. Direct Furring:

1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

D. Z-Furring Members:

1. Erect insulation (specified in Division 07 Section "Thermal Insulation") vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Drawn to scale and coordinating acoustical panel ceiling installation with hanger attachment to building structure and ceiling mounted items:

C. Samples: For each exposed finish.

D. Product test reports.

E. Research/evaluation reports.

F. Maintenance data.

1.3 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Anchors in Concrete: Expansion or Bonded anchors fabricated from corrosion-resistant materials, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or

ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

1. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; "Clean Room VL", unperforated square lay-in.

B. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:

1. Type and Form: Type IV, Form 2, Pattern E, Fire Class A. Wet-formed mineral fiber, vinyl-faced membrane.

C. Color: White.

D. NRC: Not less than 0.50- 0.60, Type E-400 mounting per ASTM E 795.

E. Edge/Joint Detail: Square.

F. Thickness: 5/8 inch (15 mm).

G. Modular Size: 24 by 24 inches (610 by 610 mm).

2.3 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; Prelude Plus XL, AL7200 Series, Non-rated.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders.

C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counters playing, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
2. Do not attach hangers to steel deck tabs.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

END OF SECTION 095113

FORD FIELDS CONCESSION STAND
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SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE

A. Roppe Corporation.

B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Style and Location:
   a. Style C, Butt to: Provide in areas indicated.

C. Thickness: 0.125 inch (3.2 mm).

D. Height: 6 inches.

E. Lengths: Cut lengths 48 inches (1219 mm) long or coils in manufacturer's standard length.

F. Outside Corners: Job formed or preformed.

G. Inside Corners: Job formed or preformed.

H. Colors: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Miter or cope corners to minimize open joints.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

FORD FIELDS CONCESSION STAND
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SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on exterior substrates.

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Galvanized metal.
6. Aluminum (not anodized or otherwise coated)

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles for the paint category indicated.

B. Acceptable Manufacturers:
1. ICI
2. Pittsburgh Paint
3. Sherwin Williams

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As indicated in Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:

1. SW: Loxon Block Surfacer.

2.4 PRIMERS/SEALERS

A. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams, Loxon Exterior Concrete and Masonry Primer, #A24W8300.

2.5 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive for all Metal: [MPI #79]

1. Sherwin Williams, Water Based Rust Inhibited Primer, Pro Industrial Pro-Cryl Universal Metal Primer.

2.6 WOOD PRIMERS

A. Primer, Latex for Exterior Plywood:

1. Sherwin Williams, Exterior Latex Wood Primer, B42W8041

B. Primer, Oil for Exterior Wood:[MPI #7]
1. ICI: #2110-1200.
2. Pittburgh: Speedhide exterior oil based primer.
3. SW: A-100 Exterior oil wood primer, Y24W8020.

2.7 WATER-BASED PAINTS

A. Latex, Exterior Flat (Gloss Level 1):[MPI #10.]

1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

B. Latex, Exterior Semi-Gloss (Gloss Level 5):[MPI #11]
1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

C. Light Industrial Coating, Exterior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #163.]

1. Sherwin Williams, DTM Acrylic

2.8 SOLVENT-BASED PAINTS

A. Alkyd, Exterior Gloss (Gloss Level 6) for metal handrails, doors and bollards:[MPI #9.]

1. Sherwin Williams, Pro Industrial Urethane Alkyd, #B54W151.

2.9 ALUMINUM PAINT

A. Aluminum Paint, 100% Acrylic D.T.M.: [MPI#1]
1. ICI: Devflex 4208 Series.
2. Pittsburgh: 90-Line Finish.
3. SW: Bondplex Waterbased Acrylic Aluminum, B71S200.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Portland Cement Plaster: 12 percent.
5. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Latex, exterior, matching topcoat.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior gloss (Gloss Level 6)[, MPI #119].

B. Concrete Substrates, Traffic Surfaces:

1. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
d. Additive: Manufacturer's standard additive to increase skid resistance of painted surface.

2. Solvent-Based Clear Sealer System:

a. Prime Coat: Sealer, solvent based, for concrete floors[, MPI #104].
b. Intermediate Coat: Sealer, solvent based, for concrete floors[, MPI #104].
c. Topcoat: Sealer, solvent based, for concrete floors[, MPI #104].

C. CMU Substrates:

1. Latex over Alkali-Resistant Primer System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior semi-gloss (Gloss Level 5)[, MPI #11].

D. Steel Substrates:

1. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

2. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

E. Galvanized-Metal Substrates:

1. Latex System:

2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, galvanized, water based[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

END OF SECTION 099113

FORD FIELDS CONCESSION STAND
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SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Cast iron.
6. Galvanized metal.
7. Aluminum (not anodized or otherwise coated).
8. Wood.
9. Gypsum board

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide product by one of the following:

1. Sherwin Williams
2. Pittsburgh Paint
3. ICI

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Colors: As indicated on Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:[MPI #4.]

1. Sherwin Williams Pro Mar Block Filler, B25W25.

2.4 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior:[MPI #50.]

1. Sherwin Williams Pro Mar 200 Latex Primer.

B. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams Loxon Concrete & Masonry Primer, A24W8300.

C. Primer Sealer, Interior, Institutional Low Odor/VOC:[MPI #149.]

1. Sherwin Williams Pro Mar 200 Zero VOC Primer, B28W2600.

D. Primer, Latex, for Interior Wood:[MPI #39.]

1. Sherwin Williams Multi Purpose Latex Primer, B31W8020.

E. Primer Sealer, Alkyd, Interior:[MPI #45.]

1. Sherwin Williams Pro Block Alkyd Primer, B79W8810.

F. Primer, Bonding, Water Based:[MPI #17.]

1. Sherwin Williams Adhesion Primer, B51W8050.

2.5 METAL PRIMERS

A. Primer, Rust-Inhibitive, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

B. Primer, Alkyd, Anti-Corrosive, for Metal:[MPI #79.]

1. Sherwin Williams Kem Kromik Primer, B50NZ2.

C. Primer, Galvanized, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

D. Primer, Quick Dry, for Aluminum:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

2.6 WATER-BASED PAINTS

A. Latex, Interior, Institutional Low Odor/VOC, Flat (Gloss Level 1):[MPI #143.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Flat, B30W2600.

B. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 2):[MPI #144.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Low Sheen, B24W2600.

C. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3):[MPI #145.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Eg-Shel, B20W2600.

D. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5):[MPI #147.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Semi-Gloss, B31W2600.

E. Latex, Interior, High Performance Architectural, (Gloss Level 2):[MPI #138.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Gloss, B21W2251.

F. Latex, Interior, High Performance Architectural, Semi-Gloss (Gloss Level 5):[MPI #141.]

1. Sherwin Williams Pro Industrial Zero VOC Semi-Gloss, B66W600 Series.

G. Light Industrial Coating, Interior, Water Based (Gloss Level 3):[MPI #151.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Eg-Shel, K45.

H. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #153.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Semi-Gloss, K46.

I. Light Industrial Coating, Interior, Water Based, Gloss (Gloss Level 6):[MPI #154.]

1. Sherwin Williams Pro Industrial Zero VOC Gloss, B66W600 Series.

2.7 DRY FOG/FALL COATINGS

A. Dry Fall, Latex, Flat:[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

B. Dry Fall, Water Based, for Galvanized Steel, Flat (Gloss Level 1):[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

2.8 FLOOR COATINGS

A. Floor Epoxy (Water Based), Gloss (Gloss Level 6):[MPI #212.]

1. Sherwin Williams Armor Seal 8100 Water Based Epoxy.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Latex Aggregate System:

a. Prime Coat: Textured coating, latex, flat[, MPI #42].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].

b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

B. Concrete Substrates, Traffic Surfaces:

1. Water Based Epoxy Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6).
b. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6).
c. Embed in top coat: non-sip floor addative.

C. Clay-Masonry Substrates:

1. Latex System:

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].

h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex Aggregate System:

a. Prime Coat: Primer for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
b. Intermediate Coat: Intermediate coat for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
c. Topcoat: Textured coating, latex, flat[, MPI #42].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
   b. Intermediate Coat: Alkyd, interior, matching topcoat.
   c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

D. CMU Substrates:

1. Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, matching topcoat.
   c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Sealer Coat: Primer sealer, latex, interior[, MPI #50].
   c. Intermediate Coat: Alkyd, interior, matching topcoat.
   d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

E. Steel Substrates:

1. Latex over Alkyd Primer System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, matching topcoat.
   f. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   g. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   h. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   i. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   j. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   k. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Topcoat: Dry fall, latex, flat[, MPI #118].
   f. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

    a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
    b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
    c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
    d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
    e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
    f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

    a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
    b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
    c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
    d. Prime Coat: Shop primer specified in Section where substrate is specified.
    e. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
    f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
    g. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
    h. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
    i. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

    a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
    b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
    d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
    e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

    a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
    b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
    c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
    d. Prime Coat: Shop primer specified in Section where substrate is specified.

e. Intermediate Coat: Alkyd, interior, matching topcoat.
f. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
g. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
h. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
i. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

7. Quick-Drying Enamel System:

a. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
b. Intermediate Coat: Alkyd, quick dry, matching topcoat.
c. Topcoat: Alkyd, quick dry, semi-gloss (Gloss Level 5)[, MPI #81].
d. Topcoat: Alkyd, quick dry, gloss (Gloss Level 7)[, MPI #96].

8. Alkyd Dry-Fall System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Topcoat: Dry fall, alkyd, flat[, MPI #55].

9. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Intermediate Coat: Aluminum paint[, MPI #1].
f. Topcoat: Aluminum paint[, MPI #1].

F. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

a. Prime Coat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

b. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating Over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Aluminum Paint System:

a. Prime Coat: Primer, galvanized metal, as recommended in writing by topcoat manufacturer for use on galvanized-metal substrates with topcoat indicated.
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

G. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].

e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

6. Aluminum Paint System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

H. Wood Substrates: Including wood trim, architectural woodwork, doors, windows, wood-based panel products, glued-laminated construction, exposed joists and exposed beams.

1. Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].

b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[. MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

I. Wood Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].
c. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].

2. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].

J. Fiberglass and Plastic Substrates:

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1. Latex System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Latex, interior, matching topcoat.
   d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   d. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   f. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   g. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

   a. Prime Coat: Primer, bonding, water based[, MPI #17].
   b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
   c. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   d. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].

e. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
f. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, bonding, water based[, MPI #17].
b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

K. Gypsum Board & Plaster Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].

d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

L. Spray-Textured Ceiling Substrates:

1. Latex (Flat) System: Spray applied.

a. Prime Coat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

2. Latex System: Spray applied.

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

c. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
d. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
e. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
f. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
g. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

4. Alkyd (Flat) System:

a. Prime Coat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
b. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

M. Cotton or Canvas and ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

4. Aluminum Paint System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

END OF SECTION 099123

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SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Operation and maintenance data.

C. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Failure of hydrostatic test according to NFPA 10.
   b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
h. Larsen's Manufacturing Company.
i. Moon-American.
j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
k. Potter Roemer LLC.
l. Pyro-Chem; Tyco Safety Products.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type : UL-rated 2-A:10:B:C 10-lb. nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Larsen's Manufacturing Company.
h. Potter Roemer LLC.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: In cabinets.

C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

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SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal roof panels.
3. Metal wall panels.
4. Thermal insulation.
5. Doors and frames.
6. Accessories.

1.2 SUBMITTALS

A. Product Data: For each type of metal building system component.

B. Shop Drawings: For metal building system components. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

E. Welding certificates.

F. Metal Building System Certificates: For each type of metal building system, from manufacturer.

1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

a. Name and location of Project.
b. Order number.
c. Name of manufacturer.
d. Name of Contractor.
e. Building dimensions including width, length, height, and roof slope.
f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
g. Governing building code and year of edition.
h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category

or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).

i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.

j. Building-Use Category: Indicate category of building use and its effect on load importance factors.

k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

G. Material test reports.

H. Source quality-control reports.

I. Field quality-control reports.

J. Maintenance data.

K. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

D. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.

E. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

1.4 WARRANTY

A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:

1. A&S Building Systems, Inc.; Division of NCI Building Systems, L.P.
2. Alliance Steel, Inc.
3. American Buildings Company; Division of Magnatrax Corp.
4. American Steel Building Co., Inc.
5. BC Steel Buildings, Inc.
6. Behlen Mfg. Co.
7. Bigbee Steel Buildings, Inc.
8. Butler Manufacturing Company; a BlueScope Steel company.
9. CBC Steel Buildings; Division of Magnatrax Corp.
10. Ceco Building Systems; Division of NCI Building Systems, L.P.
11. Chief Buildings; Division of Chief Industries, Inc.
12. Elite Structures, Inc.
13. Garco Building Systems; Division of NCI Building Systems, L.P.
14. Gulf States Manufacturers, Inc.; Division of Magnatrax Corp.
15. Inland Buildings; Subsidiary of Behlen Mfg. Co.
16. Kirby Building Systems; Division of Magnatrax Corp.
17. Mesco Building Solutions; Division of NCI Building Systems, L.P.
18. Metallic Building Company; Division of NCI Building Systems, L.P.
19. Metco Metal Supply.
20. Mid-West Steel Building Company; Division of NCI Building Systems, L.P.
21. Mueller, Inc.
22. Nucor Building Systems.

23. Oakland Metal Buildings, Inc.
24. Olympia Steel Building Systems.
25. Package Industries, Inc.
26. Pinnacle Structures, Inc.
27. Robertson Building Systems; an NCI company.
28. Ruffin Building Systems, Inc.
29. Schulte Building Systems, LLP.
30. Spirco Manufacturing.
31. Star Building Systems; an NCI company.
32. Tyler Building Systems, L.P.
33. USA, Inc.
34. VP Buildings; a United Dominion company.
35. Vulcan Steel Structures, Inc.
36. Whirlwind Building Systems.

2.2 METAL BUILDING SYSTEM PERFORMANCE

A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Metal building systems shall be designed according to procedures in MBMA's "Metal Building Systems Manual."

1. Design Loads: As indicated on Drawings.
2. Design Loads: As required by [MBMA's "Metal Building Systems Manual."] [ASCE/SEI 7.] <Insert applicable code requirement.>
3. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:

    a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
    b. Girts: Horizontal deflection of 1/240 of the span.
    c. Metal Roof Panels: Vertical deflection of 1/240 of the span.
    d. Metal Wall Panels: Horizontal deflection of 1/240 of the span.
    e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.

4. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:

    a. Lateral Drift: Maximum of 1/400 of the building height.

5. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.

C. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of

connections, and other detrimental effects. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of roof area when tested according to ASTM E 1680 at negative test-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

E. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of wall area when tested according to ASTM E 283 at static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 2.86 lbf/sq. ft. (137 Pa).

G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 2.86 lbf/sq. ft. (137 Pa).

H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for Class 90.

2.3 STRUCTURAL-STEEL FRAMING

A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.
2. Frame Configuration: One-directional sloped.
3. Exterior Column Type: Uniform depth.
4. Rafter Type: Tapered.

B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly.

C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating.

D. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide zinc-plated or hot-dip galvanized bolts for structural-framing components that are galvanized.

E. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

2.4 METAL ROOF PANELS

A. Tapered-Rib-Profile, Lap-Seam Metal Roof Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Galalume.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches.

2.5 METAL WALL PANELS

A. Tapered-Rib-Profile, Exposed-Fastener Metal Wall Panels, Panel Type "A": Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Kynar 500.
   b. Color: As selected by Architect from manufacturer's full range.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches (32 mm).

B. Corrigated Profile, Exposed-Fastener Metal Wall Panels Panel Type "B": Designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Kynar 500.
   b. Color: As selected by Architect from manufacturer's full range.

2. Corrugated Spacing: 2 ¾" o.c.
3. Panel Coverage: 29 ½".
4. Panel Height: 7/8".

2.6 THERMAL INSULATION

A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.

2.7 DOORS AND FRAMES

A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.

1. Hardware:

a. Provide hardware for each door leaf, as follows:

1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
2) Lockset: BHMA A156.2. Heavy-duty Key-in-lever cylindrical type. Cylinders shall match owners existing keyway.
3) Exit Device: BHMA A156.3. Touch- or push-bar type.
4) Threshold: BHMA A156.21. Extruded aluminum. ADA compliant.
5) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
6) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
7) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.
8) Double Doors: Provide head and sill bolts on enactive leaf. Provide heavy-duty floor mounted stops/hold open devices on both leafs of exterior doors.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.

C. Overhead Coiling type Door: Mueller W300 Windlock Roll Up Door (RUD) are approved equal.

1. Quantity: Three (3).

2. Size: 4'-6" height x 12'-0" width.

3. Operation: Manual.

4. Security: Manual locking mechanism.

2.8 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.

D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.

E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

G. Roof Curbs: Fabricated from minimum 0.052-inch (1.32-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal roof panels; capable of withstanding loads of size and height indicated.

H. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

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2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

D. Secondary Framing: Shop fabricate framing components to size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.

    a. Joint Type: Snug tightened or pretensioned.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Locate canopy framing as indicated.
4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Steel Joists: Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Standard Specifications and Load Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
4. Bolt joists to supporting steel framework using carbon-steel bolts unless high-strength structural bolts are required by the manufacturer.

5. Comply with RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
6. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.2 METAL PANEL INSTALLATION, GENERAL

A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

   a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.3 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge[and hip] caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.

1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

3.5 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

B. Blanket Roof Insulation: Comply with the following installation method:

1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.

C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.

1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.

3.6 DOOR AND FRAME INSTALLATION

A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.

B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8.

C. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing."

D. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

1. Install surface-mounted items after finishes have been completed on substrates involved.
2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in Division 07 Section "Joint Sealants."

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide

concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Tests and Inspections:

1. High-Strength, Field-Bolted Connections: Connections shall be[tested and] inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:

    a. Liquid Penetrant Inspection: ASTM E 165.
    b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
    c. Ultrasonic Inspection: ASTM E 164.
    d. Radiographic Inspection: ASTM E 94.

D. Product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 133419

CERTIFICATION OF RESPONSIBILITY FOR

DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	NATURAL GAS PIPING/DISTRIBUTION

Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 00 - GENERAL PROVISIONS FOR PLUMBING

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	GAS DISTRIBUTION

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Plumbing subcontractor shall be the sole source responsible party to furnish and install the plumbing system. Plumbing contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 22 of these specifications, it is intended to mean the Plumbing Contractor as appropriate. These are sub contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 22 – Plumbing) under the contract with the owner. The General Contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete plumbing portion of this contract, as called for herein and on accompanying drawings. Parts of the plumbing division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items covered in the Plumbing Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Mechanical and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all plumbing systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections, meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than 7 days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Plumbing Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect. After initial surfacing has been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The plumbing piping shall be run at proper slopes and without conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire plumbing work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all plumbing work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. National Electric Code
2. National Fire Protection Association
3. American Society of Mechanical Engineers
4. Underwriters's Laboratories
5. American Gas Association
6. Energy Code for Commercial and High Rise Residential Buildings
7. International Energy Conservation Code
8. International Building Code
9. International Plumbing Code

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift pipes or to change the shape of and these changes shall be made as required. All such changes shall be referred to the Architect/Engineer for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Plumbing Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect/Engineer is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, highest quality and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between plumbing and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the sprinkler system with the structure, ceilings, lights, ductwork, etc. In some cases, due to space limitations, it may be necessary to reroute piping to meet the conditions of the project. Any rerouting required shall be part of this project and done without any additional cost to the Owner. **DO NOT MAKE PIPING WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of sewer lines with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams or concrete beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per the instructions and details of structural engineer.

F. All piping shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.

4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the Owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

I. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

J. All submittals shall be submitted prepaid and in ample time for review before installation.

K. Six (6) copies of each submittal shall be submitted to the Architect.

L. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted.**

M. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

N. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

O. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 UTILITIES

A. Connect all utilities at the points indicated on the drawings and extend such utilities to the building and to equipment or facilities requiring same.

B. Contractor shall pay all service and connection charges required by utility companies and/or site conditions (offsets, conflict boxes, etc.).

C. Contractor shall include all costs required by utility companies to extend utilities to the site. It is the responsibility of the contractor to obtain these fees from the utility companies and include those costs in the bid.

1.13 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done per the Federal, State or Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.14 EXCAVATION AND BACK FILL

A. Trench and excavation work shall include excavating, preparing of trenches, and backfilling as specified. Contractor shall install caution tape 12 inches above all piping, conduit, etc., as backfilling processes.

B. Trench and excavation work shall not include pavement breaking, cutting of holes through foundation walls and floors, removal of obstructions, relaying and/or repairing of floors, and repaving, which work shall be the responsibility of the General Contractor.

C. Contractor shall do all necessary trenching, excavation and backfilling for the proper installation of his work. Care shall be taken not to excavate below depth required, that trench beds are well rounded and that ground under pipe line is firm and secure before any pipe is laid. Trenches shall be excavated where bells of pipe occur in order to insure a pipe resting on the entire length of the bottom of the trench.

D. Unless otherwise noted, minimum cover over underground lines shall be 2-1/2 feet, except under streets and parking lots where minimum cover shall be 3 feet.

E. The width of the trench shall be sufficient to permit thorough compaction of the backfill under and around the pipe but not exceeding the external diameter of the pipe by more than 12 inches. Excavation for pipes shall be by hand and/or machine and as specified herein and shall confirm to the lines and elevations indicated on the plans.

F. The pipe shall be placed on a uniformly firm and compacted bed of sand, carefully shaped to support the pipe at the desired grade and so that any reaction will be distributed as nearly uniform as possible over a horizontal width of not less than six-tenths (6/10) of the outside diameter and all possibility of concentration of the reaction at or near the vertical diameter eliminated. The bed shall be shaped as to fit the lower part of the pipe exterior for at least 10 percent of its overall height.

G. The pipe shall be placed on a firm foundation. Any muck or other objectionable material found during excavation and preparation of the bed shall be removed and replaced with suitable bed material directed by the Architect.

H. All trenches and excavation shall be backfilled in a reasonable time after the pipes are installed unless otherwise directed by the Architect. Special care shall be taken in placing the backfill and extra care shall be used to obtain compaction under and along sides to the top of the pipe.

I. The backfill shall be placed in loose layers not exceeding 6 inches in depth under and around the pipe and not exceeding 8 inches over the pipe. Each layer shall be compacted to the compaction requirements as specified by the Architect.

J. Compaction shall be by hand and pneumatic tampers and the successive layers shall be added and compacted until the trench is completely filled and brought to elevation as directed. Back-filling shall be done in such a manner as to avoid injurious top or side pressures on the pipe.

K. Improper backfilling and compacting shall be cause to have the trench opened to expose the pipe for inspection then properly backfilled and compacted with fill material.

L. Where trenching is for piping, the bottom of the trench shall have minimum 95 percent compaction and shall be bedded with a minimum 12 inches compacted sand, crushed stone or shell on undisturbed soil (minimum 95 percent compaction).

1.15 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.16 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.17 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.18 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.19 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.20 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guideline. (Chlorination, chemical treatment, etc.)

1.21 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.22 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major plumbing equipment (water heaters, pumps, starters, mixing valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to

Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.23 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction.

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes.

1.24 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, etc., and leave entire installation in good working order.

1.25 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of his contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color samples). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

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1.26 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.27 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.28 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all plumbing systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.29 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques.

B. Contractor shall use factory start-up personnel to train the Owner's maintenance personnel.

1.30 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspections.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.31 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.32 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
   c. Contractor, name of responsible principal, address and telephone number.
   d. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
   e. Provide owner with contact information for warranties which extend beyond one year.

1.33 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.34 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.35 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 22 05 00

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SECTION 22 05 03 - BASIC MATERIALS AND METHODS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 SANITARY SEWER WASTE AND VENT LINES

A. All sanitary sewer waste and vent lines above and below building slab shall be constructed of service weight bell and spigot cast iron pipe and fittings. Where space requirements do not allow the use of the above materials, government type DWV copper pipe shall be used. All cast iron pipes shall comply with Commercial Standards CS 188-59 coated with tar inside and out and marked with manufacturer's identification and proper weight classification. Joints shall be made with neoprene gaskets.

B. At contractor's option, all sanitary sewer waste and vent lines **excluding grease waste piping** may be Schedule 40 PVC plastic lines and fittings with solvent weld joints (solid core allowed only; foam or cell core not acceptable). Grease waste piping shall remain cast iron.

C. Sanitary sewer lines exterior of building (5 feet from building) **excluding grease waste piping** shall be constructed of ABS or PVC Schedule 40 type "DWV" plastic pipe and fittings (solid core allowed only; foam or cell core not acceptable). Do not mix PVC and ABS materials. Grease waste piping shall remain cast iron.

D. At contractor's option, sanitary sewer vent lines above grade may be constructed of "no hub" service weight cast iron pipe with neoprene/stainless steel clamp couplings.

2.2 DOMESTIC WATER PIPE/WATER HEATER RELIEF PIPE/EQUIPMENT DRAIN PIPE/TRAP PRIMER

A. All domestic cold water lines/hot water lines within building, water heater relief lines and equipment drain piping shall be government type "L" hard copper water tube of standard weight and thickness, unless indicated otherwise. Use 95-5 "lead free" solder on all piping above slab. Use Silfos 1000 degrees Fahrenheit solder on all piping beneath slabs. "Press-Fit" or "Pro-Press" piping is not acceptable.

B. Site water piping (beyond 5 feet of building footprint) shall be Schedule 40 PVC pipe and fittings solvent weld joints (solid core allowed only; foam or cell core not acceptable).

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for domestic water lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe unless other material is approved by the Structural Engineer. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers for cast iron pipes shall be 5 feet; for other than soil, use 10 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported piping or accessories will not be accepted.

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2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures.

B. Valves and unions shall be as follows:

COPPER PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 1320	115	Crane 461	M-2882
Globe Valve	Crane 1310	1590T	Crane 359	F-2981
Unions	Crane 633		Crane Std. Gal.	
Check Valve	Crane 1303	1509	Crane 373	2974M

IRON PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 440	148	Crane 461	F2882-M
Globe Valve	Crane 7	590	Crane 359	F
Unions	Crane 633			
Check Valve	Crane 1303	1509	Crane 373	2974M

C. The following valves are considered equal to Crane Company:

CRANE	POWELL	NIBCO	HAMMOND	STOCKHAM	MV
7	150	T-235-Y	1B413T	B-22	590T
359	301	F-718-Y	1R126	G514	F2981
373	559	F918B	1R1124	G931	M2974
440	500	T113	1B640	B114	148
461	1787	F619	1R1138	G612	M-2882
1303	1825	S413(BWY)	1B943	B309	1509
1310	1823	S211(YW)	424	B14	1502
1320	1822	S113	1B647	B112	115

D. All valves, unions, etc., where pipe is chrome plated shall have similar finish. All exposed supplies to plumbing fixtures shall be chrome plated.

E. Ball valves shall be as manufactured by Milwaukee Valve (MV), Watts, Stockham, Powell, NIBCO, Neles-Jamesbury or Hammond.

	2" and Smaller	2-1/2 to 4"	Over 4"
Watts	Series B-6800	Series G-4000	Series G-4000
Neles-Jamesbury	Series 4000	Full Port Series	Full Port Series
Milwaukee Valve	BA-300	F-20CS	F-20CS

F. All valves over 2 inches shall be flanged type and full port type. All valves 2 inches and smaller shall be screw type, sweat type or flanged type as appropriate for type of pipe.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Plumbing Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Plumbing Contractor. The Electrical Contractor shall do all power wiring required for the installation of all equipment including equipment interlocking power wiring, etc. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Plumbing Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

D. Plumbing contractor shall provide and install transformers and low voltage wiring (below 120-1-60) from transformer to equipment. Electrical contractor shall provide and install power wiring to transformers.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall or ceiling where located.

B. Access panels located in rated walls, floors, ceilings, shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 SANITARY SEWER PIPE

A. Pipe ends shall be square cut. Ends of pipes shall be reamed and shall be wiped clean to remove cuttings. Before installation, pipe shall be stood on end and tapped sharply to remove cuttings and other foreign materials from interior. Pipe shall be thoroughly cleaned inside and outside. Bending or springing of pipe shall not be permitted.

B. Various service pipes, valves, fittings, etc., running parallel with each other and near together shall be in line with each other and shall be kept at a sufficient distance from

each other and other work to permit no less than 1/2 inch between finished coverings on different services.

C. Each contractor shall furnish all foundations, structural or pipe supports indicated, called for specifically or that may be required to support his particular equipment and material unless hangers are definitely indicated as being furnished by others. Sewer waste and vent lines shall be supported every 4 feet.

D. Perforated strap hangers shall not be allowed for any part of the hangers.

E. Drainage and vent pipes: Horizontal soil and waste pipes 3 inches and smaller shall have a grade of 1/4 inch per foot and line 4 inches and larger shall have a grade of 1/8 inch per foot unless otherwise specified. The main vertical soil and waste vent shall be extended full size through the wall. Cast-iron pipe inside the building shall be extended 6 inches above the floor.

F. Fittings: Changes in pipe size on soil, waste, and drain lines shall be made with reducing fittings of recessed reducers. All changes in direction shall be made by the appropriate use of 45 degree wyes, long or short sweep 1/4 bends, 1/6, 1/8, or 1/16 bends, or by a combination of those or equivalent fitting, except that single and double sanitary tees may be used in drainage lines only where the direction of flow is from horizontal to vertical. Short sweeps not less than 3 inches in diameter may be used where the change in direction of flow is either from horizontal to vertical or from vertical to horizontal.

G. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.

4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

H. Make connections to equipment and branch mains with unions.

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Install each fixture with trap, easily removable for servicing and cleaning. Each trap shall be placed as near the fixture as possible, and no fixture shall be double trapped. At completion thoroughly clean plumbing fixtures and equipment.

K. Fixture connections: Connections between earthenware fixtures and flanges on soil pipes shall be made absolutely gas tight and water tight with a closet-setting compound or gasket. Bolts shall be not less than 1/4 inch in diameter and shall be equipped with chromium-plated nuts and washers.

L. Test sanitary drainage, condensate drains and vent systems with water or air in accordance with requirements of the State Sanitary Code, International Plumbing Code and all applicable local codes. Water test may be applied to entire drainage systems or sections of systems. All openings shall be tightly closed in section to be tested except at highest opening. All portions of systems shall be subject to a minimum of 10 feet head of water. Water must have been in the system two hours prior to inspection. Air test in accordance with the Plumbing Code may be used at contractor's option.

M. Sanitary sewer or storm drain pipe penetrating concrete slabs shall be wrapped with foam insulation tape.

3.2 DOMESTIC WATER PIPE

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.

5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide non-conducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Domestic cold water lines penetrating concrete slabs shall be wrapped with vinyl flexible tube. Domestic hot or return water piping penetrating concrete slabs shall be insulated at all penetrations through slab (refer to insulation specifications).

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Hydrostatically test entire domestic water system to 200 psig or 2-1/2 times normal working pressure.

K. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

L. Sealing or flashing the building envelope due to penetrations in building shall be the responsibility of the general contractor.

M. Water service to fixtures or groups of fixtures shall have 12 inch long air chambers at the same diameter as header or service pipe on both hot and cold water lines. Air chamber shall be installed close to fixture. Provide and install shock arrestors on sterilizer water supplies or supplies with quick closing valves such as flush valves, dishwashers, tempering valves, etc. Location and size of shock arrestor shall be as per manufacturer's instructions.

END OF SECTION 22 05 03

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SECTION 22 05 93 - SYSTEM TESTING AND BALANCING FOR PLUMBING

PART 1 - GENERAL

1.1 SCOPE

A. Includes But Not Limited To -

1. Witnessing of all plumbing system testing required of Plumbing Subcontractor.
2. Test and Balance agency shall be present for factory start-up of equipment when factory start-up is required.

B. Related Work Specified Elsewhere -

1. The plumbing subcontractor shall address all issues as recommended by Air Balance and Testing Agency at no additional cost to Owner.

1.2 QUALITY ASSURANCE

A. Testing Agency -

1. **General Contractor shall procure services of an independent AABC or NEBB Air Balance and Testing Agency which specializes in balancing and testing of heating, ventilating, and cooling systems. These services shall not be provided by the installing Plumbing Contractor on the project but shall be direct subcontractor of the general contractor. This shall be the same contractor providing Air Balance and Testing services as indicated in Division 23.**
2. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Technician employed by Agency.
3. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
4. If requested, conduct tests in presence of Engineer.
5. Agency shall be approved in writing by Engineer. Plumbing Contractor shall not be permitted to do this work. Submit qualifications for review.

B. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of balancing test report.**

1.3 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

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PART 2 - EXECUTION

2.1 Begin balance and testing upon completion of plumbing systems including installation of all specialties and devices.

A. General Contractor shall put systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance Manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

2.2 STANDARDS

A. Perform testing and balancing in complete accordance with the Associated Air Balance Council Standards for Field Measurement and Instructions, Form P1266, Volume I. Record test data on AABC standard forms or facsimile thereof.

2.3 TESTING PROCEDURE

A. Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when piping installation begins.**

B. The following minimum information shall be included in the finished report:

1. Plumbing:
The Test and Balance Contractor shall observe witness and record all plumbing tests required by these specs. The Plumbing Contractor shall contact the Test and Balance Contractor when testing is done. FAILURE TO DO SO WILL REQUIRE TESTING OF THE ENTIRE SYSTEM.

END OF SECTION 22 05 93

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SECTION 22 07 00 – PLUMBING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 DOMESTIC WATER PIPING

A. Cover cold water lines above ceilings and in exterior walls with 1 inch thick and all hot water lines with 1-1/2 inch thick closed cell rubber type insulation. At contractor's option, fiberglass insulation with white universal jacket may be used. All flanges, valves and fittings shall be insulated with closed cell rubber type molded fittings insulation, fabricated mitered segments of pipe insulation or closed cell rubber type insulation equivalent in thickness to insulation of adjoining pipe.

B. All water lines exposed in mechanical rooms shall be covered with 0.020 color coded PVC jacket with solvent welded seams and joints.

C. All water lines outside of building exposed to the weather shall have 1 inch thick closed cell rubber type insulation covered with 0.016 smooth aluminum jacket and elbows.

D. All water lines below building slab shall be insulated with 1 inch thick closed cell insulation with two (2) coats of mastic.

2.2 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, shall be insulated with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.3 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

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2.4 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 22 07 00

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SECTION 22 10 00 - PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish all labor and materials as hereinbefore specified, indicated or reasonably implied for the complete installation of the following systems:

1. Cold Water
2. Hot Water System
3. Sanitary Drainage System

PART 2 - MATERIALS

2.1 FLOOR DRAINS

A. All floor drains shall be constructed of cast iron and shall be complete with clamping devices as required.

B. Floor drains (Marked "FD"): shall be bottom outlet with duracoated cast iron body with clamping collar and 6 inch diameter nickel bronze strainer adjustable vertically to floor level, with square perforations and vandal proof screws. Refer to fixture schedule for specific types.

2.2 CLEANOUTS

A. Cleanouts shall be provided where shown on plans, at each change of direction of the building drain greater than 45 degrees and at or near the foot of each vertical waste or soil stack. Location of all cleanouts shall be same size as piping up to 4 inches. Larger pipes shall have 4 inch cleanouts unless noted otherwise. Every cleanout shall be installed so that the cleanout opens in the direction of flow of the drainage line or at right angles thereto. Floor cleanouts shall be adjustable type, double drainage flange, clamping collar (above ground installations), 2 pound lead flashing, nickel bronze cover. Top of cleanout shall be level with top of finished floor so there is a continuous surface. Floor cleanouts shall be Jay R. Smith, Josam or Wade. Wall cleanouts shall be nickel bronze access frame and cover Zurn, Jay R. Smith, Josam or Wade. Outside cleanouts shall be installed with cover, set flush with finished grade, or as detailed on plans.

2.3 FLASHING

A. Flash around all pipes passing through roof in connection with this contract with sheet lead, not less than 2-1/2 pound to the square foot, built 6 inches into the waterproofing, running 10 inches up the pipe and turned over into the pipe cavity. Flashing around roof

drains shall be not less than 2-1/2 pound lead extending at least 12 inches from the drain rim into membrane waterproofing. Fasten flashing to drain clamp device making watertight durable joint.

2.4 EQUIPMENT FURNISHED BY OWNER AND/OR BY OTHER TRADES

A. This equipment and other miscellaneous equipment shall be furnished and set in place under other sections of these Specifications and/or by the Owner, unless specified otherwise.

B. Plumbing Contractor shall provide necessary rough-in required for the equipment and shall completely connect all plumbing services for this equipment providing cut-off valves and unions for each plumbing supply service to each piece of equipment. It is the obligation of the Plumbing Contractor to obtain correct rough-in dimension plans for this equipment as well as the equipment furnished under this contractor.

C. The various Equipment Contractors shall provide access holes for service lines that enter his equipment. This work to be performed on the job site, as necessary. Plumbing Contractor shall furnish and install escutcheons, locknut type, at these locations.

2.5 PLUMBING FIXTURES

A. Plumbing Contractor shall furnish and install all plumbing fixtures shown on accompanying drawings. Refer to both plumbing and architectural drawings and provide all fixtures shown on either. Fixtures shall be complete with all necessary brass and accessories required for a complete installation including traps, escutcheons, angle supplies, basin cocks, etc. All fixtures shall be new and must be delivered to the building properly crated in perfect condition.

B. All brass must be of the best quality, lightweight goods will not be accepted. All brass pipe shall be seamless brass tubing and nipples shall be extra heavy. All fittings and trim shall be chromium plated heavy brass unless otherwise specified. "P" traps shall be cast brass with cleanouts. All exposed piping shall be chromium plated. Provide cutoff valves at each fixture in both hot and cold water piping.

C. For the purpose of establishing type and class of fixtures required, the scheduled plate numbers have been taken from the indicated catalog. Approved equals shall be as follows: Fixtures: Kohler, Briggs, American Standard, Crane, Eljer, Elkay, Dayton, Just or Universal Rundle. Flush Valves: Sloan, Zurn. Faucets: Elkay, Just, Chicago, Kohler, American Standard, Delta Commercial, Zurn, Speakman. Water Heaters: A.O. Smith, Ruud/Rheem, State, Bradford White. Drains: Wade, J.R. Smith, Zurn, Josam. Hose Bibbs: Josam, Woodford, J.R. Smith, Wade, Zurn.

D. All vitreous china plumbing fixtures shall be manufactured in the United States, Canada or Mexico.

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PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Prior to all work of this section, carefully inspect the installed work of adjacent trades and verify that all such work is complete to the point where fixture installation may properly commence.
2. Verify that all hangers and fixture supports are properly installed to receive plumbing fixtures.

3.2 PLUMBING FIXTURE

A. Each plumbing fixture shall be fitted with all necessary and proper fittings, trimmings and operating devices, and shall be in perfect operating condition.

B. Refer to architectural drawings for any other information that may be necessary or required in connection with plumbing installation.

C. Before setting any fixtures, obtain the exact mounting height, as desired, from the Architect.

D. Wall mounted water closets, urinals, and lavatories shall have a floor anchored carrier to fit in available wall space (coordinate requirements in drawings).

END OF SECTION 22 10 00

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SECTION 22 11 00 - WATER SUPPLY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Install water supply piping as indicated on plans.

PART 2 - MATERIALS

2.1 PIPING

A. All water supply piping shall be of materials hereinbefore specified.

B. All water lines shall be disinfected in accordance with the State Sanitary Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water lines run underground shall have a minimum of 24 inches cover to finished grade.

B. Make up complete water supply system. Connect to all fixtures and outlets requiring water.

C. At each fixture or group of fixtures furnish and install a 12 inch high air chamber of same size as branch feed line except at fixtures with quick closing valves such as flush valves, dishwashers, etc., in which cases provide "Shock Arrester" properly sized for each unit.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 11 00

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SECTION 22 13 00 - WASTE WATER DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Extend sanitary sewer lines to the location as shown on the plans.

PART 2 - MATERIALS

2.1 PIPING

A. The system of sewage and drainage shall be of materials as hereinbefore specified except where space requirements necessitate the use of Type "DWV" copper.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All work shall be in strict conformity with the International Plumbing Code and in accordance with all local codes. Piping shall be routed as shown on plans or in acceptable manner to meet building conditions. Venting shall be as shown on plumbing riser diagrams.

B. Connections between traps and cast iron pipes are to be made with heavy brass ferrules.

C. Provide reducers, increasers, special flanges, and fittings where required between piping work and fixtures in order to connect and complete work and render it ready for use. Make any offsets required to avoid construction.

D. All lines 3 inches and smaller shall be sloped 1/4 inch per foot, lines 4 inches shall be sloped 1/8 inch per foot, lines 6 inches shall be sloped 1/16 inch per foot and all lines 8 inches and larger shall be sloped 0.4 percent. Piping shall be laid so slope is continuous.

E. All vents shall extend 10 inches above roof and terminate in an appropriate flashing collar. No vents shall penetrate roof within 48 inches of an exterior wall. Offset in ceiling as required. All back vents shall be taken off as near trap as possible.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 13 00

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SECTION 22 16 00 – NATURAL GAS PIPING/DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Fuel gas systems, including piping, equipment and all necessary accessories as designated in this section. Fuel gas piping to equipment shall be routed as shown on plans.

1.2 RELATED WORK

A. FIRESTOPPING: Penetrations in rated enclosures.

B. PAINTING: Preparation and finish painting and identification of piping systems.

C. COMMON WORK RESULTS FOR PLUMBING.

D. GENERAL DUTY VALVES FOR PLUMBING PIPING

1.3 SUBMITTALS

A. Submit SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.

B. Manufacturer's Literature and Data:

1. Pipe & Fittings.
2. Valves.
3. Strainers.
4. All items listed in Part 2 - Products.

C. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Use the edition listed or most recent edition adopted by Local, State or Federal agencies having jurisdiction.

B. Federal Specifications (Fed. Spec.):
A-A-59617 ..... Unions, Brass or Bronze Threaded, Pipe Connections and Solder-Joint Tube Connections

C. American National Standards Institute (ANSI):
American Society of Mechanical Engineers (ASME): (Copyrighted Society)
A13.1-(2007) ..... Scheme for Identification of Piping Systems
B16.3-(2006) ..... Malleable Iron Threaded Fittings: Classes 150 and 300 ANSI/ASME
B16.9-2007..... Factory-Made Wrought Steel Buttwelding Fittings ANSI/ASME
B16.11-2009..... Forged Steel Fittings, Socket-Welding and Threaded ANSI/ASME
B16.15-2006..... Cast Copper Alloy Threaded Fittings: Classes 125 and 250 ANSI/ASME
B31.8-2010 ..... Gas Transmission and Distribution Piping Systems ANSI/ASME

D. American Society for Testing and Materials (ASTM):
A47-99(2009) ..... Standard Specification for Ferritic Malleable Iron Castings
A53-10..... Standard Specification for Pipe, Steel, Black And Hot-Dipped, Zinc- coated Welded and Seamless
A183-09..... Standard Specification for Carbon Steel Track Bolts and Nuts
A536-09..... Standard Specification for Ductile Iron Castings
A733-03(2009)e1 ..... Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples
B687-99(2005)e1 ..... Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

E. National Fire Protection Association (NFPA):
54-2009 ..... National Fuel Gas Code

F. International Code Council
IPC 2009 ..... International Plumbing Code
IFGC 2009..... International Fuel Gas Code

G. International Association of Plumbing and Mechanical Officials (IAPMO):
Uniform Plumbing Code – 2009
IS6-06 ..... Installation Standard

H. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):
SP-72-2010 ..... Ball Valves with Flanged or Butt-Welding For General Service
SP-110-2010..... Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

1.5 SYSTEM PRESSURE

A. Natural gas systems, unless otherwise noted are designed and materials and equipment selected to prevent failure under gas pressure at downstream side of pressure regulator.

PART 2 - MATERIALS

2.1 FUEL GAS SERVICE CONNECTIONS TO BUILDING (UNDERGROUND AND/OR EXPOSED TO WEATHER)

A. From inside face of exterior wall (outside of building), use coated piping as herein before and/or herein after specified.

B. Pipe: Black Steel, ASTM A53, Schedule 40. Shop-applied pipe coating shall be one of the following types:

1. Coal Tar Enamel Coating: Exterior of pipe and fittings shall be cleaned, primed with Type B primer and coated with hot-applied coal tar enamel with bonded layer of felt wrap in accordance with AWWA C203. **Asbestos felt shall not be used**; felt material shall be fibrous glass mat as specified in Appendix Section A2.1 of AWWA C203.
2. Adhesive-thermoplastic Resin Coating: Fed. Spec. L-C-530, Type I
3. Thermosetting Epoxy Coating: Fed. Spec. L-C-530, Type II
4. Field-applied plastic tape material used on pipe joints and for repairing damaged areas of shop-applied coatings, Fed. Spec. L-T-1512, Type I, 10 mils nominal thickness for pipe joints, and Type II, 20 mils nominal thickness for coating repairs.

C. Holiday Inspections: Procedure for holiday inspection: Holiday Inspection shall be conducted on all coatings to determine the presence and number of discontinuities in those coatings referenced in 2.6/B - 1, 2, 3, and 4 using a Tinker & Rasor model AP/W Holiday Detector. Holiday inspection shall be performed in a manner spelled out in the Tinker & Rasor operating instructions and at a voltage level recommended by the coating manufacturer or applicable NACE International Standard such as RPO 274-93 or RPO 490-90 in the case thermosetting epoxy coating. Holiday Detectors shall be calibrated and supplied with a certificate of calibration from the factory. A calibration of the Holiday Detector shall be performed once every 6 months to verify output voltages are true and correct.

D. Fittings:

1. Butt weld fittings, wrought steel, ANSI B16.9.
2. Socket weld and threaded fittings forged steel, ANSI B16.11.
3. Grooved End: Ductile iron (ASTM A536, Grade 65-45-12), malleable iron (ASTM A47, Grade 32510), or steel (ASTM A53, Type F or Type E or S, Grade B).

E. Joints: Welded, ANSI B31.8.

2.2. FUEL GAS PIPING

A. Pipe: Black steel, ASTM A53, Schedule 40.

B. Nipples: Steel, ASTM A733, Schedule 40.

C. Fittings:

1. Sizes 2 inches under ANSI B 16.3 threaded malleable iron.
2. Over 2 inches and up to 4 inches ANSI B16.11 socket welded.
3. Over 4 inches ANSI 16.9 butt welded.

D. Joints: Provide welded or threaded joints.

2.3 EXPOSED FUEL GAS PIPING

A. Finished Room: Use full iron pipe size chrome plated brass piping for exposed fuel gas piping connecting fixtures, casework, cabinets, equipment and reagent racks when not concealed by apron including those furnished by the Government or specified in other sections.

1. Pipe: Fed. Spec. WW-P-351, standard weight
2. Fittings: ANSI B16.15 cast bronze threaded fittings with chrome finish, (125 and 250).
3. Nipples: ASTM B 687, Chromium-plated.
4. Unions: 2 inches and smaller Mss SP-72, SP-110, Brass or Bronze threaded with chrome finish. Unions 2-1/2 inches and larger shall be flange type with approved gaskets.
5. Valves: Mss SP-72, SP-110, Brass or bronze with chrome finish.

B. Unfinished Rooms, Mechanical Rooms and Kitchens: Chrome-plated brass piping is not required. Paint piping systems as specified in Section PAINTING.

2.4 VALVES

A. Ball Valve: Bronze body, rated for 1025 kPA at 185°C (150 psi at 365°F), 1725 kPa at 121°C (250 psi at 250°F), reinforced TFE seat, stem seal and thrust washer; end entry, threaded ends, UL-listed for natural or LP gas shut off service when used on those services.

B. Gas Vent Cocks: Type 701: Bronze body, tee handle, rated for 205 kPa at 38°C (30 psi at 100°F), ground plug, rated for tight shut-off on fuel gas service.

2.5. WATERPROOFING

A. Provide at points where pipes pass through membrane waterproofed floors or walls in contact with earth.

B. Floors: Provide cast iron stack sleeve with flashing device and a underdeck clamp. After stack is passed through sleeve, provide a waterproofed caulked joint at top hub.

C. Walls: See detail shown on drawings.

2.6 STRAINERS

A. Provide on high pressure side of pressure reducing valves, on inlet side of indicating and control instruments and equipment subject to sediment damage and where shown on drawings. Strainer element shall be removable without disconnection of piping.

B. Gas Lines: "Y" type with removable mesh lined brass strainer sleeve.

C. Body: Smaller than 3 inches, brass or bronze; 3 inches and larger, cast iron or semi-steel.

2.7 DIELECTRIC FITTINGS

A. Provide dielectric couplings or unions between ferrous and non-ferrous pipe.

2.8 GAS EQUIPMENT CONNECTORS

A. Flexible connectors with teflon core, interlocked galvanized steel protective casing, AGA certified design.

2.9 REGULATORS

A. Provide all pressure regulators for the project. Contractor shall be responsible for providing regulators properly selected for pressure, flow, and location. All regulators shall be field adjustable. All regulators shall be vented type. Regulators installed inside buildings shall have vent piping extended to the exterior of the building.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with the International Fuel Gas Code and the following:

1. Install branch piping for fuel gas and connect to all fixtures, valves, cocks, outlets, casework, cabinets and equipment, including those furnished by the Government or specified in other sections.
2. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe, shall be reamed to full size after cutting.
3. All pipe runs shall be laid out to avoid interference with other work.
4. Install valves with stem in horizontal position whenever possible. All valves shall be easily accessible.
5. Install union and shut-off valve on pressure piping at connections to equipment.
6. Pipe Hangers, Supports and Accessories:
   a. All piping shall be supported per the International Fuel Gas Code, Chapter No. 4.
   b. Shop Painting and Plating: Hangers, supports, rods, inserts and accessories used for Pipe supports shall be shop coated with zinc Chromate primer paint. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.
   c. Floor, Wall and Ceiling Plates, Supports, Hangers:
      1) Solid or split unplated cast iron, chrome plated in finished areas.
      2) All plates shall be provided with set screws.
      3) Pipe Hangers: Height adjustable clevis type.
      4) Adjustable Floor Rests and Base Flanges: Steel.
      5) Concrete Inserts: "Universal" or continuous slotted type.
      6) Hanger Rods: Mild, low carbon steel, fully threaded or Threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.
      7) Riser Clamps: Malleable iron or steel.
      8) Rollers: Cast iron.
      9) Self-drilling type expansion shields shall be "Phillips" type, with case hardened steel expander plugs.
      10) Miscellaneous Materials: As specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories.
7. Install cast chrome plated escutcheon with set screw at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.
8. Penetrations:
   a. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases. Completely fill and seal clearances between piping and openings with the fire stopping materials.
   b. Waterproofing: At floor penetrations, completely seal clearances around the pipe and make watertight with appropriate sealant.

B. Piping shall conform to the following:

1. Fuel Gas:
   a. Entire fuel gas piping installation shall be in accordance with requirements of NFPA 54.
   b. Provide fuel gas piping with plugged drip pockets at low points.

3.2. CLEANING OF SYSTEM AFTER INSTALLATION

A. Clean all piping systems to remove all dirt, coatings and debris.

3.3 TESTING

A. General: Test system either in its entirety or in sections after system is installed and cleaned.

B. Test shall be made in accordance with Section 406 of the International Fuel Gas Code. The system shall be tested at a minimum of 1.5 times maximum working pressure, but not less than 30 psig (20 kPa) gage).

END OF SECTION 22 16 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

CERTIFICATION OF RESPONSIBILITY FOR

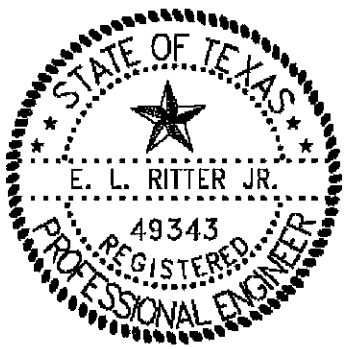
DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC



Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 00 - GENERAL PROVISIONS FOR HVAC

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Mechanical subcontractor shall be the sole source responsible party to furnish and install the mechanical system. Mechanical contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 23 of these specifications, it is intended to mean the Mechanical Contractor as appropriate. These are sub-contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 23 – Mechanical) under the contract with the owner. The General contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete mechanical portion of this contract, including air conditioning, heating, and ventilating systems as called for herein and on accompanying drawings. Parts of the mechanical division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items

covered in the Mechanical Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Plumbing and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all mechanical systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than seven days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Mechanical Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect/Engineer. After initial surfacing has

been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The HVAC piping shall be run in such a manner as to avoid conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire mechanical work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all mechanical work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. American Society of Heating, Refrigeration and Air Conditioning Engineers
2. National Electric Code
3. National Fire Protection Association
4. American Society of Mechanical Engineers
5. Underwriters's Laboratories
6. American Gas Association
7. Energy Code for Commercial and High Rise Residential Buildings
8. International Energy Conservation Code
9. International Building Code
10. International Mechanical Code
11. SMACNA Guidelines

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift ducts or pipes or to change the shape of ducts and these changes shall be made as required. All such changes shall be referred to the Architect for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Mechanical Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

E. Materials and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between mechanical and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the HVAC ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. **Any resizing required shall be part of this project and done without any additional cost to the Owner. DO NOT MAKE DUCTWORK WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of HVAC piping with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per instructions and details of the structural engineer.

F. All pipng shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.
4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. **HVAC ductwork shop drawings shall be prepared showing all conditions of installation coordinated with structure, lights, sprinklers, ceiling, etc. These shop drawings shall be prepared within 45 days of the award of the general contract for the project. Drawings shall be done at minimum 1/8 inch scale on 24 inch x 36 inch sheets.**

I. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

J. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

K. All submittals shall be submitted prepaid and in ample time for review before installation.

L. Six (6) copies of each submittal shall be submitted to the Architect.

M. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted (except in the case of the HVAC ductwork shop drawings).**

N. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

O. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

P. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done as per the Federal, State of Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.13 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.14 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect/Engineer prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.15 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.16 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.17 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any mechanical equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.18 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guidelines (chlorination, chemical treatment, etc.).

1.19 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.20 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major mechanical equipment (pumps, AHUs, starters, valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.21 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction. **Contractor shall provide temporary dehumidification and drying equipment as required to maintain clean, dry air during construction.**

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes, operation of refrigeration and heating system for short periods to adjust controls and temperature regulation, or the operation of fans for air balance.

1.22 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, ductwork, etc., and leave entire installation in good working order.

1.23 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of the contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, ducts, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color sample). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.24 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.25 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.26 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all mechanical systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.27 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques of the air conditioning unit.

B. Contractor shall use factory start-up personnel to train the owner's maintenance personnel.

1.28 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspection.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.29 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters. Additional warranties beyond the above shall be furnished as specified elsewhere in these specifications.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

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1.30 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
7. Contractor, name of responsible principal, address and telephone number.
8. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
9. Provide owner with contact information for warranties which extend beyond one year.

1.31 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.32 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.33 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 23 05 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 03 - BASIC MATERIALS AND METHODS FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 REFRIGERANT PIPING/EQUIPMENT DRAIN PIPING

A. All refrigerant and equipment drain piping shall be government type "L" hard copper tube standard weight and thickness as made by Mueller, Chase, Anaconda or equivalent, unless indicated otherwise. Use Silfos 1000 degrees Fahrenheit solder on all joints.

B. Tubing shall be brought to the site with ends sealed.

2.2 A/C CONDENSATE DRAIN PIPING

A. All A/C condensate drain piping shall be government type "L" hard copper water tube of standard weight and thickness. Fittings shall be compatible with pipe. Use Silfos 1000 degrees Fahrenheit solder on all joints.

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for refrigerant piping and other copper lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers shall be 5 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported fixtures or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures, refer to Division 22.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Mechanical Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Mechanical Contractor. The Electrical Contractor shall do all power wiring required for the installation of all mechanical equipment including equipment interlocking power wiring, etc. Temperature control wiring shall be furnished and installed by the Mechanical Contractor. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Mechanical Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All motors for the mechanical equipment shall be of the 40 degrees Celsius rise type and shall be furnished and installed by the Mechanical Contractor. All motors shall be wound for +/- 10 percent of the specified voltage. Motors shall be voltages indicated on drawings. All motors shall have copper windings, Class F insulation and shall be rated for continuous duty service. All three-phase motors shall be inverter-duty type motors.

D. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

E. Starters for single phase motors 1/2 HP and below shall be furnished with pilot light and "hand-off-auto" selector switch where required.

F. Starters for three-phase, single speed motors shall be stepless solid state soft starter with "hand-off-auto" selector switch, three overload relays and auxiliary contacts as required. The starter shall operate at manufacturers ratings with 10 percent and -15 percent applied voltage tolerance and be capable of operating continuously under ambient temperatures of 0 to 50 degrees Celsius. The starter control circuitry shall be designed for current ramp operation and utilize current feedback for closed loop operation to minimize variation of acceleration time with varying load conditions. The starter shall use metal oxide varistors to clip transient voltage spikes on incoming power lines with protection to limit the rate of rise of voltage spikes to protect the SCR's from damage. The starter shall provide electronic motor overload protection. The starter shall shut down (or shall not start) to protect itself from either phase loss or phase rotation. The starter shall have adjustments for initial torque, pulse, ramp up time, ramp down time, and current limit. The starter shall have a main trip breaker to act as a disconnect and necessary contactors. The starter shall have contacts for remote starting from a building energy management system.

G. Mechanical contractor shall provide and install all smoke dampers and smoke or duct detectors. The electrical contractor shall provide and install all wiring/interlocks with fire alarm.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor, Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall of ceiling where located.

B. Access panels located in rated walls, floors, or ceilings shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

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PART 3 - EXECUTION

3.1 PIPING

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be

repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.

a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.

2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide nonconducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Provide drain valves at main shutoff valves, low points of piping and apparatus.

I. Provide and install air vents with shutoff valve at all high points in the system.

J. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

END OF SECTION 23 05 03

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SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Division 23 Specification Sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.2 SCOPE OF WORK

A. The General Contractor shall obtain the services of an independent test and balance company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s). These services shall not be provided by the installing mechanical contractor on the project but shall be a direct subcontractor of the general contractor.

1. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Heating and Ventilating Technician employed by Agency.
2. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
3. If requested, conduct tests in presence of Engineer.
4. Agency shall be approved in writing by Engineer. Mechanical Contractor shall not be permitted to do this work. Submit qualifications for review.

B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems, as described in these Specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. Refer to Plumbing Division 22 for additional work required of Air System Test and Balance agency.

C. **Test and Balance agency shall be present for factory start-up of equipment when factory startup is required.**

D. Representatives of the test and balance company shall visit the job site at 60 percent and 90 percent completion of installation of the HVAC equipment, piping and ductwork to review the installation. After each site visit, the test and balance company shall report to the Architect any items that are not installed properly, are missing from the Contract Documents or items that are required to enable him to perform the testing and balancing of the HVAC systems as per normal standard practice. After review, the Architect shall instruct the contractor to implement the recommendations at no additional cost to the Owner if these items were specified in the original scope of the project.

E. Upon completion of the HVAC system installation, the test and balance company shall perform all testing and balancing with the full cooperation of the contractor and his

subcontractors. The contractor shall make changes and/or adjustments to the HVAC system components that are required by the test and balance company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work by the contractor shall be performed at no additional cost to the Owner.

F. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of air balancing test report.**

G. Engineer will choose and direct spot balancing of one zone. Differences between the spot balance and test report will be justification for requiring repeat of testing and balancing for entire building.

1. Be prepared to spot smoke test one ducted system as directed by Architect's Engineer.
2. Rebalancing shall be done in presence of Architect and subject to his approval.
3. Spot balance and rebalance shall be performed at no additional cost to Owner.

H. The test and balance report shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. If he does not concur with the report, he shall meet with the Test and Balance Company to determine what needs to be done to obtain a properly balanced system.

I. After the Mechanical Engineer signs the testing and balancing report, the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.

1.3 The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

A. AIR SYSTEMS:
Air Handling Units
Fans
Zone Branch and Main Ducts
Diffusers, Registers, Grilles and Dampers
Coils (Air Temperatures)
Valves
Vibration Isolators
Duct Smoke/Pressure Leak Testing

1.4 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

1.5 DEFINITIONS, REFERENCES, STANDARDS

A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.6 QUALIFICATIONS

A. Agency Qualifications: The TAB agency shall be a current member of the AABC,NEBB or TABB.

B. Prior to working on this project, the technicians shall attend training provided by the manufacturer of the various equipment on this project on the specific aspects of balancing the equipment. Include letters or certificates from the manufacturer on attendance and satisfactory completion of the factory training. These certifications may be used for continuing education. At a minimum, the technicians shall receive training from the air distribution equipment manufacturer, air unit manufacturer, and temperature controls manufacturer. This should be done prior to any equipment start-ups.

1.7 SUBMITTALS

A. Qualifications: The TAB agency shall submit a company resume listing personnel and project experience in air and hydronic system balancing and a copy of the agency's test and balance engineer (TBE) or technician certificate.

B. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.

C. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

D. Submit continuing educations training on each lead technician working on the project.

1.8 TAB PREPARATION AND COORDINATION

A. Shop drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days prior to the start of TAB work.

B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.

C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all

necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution. The BCA contractor shall provide all necessary software to the TAB Agency at no additional cost.

D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.

E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

F. If, upon commencing the work, the TAB contractor finds that the systems are not ready, or if a dispute occurs as to the readiness of the systems, the TAB contractor may request an inspection to be made by the Designer's Mechanical Engineer. This inspection shall establish to the satisfaction of the represented parties whether or not the systems meet the basic requirements for testing and balancing. Items that are determined to be not ready for testing and balancing shall be completed by the Mechanical Contractor and placed in operational readiness before TAB services are again requested.

1.9 TAB REPORTS

A. Final TAB Report: The TAB agency shall submit the final TAB report for review by the Engineer. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified, along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC or NEBB "National Project Performance Guaranty" assuring that the project systems were tested, adjusted and balanced in accordance with the project Specifications and AABC or NEBB National Standards.

B. Submit four (4) copies of the final TAB report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

2.1 All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC or NEBB National Standards.

PART 3 - EXECUTION

3.1 GENERAL

A. General Contractor with Mechanical Contractor shall put heating, ventilating, and cooling systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Air Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

D. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC or NEBB National Standards. Adjustment tolerances shall be + or -10 percent unless otherwise stated.

E. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.

F. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.

G. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.

H. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 AIR SYSTEMS

A. **TESTING PROCEDURE**
Air Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements. Perform the following tests at high and low speeds of multi-speed systems and single speed system.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when ductwork installation begins. Coordinate and verify the installation of all balancing dampers, fire dampers, etc.**
2. Smoke test or pressure test each low pressure steel duct system to test for air tightness. Use zinc chloride smoke candles or titanium tetrachloride ampules (sticks) to generate smoke.

a. If ducted systems leak, do not continue with air balance. Report findings to Engineer in writing and begin testing again after Mechanical Contractor has repaired ducts or applied duct sealers.
b. If ducted systems appear air tight, proceed with air balance procedure as outlined below.
c. Include in air balance report a letter indicating smoke testing has been accomplished and a report of findings regarding airtightness of each ducted system.
d. Maximum leakage loss shall not exceed 2 percent. If losses are greater, the Mechanical Contractor shall correct the leakage, then the test and balance agency shall retest the ductwork.

3. Test and adjust blower rpm to design requirements.
4. Test and record motor full load amperes.
5. Make Pitot Tube traverse of main supply and return and obtain design cfm.
6. Test and record system static pressures, suction, and discharge.
7. Test and adjust system for design cfm air.
8. Test and adjust system for design cfm outside air.
9. Test and record entering air temperatures (db heating and cooling).
10. Test and record entering air temperatures (wb cooling).
11. Test and record leaving air temperatures (db heating and cooling).
12. Test and record leaving air temperatures (wb cooling).
13. Adjust main supply and return air ducts to proper design cfm.
14. Adjust zones to proper design cfm, supply and return.
15. Test and adjust each diffuser, grille, and register to within 10 percent of design requirements.
16. Identify each diffuser, grille, and register to location and area.
17. Identify and list size, type, and Manufacturer of diffusers, grilles, registers, and testing equipment. Use Manufacturer's rating on equipment to make required calculations.
18. In readings and tests of diffusers, grilles, and registers, include required fpm velocity and test fpm velocity and required cfm and test cfm after adjustments.
19. In cooperation with Mechanical Contractor, set adjustments of automatically operated dampers to operate as specified, indicated, or noted.
20. Adjust diffusers, grilles, and registers to minimize drafts.
21. Verify the calibration of temperature control devices, thermostats, etc.
22. Verify all control sequences with specifications.
23. Include manufacturer's performance data with reports.
24. Schedule three inspections to verify original test and balance of systems within 90 days of acceptance by Owner. Make opposite season adjustment and inspection of systems at one year after acceptance by Owner. Submit reports after each inspection. Submit schedule as part of initial report.

B. Where systems supplied to job site provides over 5 percent more air than schedule requirements, rooms supplied by that system shall have their supply air quantities increased by the ratio of the actual total air quantity supplied to the minimum air quantity required by the schedule.

C. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall

perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:

1. Fans
   a. Fan Speeds--Test and adjust fan RPM to achieve design cfm requirements.
   b. Current and Voltage--Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
   c. Pitot-Tube Traverse--Perform pitot-tube traverse of the main exhaust ducts to obtain total CFM. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
   d. Static Pressure--Test and record system static pressure, including the static pressure profile of each exhaust fan.
2. Zone, Branch, and Main Ducts
   a. Adjust ducts to within design cfm requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.
3. Diffusers, Registers, and Grilles
   a. Tolerances--Test, adjust, and balance each diffuser, grille, and register to within 10 percent of design requirements. Minimize drafts.
   b. Identification--Identify the type, location, and size of each grille, diffuser and register. This information shall be recorded on air outlet data sheets.
4. Coils
   a. Air Temperature--Once air flow are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry bulb temperature shall be taken on the entering and leaving side of each heating coil.
5. Air Handling Units:
   a. Location, manufacturer, model number, serial number, motor manufacturer, fan and motor sheaves, belts. Required and test data with unit operating at full air flow conditions (all space thermostats calling for cooling) for each of following: total CFM, return and outside air CFM, total static pressure, suction and discharge static pressures across unit fan, HP, amperage, voltage, fan RPM. Verify performance of static pressure controls, vane operators, dampers and controls. Adjust and/or change pulleys and belts as required to obtain delivery of system specified or required full load air quantities.
6. Diffusers and Grilles:
   a. Space served; type and size of diffuser or grille, specified CFM, initial test CFM and final test CFM. Each air outlet shall be adjusted for +/- 5 percent of required quantity as shown on plans.
7. Control Systems:
   a. Verify all control sequences and calibration of all thermostats and sensors.
8. Equipment Start-up:
   a. The Test and Balance Contractor shall be on site to witness and record all factory start-up of mechanical equipment. Include start-up reports in final balancing report.
9. Plumbing:
   a. Refer to Plumbing Division 22 for additional work required by the Air System Testing and Balancing Agency.

3.3 INDOOR AIR QUALITY VERIFICATION:

A. The TAB agency shall take measurements at minimum outside air. It shall measure temperature and humidity uniformity throughout the space, check filter installation for proper fit, seal and operation and verify condensate drain operation. The TAB agency shall note any water damage or obvious contamination sources from inside or outside.

B. The TAB agency shall prepare a short report showing the results and location of each test, a summary of the HVAC operating conditions, and a listing of any discrepancies.

3.4 ADDITIONAL TAB SERVICES:

A. Job Site Inspections:
During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems. Inspections shall be conducted a minimum of two times. (Typically, these are performed when 60 percent of the total system is installed and again when 90 percent of the total system is installed, prior to insulation of the duct and piping.) The TAB agency shall submit a written report of each inspection to the Architect.

B. Duct Leakage Testing:
The Installing Contractor shall isolate and seal sections of ductwork for testing. The pressurization fan and test apparatus shall be connected to the test section and the test performed. The test pressure required and the amount of duct to be tested shall be described by the engineer in the appropriate duct classification section. All testing shall be based on one test per section.

C. Verification of HVAC Controls:

1. The TAB agency shall be assisted by the building control Systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
2. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
3. Verify that all controlling instruments are calibrated and set for design operating conditions.

D. Temperature Testing:
To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than 2 degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.

E. TAB Report Verification:
At the time of final inspection, the TAB agency may be required to recheck, in the presence of the Owner's representative, specific and random selections of data, air

quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the Owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10 percent of the total number tabulated in the report.

F. Kitchen Hood Testing:
The TAB agency shall test and adjust kitchen hood total air flow by duct pitot-tube traverse if applicable under local code. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. All sealing of test holes in the exhaust duct to be by others per local code requirements. The TAB agency shall test and record face velocities in accordance with design requirements. It shall test and adjust makeup air flow (if included) to meet design face velocities and pressurization and to minimize turbulence.

G. Building/Zone Pressurization:
The TAB agency shall test and adjust building/zone pressurization by setting the design flows to meet the required flow direction and pressure differential. For positive pressure areas, it shall set the supply air to design flow, and gradually reduce the exhaust air rate to obtain the required flow or pressure difference. For negative pressure areas, it shall set the supply air to design flow, and gradually increase the exhaust air rate to obtain the required flow or pressure difference.

END OF SECTION 25 05 93

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SECTION 23 07 00 - MECHANICAL INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 CONDENSATE DRAIN PIPING

A. Insulate condensate drain piping with 3/4 inch thick closed cell rubber type insulation.

2.2 REFRIGERANT LINES

A. Insulate all refrigerant suction lines with 1 inch thick closed cell rubber insulation. Apply two (2) coats of black mastic where the lines are exposed to the weather. Refrigerant piping below grade shall be installed in watertight PVC sleeve.

2.3 AIR CONDITIONING DUCTWORK

A. Insulate all ducts above ceiling with one layer of 3 inch thick, 3/4 pound density flexible Fiberglass duct insulation with aluminum foil facing. Duct insulation to be applied with 2 inches lap of facing sealed with tape and outward clinch staples. Seal all joints with 2 inch wide vapor barrier tape. An additional band of tape shall be applied between the circumferential joints for a maximum 2 foot spacing of taped bands.

B. The ductwrap shall have a minimum installed R-value of 8.5 and shall comply with Energy Code requirements..

2.4 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, roof drain bodies, shall be insulated same with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.5 KITCHEN HOOD EXHAUST DUCTWORK

A. Refer to Kitchen Hood specifications section.

2.6 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.7 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 23 07 00

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SECTION 23 09 00 - TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Refer to Section 23 05 00, Section 23 05 03, Section 23 30 00 and Section 23 70 00, provisions of which apply to work under this Section.

B. All control systems shall be furnished complete and functioning.

C. Coordinate all control work with the mechanical and electrical contractors. Contact the Test and Balance Contractor and notify them as to when controls work shall be installed. Test and Balance controller shall verify controls systems installation and proper operations.

1.2 DESCRIPTION OF WORK

A. Provide a complete system of "hard-wired" automatic controls (wireless unacceptable) as indicated herein. Control system shall consist of all thermostats, sensors, actuators, operators, wiring, switches, relays and control panels necessary to accomplish the control sequence specified herein.

1.3 RELATED WORK IN OTHER SECTIONS

A. For extent of power wiring and connection to mechanical equipment under Electrical Work, refer to Division 26.

B. For control devices furnished with equipment, refer to equipment specifications and schedules. Any controls equipment not specifically called for elsewhere shall be provided by controls contractor. All control wiring shall be done by controls contractor.

C. All power for control devices such as actuators, operators, fire/smoke dampers, control dampers, etc. shall be furnished, installed and wired by the Controls Contractor. Controls Contractor may use 24 VAC or 120 VAC for the control system. The controls contractor shall be responsible for obtaining the necessary power and pay all costs associated with obtaining power to controls and controls equipment.

D. All interior control wiring shall be installed in galvanized EMT conduit. The last 6 inches at connection to equipment shall be flexible metal conduit. All control wiring on exterior of building shall be in Seal-Tite conduit and/ or Liquid Tight flexible conduit.

E. All control wiring shall be furnished and installed by this contractor.

1.4 SERVICE

A. Installing Contractor (Mechanical Contractor or subcontractor under the Mechanical Contractor) shall maintain adequate automatic control personnel on his payroll to provide back-up project control service on the automatic control system provided under this contract.

1.5 WARRANTY

A. Contractor shall warranty all work performed under this contract to be free of any defects in workmanship or material for a period of one year after final acceptance by the Owner's representative. The installing controls contractor shall include a second year of extended warranty to cover all parts and labor. The warranty and extended warranty shall include quarterly calibration and set-up checks of all controls. THIS WARRANTY DOES NOT START ON DATE THAT THE MECHANICAL EQUIPMENT IS STARTED.

1.6 SUBMITTAL

A. Submit shop drawings and product data sheets indicating configuration, general assembly, and materials used in fabrication.

B. Submit manufacturer's installation instructions. Instructions shall include complete wiring diagrams drawn specifically for this project.

1.7 OPERATION AND MAINTENANCE

A. Include manufacturer's descriptive literature, operating instructions, and maintenance data.

1.8 QUALITY ASSURANCE

A. Manufacturer shall be a company specializing in products of the type specified in this section. All components shall be Class A quality commercial or industrial grade for installation in locations or environments shown on plans.

1.9 SYSTEM RESPONSIBILITY

A. The entire control system, shall be furnished by a single source manufacturer who shall be responsible for the entire system. The installations shall be by technicians employed by the controls system manufacturer.

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PART 2 - PRODUCTS

2.1 FIRESTATS AND SMOKE DETECTORS

A. Duct smoke detectors shall be furnished and installed by mechanical contractor. Install a smoke detector in the supply air section/duct and return air section/ duct of each unit delivering over 2000 cfm to stop the fan and close the outside air dampers in the event of excessive temperature or smoke. Firestats to be provided in the return air units of all units over 600 cfm.

B. Smoke detectors shall be addressable and compatible with the fire alarm system.

C. Where and when the building does not have a fire alarm system, provide a remote annunciator with remote reset for each detector.

D. All smoke detectors shall have remote reset.

2.2 TEMPERATURE CONTROLLER

A. Refer to Section 23 70 00, Packaged Outside Air Unit for controller.

2.3 WIRING

A. Factory mount and wire controls. Mount electrical components in control box with removable cover. Provide clearance for access to controls (36 inch clearance).

B. Provide terminal strip(s) for field wiring of thermostat, communications and power source. DO NOT USE WIRE NUTS IN JUNCTION BOX.

C. All wiring shall comply with local and national electric codes and the manufacturer's published installation manual.

D. Provide terminal strip(s) for field wiring of air conditioning unit input connections, duct temperature sensor, velocity sensor, static pressure sensor, communications, start/stop devices, VFD controls, time clock, bypass damper motor and power wiring, etc. Do not use wire nuts on loose wire. All wire shall be in conduit, flexible conduit or wiring harness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Division 26, ELECTRICAL, shall be responsible for point to point wiring of all starters and starting switches not factory installed in the HVAC equipment.

B. Install all components of control systems under this Section using experienced control mechanics, all in the regular employ of the Installing Contractor, or the apparatus manufacturer.

3.2 WIRING

A. Install all control, pilot circuit and interlock wiring, including wiring through interposed safety or other auxiliary control devices within the confines of the mechanical equipment only. Wiring of thermostats shall be by the Mechanical Contractor.

B. All wiring shall conform to the Local and National Electrical Codes.

C. All control and interlock wiring shall be fused at conductor capacity as shown in the National Electrical Code.

D. No splices will be allowed except at junction boxes and control centers.

E. All wires to each control device must be different colors. All wires to each device must be laced or tied at point of entry into control panel and tagged as to its point of origin.

F. All wires shall be run directly from controller or controlled device to control center. There shall be no looping of wires from one device to another external to the control centers.

G. Control voltage shall be a maximum of 120-volt, unless otherwise indicated herein.

H. Control or interlock wiring shall not be run in conduit with any power wiring other than that serving the equipment controlled.

I. Refer to Division 26, ELECTRICAL, for extent of work under that Division. Provide other wiring systems required to accomplish the work of this Section, following requirements of Division 26 for products and execution.

J. Wiring connection to terminal posts shall be made by means of compression type lugs. Wire splices shall be made with sketch locks.

K. Safety devices in motor control circuits shall be wired to interrupt the holding coil circuit regardless of the position of any selector switches in the circuit.

L. Control circuit conductors shall be sized for a maximum voltage drop of 10 percent of the circuit voltage.

M. All electrical power wiring shall conform in all respects with the provisions of the National Electrical Code and Division 26, ELECTRICAL, of the Specifications.

N. Provide all necessary contactors, switches, transformers to accomplish operating sequences.

3.3 SYSTEM CHECK-OUT

A. Check-out each system for control function through entire sequence, check calibration of instruments, reset instruments control points.

B. Owner maintenance personnel shall be made thoroughly familiar, by the contractor, with the operation and service of the project automatic temperature control circuits.

3.4 SOFTWARE FOR CONTROLS SYSTEMS

A. All software required for the operation of the temperature control system shall be furnished with the control system. The temperature controls manufacturer/contractor shall furnish the software plus two years of software updates.

B. The software shall be provided in original sealed packaging with all written/printed documentation to the Test and Balance Contractor for use in balancing the project. The temperature controls contractor shall turn the software over to the owner upon completion of the project.

END OF SECTION 23 09 00

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SECTION 23 28 13 - COMMERCIAL KITCHEN HOODS

PART 1 - GENERAL

1.1 GENERAL

A. The General Section the Mechanical Specification is a part of the Commercial Kitchen Hood Specification and applies same as if herein specified.

1.2 SCOPE OF WORK

A. Furnish and install all materials, labor, tools, equipment and working plans as required to install and place in operation the complete Kitchen Hood System.

1.3 WORK INCLUDED

A. The work shall include but not be limited to the following:

1. All exhaust/make-up air ductwork
2. Fan packages
3. Kitchen hoods (Existing)
4. Insulation and controls

1.4 PLANS AND DIAGRAM

A. Working plans (drawings) shall be prepared by the contractor before commencing hood installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

1. State Fire Marshal/AHJ

B. Drawings must first be submitted to the Mechanical Engineer (POR) for approval. POR will then forward the plans to the State Fire Marshal/AHJ. Drawings must be submitted in conjunction with hood Fire Suppression Drawings. Refer to the State Fire Marshal's website for all fees, checklists, forms and requirements for submittal.

1.5 PERMITS, INSPECTIONS AND TESTS

A. All permits, fees, etc., for the installation, inspection, review or construction of the work which are required by any authority and/or agencies having jurisdiction, shall be obtained and paid for by the contractor.

B. All inspections, examinations and tests required shall be arranged and paid for by the contractor as necessary to obtain complete and final acceptance.

PART 2 - MATERIALS

2.1 KITCHEN HOOD EXHAUST DUCTWORK

A. All kitchen hood exhaust ductwork shall be constructed of 16 gauge black iron with weld seams and joints. All seams and joints shall be liquid tight. All construction of ductwork shall be in compliance with NFPA 96.

B. Cover the kitchen exhaust with a flexible wrap system listed and labeled (labeling on scrim shall include product name and certification mark) by a NRTL, Nationally Recognized Testing Laboratory. System shall be tested per internal fire test ASTM E 2336 and per ASTM E 119 engulfment test and achieve a 2 hour fire resistance rating. Wrap system shall be fully encapsulated to resist moisture absorption. System shall provide zero clearance to combustible protection at all locations on the system surface. Access doors shall be installed per the manufacturer's instructions to comply with local code. A listed and labeled firestop system must be available to seal the opening where the protected grease duct penetrates a fire rated floor or wall. The field applied grease duct enclosure system must be mechanically attached to the duct using steel banding and/or weld pins per manufacturer's instructions. System shall be NFPA 96 approved. Material shall be Unifrax FryeWrap® Elite® 1.5 3M Fire Barrier 615+ or prior approved equivalent.

2.2 KITCHEN HOOD FAN PACKAGE

A. Provide roof top pre-engineered exhaust and supply fan package(s) in sizes and quantities as shown on plans. The fan packages shall be a complete system manufactured and assembled by Greenheck, (Accurex) or prior approved equal.

B. The exhaust fan shall be constructed of heavy gauge aluminum. The fan wheel and cone shall be aluminum and of the high performance, centrifugal blower type, statically and dynamically balanced. The exhaust fan shall be constructed as to include a built-in grease drain. Motor and drives shall be isolated from the exhaust airstream and shall be located in a chamber cooled by air brought in through a tube from a location free of discharge contaminates. The entire drive assembly and wheel as unit shall be serviceable and removable through the support structure without dismantling the fan housing. The wheel shaft shall be mounted in heavy duty ball bearings. Drives shall be sized for 165 percent of driven horsepower. Motor pulleys shall be of the adjustable type for final system balancing made of cast iron and be keyed to motor and wheel shafts. The entire drive assembly shall be mounted in rubber vibration isolators. The exhaust fan assembly shall also include a rigid bird screen mounted within the discharge perimeter and a thermal barrier insulating the wheel compartment from the drive compartment. The fan shall be AMCA approved for sound and air performance and also shall be U.L. listed for grease removal in accordance with Underwriters Laboratories standards.

C. The supply fan unit shall be of the belt-driven, double width, double inlet, forward curved centrifugal blower type. The blower assembly shall be mounted on vibration isolators. Drives shall be sized for a minimum of 165 percent of driven horsepower. All exterior housing components of the supply unit shall be constructed of minimum 18 gauge galvanized steel, painted with a weatherproof finish that has been baked for durability. Heavy gauge adjustable angle iron support legs shall be furnished as required. The inlet of the unit shall contain bird screen and a bank of washable, removable air filters. Filters shall be of 1 inch aluminum mesh type, coated with filter adhesive compound and shall be U.L. Classified. The total fan package shall be furnished with a pre-wired control center which shall include, but not be limited to, a master-fused disconnect for main power. Connection, magnetic motor starters with thermal overloads and manual reset, fused 24-volt control transformer and distribution terminal strip for control wiring connection. All electrical components shall be U.L. Listed, Approved or Classified where applicable and wired in compliance with the National Electrical Code. Wiring shall be complete, requiring only one-point field connection for power service (exception: electric heater) and one-point field connection for low-voltage control harness.

D. Furnish motorized backdraft damper as integral part of supply unit. Damper unit shall open upon energization of supply fan and close upon shut-off of supply fan.

E. Furnish pre-fabricated roof curbs constructed of minimum 18 gauge galvanized steel with integral wood nailer, run-off cant and 1 inch rigid insulation. Provide curb extensions as required for exhaust fan to meet N.F.P.A. requirements for discharge height.

2.3 KITCHEN HOOD

A. Kitchen hoods are existing. Installation of existing hoods shall be by Mechanical Contractor. Furnish all hangers and stainless steel wrappers for a complete installation.

B. Contractor shall submit hood shop drawings along with hood suppression system for submittal to the Fire Marshal. Contractor shall obtain a copy of the required checklist for all requirements and shall pay all fees required.

2.4 FIRE PROTECTION SYSTEM - KITCHEN HOODS

A. GENERAL

1. The General Section of the Mechanical Specifications is a part of the Fire Protection System Specification and applies same as if herein included.

B. SCOPE OF WORK

1. Furnish all materials, labor, tools, equipment and working plans to install and place in operation the complete Hood Fire Protection System for the kitchen hood as herein specified. The contractor shall be responsible for preparing the plans, calculations, fees and Fire Marshal review of the system layout.

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C. WORK INCLUDED

1. The work shall include providing hood fire protection system and shall include but not be limited to the following: all piping and fittings; automatic systems; alarm system; testing and approval; and service fees and installation cost.

D. PLAN AND DIAGRAM

1. Working plans (drawings) shall be prepared by the contractor before commencing fire protection installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

   a. State Fire Marshal.

E. HOOD FIRE PROTECTION SYSTEM

1. Furnish and install a fire protection system for the commercial type cooking hood as listed in these specs. The system shall be installed to meet the requirements of NFPA 96, NFPA 17A and UL 300. The Installing Contractor shall also prepare shop drawings for submittal to the State Fire Marshal for review. The Installing Contractor shall be responsible for paying all fees required for submittal to the state and local review agencies. The system shall be installed by all licensed hood fire protection contractor. The Installing Contractor shall be responsible for providing all certificates for Owner's records. The Installing Contractor shall make two (2) inspections of the system during the first year after acceptance by the Owner.
2. The fire protection system shall utilize a wet type fire suppression agent. The liquid agent shall be a potassium carbonate-based solution designed to suppress fires by its saponifying and cooling effects. The agent shall not require periodic replacement. For rapid fire knockdown, the agent shall have an expansion ratio of approximately 2200 to 1. It shall not have an adverse effect on stainless steel appliance, hoods and ducts.
3. The cylinder shall be manufactured and tested in accordance with DOT specifications. It shall be under coated with zinc chromate or red oxide and over coated with white high gloss enamel. The cylinder shall be pressurized to 175 psi to ensure rapid discharge at temperatures as low as 1 degree Fahrenheit. A highly polished metal enclosure shall be provided to conceal the cylinder.
4. The valve shall be heavy duty forged brass, chrome-plated. It shall incorporate an oil-filled bourdon tube gauge to indicate cylinder pressure.
5. The nozzles shall be heavy duty brass, chrome-plated. It shall incorporate a stainless steel strainer to remove scale and foreign matter from pipe or stainless steel tubing. A pure tin foil seal shall protect the nozzle orifice from grease build up. This seal shall be kept tightly in position by a threaded nut to ensure its permanence through the continuous heating-cooling cycle.
6. The system shall be designed for automatic operation with provision for remote and/or local manual control(s). Automatic operation shall be initiated by fusible metallic links, glass bulb links, or electric detectors. The links and glass bulbs are to be utilized with stainless steel cable and corner pulleys employing stainless steel ball bearings. All cable and wiring shall be enclosed in conduit. Where used, the electric detectors are to be utilized with a control panel and an electro-thermal link

that are UL listed for use with the system. All electrical work shall comply with the National Electric Code.

7. Where gas-fired appliances exist, a gas shut-off valve of either the mechanical or electrical type shall be automatically closed upon system actuation. The mechanical type shall be shut-off though the mechanical actuator or a pneumatic release installed in the discharge line. The electric type shall be wired through a manual reset relay to either micro-switch or pressure switch wired through a magnetic contactor. All work shall comply with the National Electric Code.
8. Pipe shall be black steel, stainless steel, or brass standard weight (Schedule 40). Fittings shall be malleable, ductile, or cast iron, steel, stainless steel, or brass and may be standard weight. Stainless steel tubing incorporating bends or stainless steel fittings may also be used. Fittings may be chrome-plated and piping chrome-plated or sleeved. All pipe runs shall be rigidly secured with suitable straps or hangers. Wherever possible, multiple cylinder systems shall be manifolded to minimize pipe.
9. The system shall be installed by an authorized factory trained contractor. The Installing Contractor shall visit the project to take all field measurements and verify the conditions. The Installing Contractor shall acquire and submit all plans, permits and approvals necessary for proper installation and final acceptance. Upon completion, the Installing Contractor shall conduct any and all tests required. The installation shall comply with the manufacturer's installation manual, Underwriters Laboratories listing, National Fire Protection Association Pamphlets 96 and 17A and all applicable regulatory and insurance requirements.

PART 3 - INSTALLATION

3.1 DUCTS

A. Refer to specification section 23 30 00 for any additional comments regarding general duct construction or layout.

PART 4 - EXECUTION

4.1 INSTALLATION

A. The Installing Contractor shall install to meet the manufacturer's instructions.

END OF SECTION 23 28 13

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SECTION 23 30 00 - AIR DISTRIBUTION

PART 1 - GENERAL

1.1 GENERAL

A. Furnish and install all ducts for Air Conditioning, Heating, and Ventilating Systems as shown on the plans and as may be required to provide complete system. Ductwork shall be complete with grilles, vanes, flashings, hangers, flexible connections, splitters, manual dampers, fresh air inlets, louvers, reinforcing angles, etc. All ductwork shall be concealed and insulated as hereinafter specified.

1.2 COORDINATION

A. The General Contractor and Mechanical Contractor shall coordinate the space clearances required for ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. Any re-sizing required shall be part of this project and done without any additional cost to the project. DO NOT MAKE DUCTWORK WITHOUT COORDINATION.

1.3 DUCTWORK SHOP DRAWINGS

A. The Mechanical Contractor/ Sheetmetal Contractor shall prepare complete sheetmetal ductwork shop drawings showing coordination with all trades on the project. The shop drawings shall show all offsets, transitions, size changes to resolve conflict, dampers, fire dampers, grilles, air units, etc. These shop drawings shall be submitted prior to starting work and ductwork fabrication.

1.4 Sealing or flashing the building envelope due to penetrations in the building shall be the responsibility of the general contractor.

PART 2 - MATERIALS

2.1 DUCT HANGERS AND SUPPORTS

A. All ductwork shall be properly braced to prevent rattling, breathing, or other unnecessary noise. No sharp edges or obstructions shall project into air stream.

2.2 LOW PRESSURE DUCTWORK

A. All ductwork shall be galvanized steel and shall be of gauges and construction as recommended by ASHRAE Guide and Data Book and SMACNA guidelines. Gauges are as follows with longest side governing.

Dimension of longest side	Low Pressure Ductwork Sheet Metal Gauge
0"-12"	26 gauge
13"-30"	24 gauge
31"-54"	22 gauge
55"-84"	20 gauge

B. Low pressure ductwork shall be all exhaust ducts, return air ducts, fresh air ducts and supply ducts.

C. Joints and reinforcing shall be as per ASHRAE Guide and Data Book and all slips shall be installed without edge of internal part of slip facing downstream.

D. Construction standard of Article 110, of the National Board of Fire Underwriters Bulletin 90, latest edition, shall apply throughout.

E. Flashings shall be of sheet copper and shall be furnished and installed around all outside openings used for ducts of fans and wherever required. Roof flashings shall extend at least 8 inches above roof.

F. All ducts shall be straight and true and installed in a neat and workmanlike manner.

G. All edges shall be straight and true and all bends shall be made with veined turns. Where long radius turns cannot be used, the contractor shall use square turns and use air splitters spaced not more than 3 inches center to center, and of a length so air will be properly distributed over ducts.

H. All ducts shown are metal to metal dimensions.

I. Mastic shall be applied to both male and female connections (all seams and joints) to make all duct joints air tight (applies to all ductwork; round or rectangular). Surplus mastic shall be removed. Tape and re-mastic joints if necessary. Mastic (hard-cast or equivalent duct sealer : tape not acceptable) shall be applied to the joints during assembly so that sealant is on all mating surfaces of the joint.

2.3 DUCT LINERS

A. Low pressure rectangular supply ductwork shall not be lined. All supply and return air ductwork shall be wrapped with same insulation as specified for round ductwork. Exhaust ductwork shall not be insulated. LINED DUCTWORK IS NOT PERMITTED IN THIS PROJECT. WRAP ALL DUCTWORK.

2.4 FILTERS--PRIMARY

A. Units shall be equipped with low velocity filter section with 30 percent efficient 2 inches thick pleated type (Continental air filters "cono pleat" FARR 3030, American Air Filter or equal) throwaway filters.

B. Provide and install one set of filters as called for in these Specifications for initial testing and start-up and another complete set upon completion of the project.

2.5 DUCT ACCESSORIES

A. Dampers of the fusible link operated type shall be provided in all ductwork passing through floor or fire walls.

B. Provide quadrant or adjustable splitters and mark shaft to give position of splitter damper in duct.

C. Provide vanes behind every supply grille or diffuser. Splitters shall be provided where shown on plans and where located in concealed non-accessible space provided Young Regulators to operate splitter. Vanes shall be Tuttle and Bailey "Ducturns", Barber-Coleman, Uniflo, or equivalent. Shop fabricated vanes will be acceptable. All dampers shall be constructed of 14 gauge steel.

2.6 REGISTERS, GRILLES AND DIFFUSERS

A. Ceiling supply outlets, unless otherwise indicated on plans shall be Titus, Price, Nailor or approved equal. Outlets shall be mounted tight to the construction, and shall have frame suitable for type of ceiling used unless otherwise noted.

B. Return air grilles shall be as manufactured by Titus, Price, Nailor or approved equivalent and shall be of style called for on plans.

C. All supply outlets shall have sponge rubber gaskets.

D. All grilles, diffusers, and registers shall be of sizes indicated on plans or scheduled on drawings.

E. Unless otherwise shown on drawings, all grilles installed in the ceiling shall be furnished with white baked-on enamel finish.

2.7 FIRE DAMPERS

A. Furnish and install, at locations shown on plans, fire dampers constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 hour fire protection rating, 212 degrees Fahrenheit fusible link, and shall include a UL label in accordance with established UL labeling procedures. Damper manufacturer's literature

submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with AMCA Standard 500 and shall illustrate pressure drops for all sizes of dampers required at all anticipated air flow rates. Fire dampers shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing steel sleeves, angles, other materials, and practices required to provide an installation equivalent to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. Fire dampers shall be Ruskin type IBD, Arrow, Cesco, Pref-Co, or equal.

B. Fire dampers installed within 10 feet of the air handling unit or where velocities exceed 2000 fpm. Dampers shall be static type for systems with duct smoke detectors, dynamic for systems without duct detector fan shut down.

1. Furnish and install at locations within 10 feet of the air handling unit multi blade fire dampers constructed and tested in accordance with UL safety standard 555 (dynamic) that meet or exceed the following specifications:
   a. Frame shall be a minimum of 16 gauge galvanized (1.52) steel formed into a structural hat and tabbed with tabbed corners for reinforcement. The blades shall be air foil-shaped double skin with 14 gauge (1.90) equivalent thickness. Bearing shall be stainless steel sleeve turning in an extruded hole in the frame.
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in accordance with established labeling procedure.
   c. Damper manufacturers' literature submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with the UL 555 standard.
   d. Fire dampers shall have been tested to close under dynamic air flow conditions with pressures up to 4 inches w.g. and to 4,000 fpm air velocity.
   e. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
   f. Fire dampers shall be installed in a wall or floor opening using steel sleeves, angles and other materials and practices required to provide an installation equivalent used by manufacturer when damper was tested at UL. Installation shall be in accordance with the damper manufacturers' instructions.

C. Fire dampers installed beyond 10 feet of the air handling unit and where velocities are under 2000 fpm.

1. Furnish and install at locations shown on plan fire dampers constructed and tested in accordance with UL safety standard 555.
   a. Fire dampers shall have been tested to close under dynamic air flow conditions and be labeled as a dynamic fire damper (static fire dampers are not allowed).
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in this specification accordance with UL 555 standards, and a dynamic label that shall illustrate maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable at 4 inches static pressure for un-ducted, in-wall mounting.

c. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
d. Fire dampers shall be installed in wall and floor openings using steel sleeves, angles and other materials and practices required to provide an installation equivalent to that used by the manufacturer when dampers were tested at UL. Installation shall be in accordance with damper manufacturers' instructions.

D. Round fire dampers: All systems with pressures to 6 inches w.q. and velocities to 4000 fpm.

1. Furnish and install at locations shown on plans, or as described in schedules, round fire dampers meeting or exceeding the following specifications.
   a. Frame shall be a minimum of 20 gauge galvanized steel and blade shall be two piece equivalent to 14 gauge minimum galvanized. Bearings shall be stainless steel sleeve with grooves to receive the 20 gauge retaining plate for damper mounting.
   b. Each round fire damper shall be 1-1/2 hour fire rated under UL standard 555, and bear a UL label attesting to same.
   c. Each round fire damper shall be equipped with a Fuse Link which shall activate at (specifier select one) 165 degrees, 212 degrees, causing damper to close in a locked position.
   d. Manufacturer must provide UL installation instructions for both masonry walls and metal stud drywall partitions.

2.8 PRE-INSULATED FLEXIBLE DUCT

A. Flexible duct shall be rated for a maximum pressure of 16 inches (4-10 inches I.D.) or 10 inches (12-16 inches I.D.) water column positive pressure and 2 inches water column maximum negative pressure and 6000 FPM maximum velocity and listed by Underwriters Laboratories, Inc. under UL Standard 181 as a Class 1 air duct complying with NFPA Standards 90A and 90B. Flexible air duct shall be factory-made and composed of an inner duct of woven and coated fiber glass fabric providing an air seal and permanently bonded to coated steel wire helix, a fiber glass insulating blanket with minimum R-8.0 value (minimum 2 inch thickness) and low permeability outer vapor barrier of fiberglass reinforced metalized film laminate. Flexible air ducts shall be Thermaflex M-KC or Flexmaster type 4M with minimum R-8.0 insulation to meet ASHRAE 90.1 energy code. Maximum installed length shall not exceed 3 feet-0 inches without approval.

PART 3 - INSTALLATION

3.1 DUCTS

A. Ductwork shall be constructed and installed as follows:

1. Straight and smooth on inside with joints neatly finished unless otherwise directed.

2. Duct panels through 48 inch dimension having acoustic duct liner need not be crossbroken or beaded.
3. Crossbreak unlined ducts and duct panels larger than 48 inches or bead 12 inches on center.
4. Securely anchor ducts to building structure with specified duct hangers attached with screws.
5. Brace and install ducts so they shall be free of vibration under all conditions of operation.
6. Ducts shall not bear on the top of structural member.
7. Make duct take-offs to branches, registers, grilles, and diffusers as detailed on Drawings.
8. Properly flash where ducts protrude above roof.
9. Install internal ends of slip joints in direction of flow. Make joints air tight using specified duct sealer.

B. Install flexible duct connections to each air handling unit.

C. Provide each take-off with an adjustable volume damper to balance that branch.

1. Anchor dampers securely to duct.
2. Install dampers in main ducts within insulation.
3. Dampers in branch ducts shall fit against sheet metal walls, bottom and top of duct, and be securely fastened.
4. Where concealed ceiling damper regulators are installed, provide a cover plate.

D. Install grilles, registers, and diffusers.

3.2 AIR TURNS

A. Permanently installed, consisting of curved metal blades or vanes arranged to permit air to make abrupt turn without appreciable turbulence, in elbows of supply and above ground return ductwork.

B. Air turns shall be quiet and free from vibration when system is in operation.

END OF SECTION 23 30 00

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SECTION 23 70 00 - AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Air Conditioning System, in general, shall be for the entire building providing cooling and dehumidification in summer and heating in winter. A constant amount of fresh air shall be taken into the system and all air shall be filtered.

B. The General Contractor (Prime Contractor) who has the contracts with the Owner shall be responsible for installing the mechanical systems using qualified subcontractors and/or employees. Any incorrect or improper work shall be corrected by the General Contractor.

C. The General Contractor shall be the sole source responsible party to furnish and install the mechanical system. General Contractor shall be properly licensed to perform this work.

1.2 STANDARDS

A. All air conditioning equipment shall comply with the requirements of applicable ARI standards and shall be tested, rated, labeled, and listed accordingly.

1.3 SPACE REQUIREMENTS

A. General Contractor and Mechanical Contractor shall refer to architectural, structural and electrical drawings and install all equipment, piping, etc. to meet building and space requirements. No equipment shall be bid on or submitted for approval if it will not fit into the space provided or coordinate with other trades involved on the project.

1.4 COMPRESSOR WARRANTIES

A. On all packaged and/or split system DX equipment 5 tons and below, the manufacturer shall provide a full 10 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

B. On all packaged and/or split system DX equipment 6 tons and larger, the manufacturer shall provide a full 5 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

C. The manufacturer shall warranty all parts, labor and refrigerant systems on the entire unit for the warranty period. In addition, annually, the manufacturer's service technicians

shall make a warranty check inspection of the unit with report to the Owner. This warranty shall not include any equipment maintenance; all equipment maintenance is the responsibility of the Owner. The manufacturer shall have full access to the units during the construction period.

D. If a longer warranty period is required elsewhere in these specs, the longer warranty period shall apply.

PART 2 - MATERIALS

2.1 PIPING

A. All piping shall be of materials as hereinbefore specified.

2.2 PACKAGED OUTSIDE AIR UNIT (100% OUTSIDE AIR)

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

1. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
2. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
3. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
4. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
5. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.
6. Unit shall be approved for use in and outside High Velocity Hurricane Zones (HVHZ) by the Florida Building Code (FL# 15031), when using the required steel rooftop curb and attachment methods. Maximum allowable lateral wind pressure is +100psf/-100psf. Maximum allowable uplift is +50psf/-50psf. Positive and negative required design pressures calculated for use with this system shall be determined by others on a job specific basis, in accordance with the governing code. Site specific pressures shall be less than or equal to the listed positive or negative allowable lateral wind design pressure and allowable uplift values for the product.

B. Manufacturer shall provide a limited "parts only" warranty for a period of 24 months from the date of equipment startup or 30 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for Installation, Operation, and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and filters.

C. Products shall be provided by the following manufacturers:

1. AAON, Addison or approved Equal
2. Substitute equipment may be considered for approval that includes at a minimum:
   a. R-410A refrigerant
   b. Variable capacity compressor with 10-100% capacity control
   c. Direct drive supply fans
   d. Double wall cabinet construction
   e. Insulation with a minimum R-value of 13
   f. Stainless steel drain pans
   g. Hinged access doors with lockable handles
   h. All other provisions of the specifications must be satisfactorily addressed

D. General Description

1. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, gas heaters, and unit controls.
2. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.
3. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
4. Unit components shall be labeled, including refrigeration system components and electrical and controls components.
5. Estimated sound power levels (dB) shall be shown on the unit ratings sheet.
6. Installation, Operation, and Maintenance manual shall be supplied within the unit.
7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

E. Construction

1. All cabinet walls, access doors, and roof shall be fabricated of double wall, impact resistant, rigid polyurethane foam panels.
2. Unit insulation shall have a minimum thermal resistance R-value of 13. Foam insulation shall have a minimum density of 2 pounds/cubic foot and shall be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.
3. Unit construction shall be double wall with G90 galvanized steel on both sides and a thermal break. Double wall construction with a thermal break prevents moisture accumulation on the insulation, provides a cleanable interior, prevents heat transfer through the panel, and prevents exterior condensation on the panel.
4. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel

deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width. Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

5. Roof of the air tunnel shall be sloped to provide complete drainage. Cabinet shall have rain break overhangs above access doors.
6. Access to filters, dampers, cooling coils, reheat coil, heaters, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges shall be included on the doors.
7. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
8. Units with cooling coils shall include double sloped 304 stainless steel drain pans.
9. Unit shall be provided with base discharge and return air openings. All openings through the base pan of the unit shall have upturned flanges of at least 1/2 inch in height around the opening.
10. Unit shall include lifting lugs on the top of the unit.
11. Unit base pan shall be provided with 1/2 inch thick foam insulation.

F. Electrical

1. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.
2. Unit shall be provided with a factory installed and factory wired 115V, 13 amp GFI outlet disconnect switch in the unit control panel.

G. Supply Fans

1. Unit shall include direct drive, unhoused, backward curved, plenum supply fans.
2. Blowers and motors shall be dynamically balance and mounted on rubber isolators.
3. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
4. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

H. Cooling Coils

1. Evaporator Coils
   a. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled.
   b. Coils shall have interlaced circuitry and shall be 6 row high capacity.
   c. Coils shall be hydrogen or helium leak tested.
   d. Coils shall be furnished with factory installed expansion valves.

I. Refrigeration System

1. Unit shall be factory charged with R-410A refrigerant.
2. Compressors shall be scroll type with thermal overload protection and carry a 10 year non-prorated warranty, from the date of original equipment shipment from the factory.
3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors shall be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.
4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
5. Each refrigeration circuit shall be equipped with expansion valve type refrigerant flow control.
6. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides and a factory installed replaceable core liquid line filter driers.
7. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
8. Lead refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
9. Each refrigeration circuit shall be equipped with a liquid line sight glass.
10. Each refrigeration circuit shall be equipped with suction and discharge compressor isolation valves.

J. Condensers

1. Air-Cooled Condenser
   a. Condenser fans shall be a vertical discharge, axial flow, direct drive fans.
   b. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.
   c. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
   d. Coils shall be hydrogen or helium leak tested.
   e. Condenser fans shall be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow shall continuously modulate based on head pressure and cooling operation shall be allowed down to 35°F with adjustable compressor lockout.

K. Gas Heating

1. Stainless steel heat exchanger furnace shall carry a 25 year non-prorated warranty, from the date of original equipment shipment from the factory.
2. Gas furnace shall consist of stainless steel heat exchangers with multiple concavities, an induced draft blower and an electronic pressure switch to lockout the gas valve until the combustion chamber is purged and combustion airflow is established.
3. Furnace shall include a gas ignition system consisting of an electronic igniter to a

pilot system, which will be continuous when the heater is operating, but will shut off the pilot when heating is not required.

4. Unit shall include a single gas connection and have gas supply piping entrances in the unit base for through-the-curb gas piping and in the outside cabinet wall for across the roof gas piping.
5. Natural gas furnace shall be equipped with modulating gas valves, adjustable speed combustion blowers, stainless steel tubular heat exchangers, and electronic controller. Combustion blowers and gas valves shall be capable of modulation. Electronic controller includes a factory wired, field installed supply air temperature sensor. Sensor shall be field installed in the supply air ductwork. Supply air temperature setpoint shall be adjustable on the electronic controller within the controls compartment.

L. Filters

1. Unit shall include 2 inch thick, pleated panel filters with an ASHRAE efficiency of 30% and MERV rating of 8, upstream of the cooling coil.
2. Unit shall include 1 inch aluminum mesh pre filters upstream of the outside air opening.

M. Outside Air/Economizer

1. Unit shall include 100% motor operated outside air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge and end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return, 2 position actuator. Unit shall include outside air opening bird screen and outside air hood.

N. Controls

1. Factory Installed and Factory Provided Controller
   a. Unit controller shall be capable of controlling all features and options of the unit. Controller shall be factory installed in the unit controls compartment and factory tested. Controller shall be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.
   b. Controller shall have an onboard clock and calendar functions that allow for occupancy scheduling.
   c. Controller shall include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.
   d. Makeup Air Controller
      1) Unit shall modulate cooling with constant airflow to meet ventilation outside air loads. Cooling capacity shall modulate based on supply air temperature.
      2) With modulating hot gas reheat, unit shall modulate cooling and hot gas reheat as efficiently as possible, to meet outside air humidity loads and prevent supply air temperature swings and overcooling of the space.

3) Unit shall modulate heating with constant airflow to meet ventilation outside air loads. Heating capacity shall modulate based on supply air temperature.

e. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling shall be accomplished with connection to interface module with LCD screen and input keypad, interface module with touch screen, or with connection to PC with free configuration software. Controller shall be capable of connection with other factory installed and factory provided unit controllers with individual unit configuration, setpoint adjustment, sensor status viewing, and occupancy scheduling available from a single unit. Connection between unit controllers shall be with a modular cable. Controller shall be capable of communicating and integrating with a LonWorks or BACnet network.

O. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.

P. Installation, Operation, and Maintenance manual shall be supplied with the unit. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install air conditioning systems in accordance with Section 23 05 00.

B. Mount equipment complete with piping system, roof curbs and air distribution system, and provide for power connection.

C. Complete structural, mechanical, and electrical connections in accordance with manufacturer's installation instructions.

3.2 TESTING

A. Refrigerant lines shall be tested under 200 psi carbon dioxide pressure for 5 hours using soap suds at joints to test for leaks. Evacuate system and charge with refrigerant.

B. All line testing shall be witnessed by the Test and Balance Agency (TAB). TAB Agency shall record results and include in final TAB report.

END OF SECTION 23 70 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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FORD FIELDS CONCESSION STAND
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SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 , Type XHHW-2 and Type SO.

C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

F. Branch Circuits Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

H. Flexible Connections to Lighting Fixtures: Type MC cable with maximum length of six feet.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. ILSCO.
4. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Pad-Mounted Transformers and Switches: Install two ground rods around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for taps to equipment grounding terminals.

3.4 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

3.5 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION 260526

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
2. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Mechanical-Expansion Anchors: Insert-wedge-type, **[zinc-coated] [stainless]** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

a. Material: die cast.
b. Type: compression.

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

F. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Continuous HDPE: Comply with UL 651B.

D. Fittings for RNC: Comply with NEMA TC 3; match to conduit type and material.

E. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5.

C. Tele-Power Poles:

1. Material: Aluminum with clear anodized finish.
2. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials (top and bottom), and other fittings shall match and mate with tele-power pole as required for complete system. This project uses both sides for power raceways.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Metal Floor Boxes:

1. Material: Cast metal.
2. Type: Fully adjustable.
3. Shape: Square.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

K. Gangable boxes are prohibited.

L. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

M. Cabinets:

1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC or RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried or concrete encased.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Damp or Wet Locations: GRC.
7. Boxes and Enclosures: NEMA 250, Type 1.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use compression, cast-metal fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Raceways Shall not be Embedded in Slabs:

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

K. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

M. Surface Raceways:

1. Install surface raceway with a minimum 2-inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

N. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.

O. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

P. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC in damp or wet locations not subject to severe physical damage.

Q. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

R. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.

S. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

T. Locate boxes so that cover or plate will not span different building finishes.

U. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

V. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

W. Set metal floor boxes level and flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit.
2. Install backfill as specified in Section 312000 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
4. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Warning labels and signs.
3. Equipment identification labels.
4. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.3 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.4 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.5 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

F. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
   1. Power.

B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

   1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

      a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
      b. Colors for 208/120-V Circuits:

         1) Phase A: Black.
         2) Phase B: Red.
         3) Phase C: Blue.

      c. Colors for 480/277-V Circuits:

         1) Phase A: Brown.
         2) Phase B: Orange.
         3) Phase C: Yellow.

      d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

C. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Distribution, dry-type transformers rated 600 V and less, with capacities up to 1500 kVA.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Source quality-control reports.

B. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company.
2. Square D; by Schneider Electric.

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Transformers Rated 15 kVA and Larger: Comply with NEMA TP 1 energy-efficiency levels as verified by testing according to NEMA TP 2.

1. Coil Material: Copper.

D. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated.

2.3 DISTRIBUTION TRANSFORMERS

A. Comply with NFPA 70, and list and label as complying with UL 1561.

B. Cores: One leg per phase.

C. Enclosure: Ventilated.

1. NEMA 250, Type 3R: Core and coil shall be encapsulated within resin compound utilizing a vacuum pressure impregnation process to seal out moisture and air.

D. Transformer Enclosure Finish: Comply with NEMA 250.

1. Finish Color: NSF/ANSI 49 gray.

E. Taps for Transformers 3 kVA and Smaller: One 5 percent tap above normal full capacity.

F. Taps for Transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.

G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

H. Insulation Class, Smaller than 30 kVA: 185 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

I. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

2.4 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical Systems."

2.5 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from adjacent wall surface.

D. Construct concrete bases according to Section 033000 "Cast-in-Place Concrete" and anchor floor-mounted transformers according to manufacturer's written instructions and requirements in Section 260529 "Hangers and Supports for Electrical Systems."

1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

E. Secure transformer to concrete base according to manufacturer's written instructions.

F. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.

G. Remove shipping bolts, blocking, and wedges.

3.2 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS for dry-type, air-cooled, low-voltage transformers. Certify compliance with test parameters.

B. Remove and replace units that do not pass tests or inspections and retest as specified above.

C. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.

1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

3.4 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.

C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 262200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

C. Field quality-control reports.

D. Panelboard schedules for installation in panelboards.

E. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

FORD FIELDS CONCESSION STAND
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PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

a. Indoor Dry and Clean Locations: NEMA 250, Type 1 or Type 12. See drawings.
b. Outdoor Locations: NEMA 250, Type 3R.

2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
3. Directory Card: Inside panelboard door, mounted in transparent card holder.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus Configured Terminators: Mechanical type.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, power and feeder distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

D. Mains: Circuit breaker, as indicated on plans.

E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs as indicated on plans.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

a. Standard frame sizes, trip ratings, and number of poles.
b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
f. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
g. Handle Lock Device: Loose attachment, for holding circuit-breaker handle in on position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.

B. Mount top of trim 90 inches above finished floor unless otherwise indicated.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262416

FORD FIELDS CONCESSION STAND
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SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.5 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Single Pole:

1) Cooper; AH1221.
2) Hubbell; HBL1221.
3) Leviton; 1221-2.
4) Pass & Seymour; CSB20AC1.

b. Two Pole:

1) Cooper; AH1222.
2) Hubbell; HBL1222.
3) Leviton; 1222-2.
4) Pass & Seymour; CSB20AC2.

c. Three Way:

1) Cooper; AH1223.
2) Hubbell; HBL1223.
3) Leviton; 1223-2.
4) Pass & Seymour; CSB20AC3.

d. Four Way:

1) Cooper; AH1224.
2) Hubbell; HBL1224.
3) Leviton; 1224-2.
4) Pass & Seymour; CSB20AC4.

C. Pilot-Light Switches, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "on."

2.6 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. Fluorescent Lamp and LED Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 5 percent of full brightness.

2.7 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with in-use, lockable cover.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect on a room by room basis unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:

a. Control circuits.
b. Enclosed switches.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Bussmann; a division of Cooper Industries.
2. Edison; a brand of Cooper Bussmann; a division of Cooper Industries.
3. Littelfuse, Inc.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
3. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Fuse rating shall be in accordance with equipment nameplate.

3.2 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

FORD FIELDS CONCESSION STAND
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SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Molded-case circuit breakers (MCCBs).
4. Enclosures.

1.2 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Lugs: Suitable for number, size, and conductor material.

2.2 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Lugs: Suitable for number, size, and conductor material.

2.3 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

D. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Suitable for number, size, trip ratings, and conductor material.
3. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
4. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.

2.4 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

B. Install fuses in fusible devices. Verify exact fuse rating with equipment nameplate.

C. Comply with NECA 1.

3.2 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262913 - ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following enclosed controllers rated 600 V and less:

1. Full-voltage manual.
2. Full-voltage magnetic.

1.2 DEFINITIONS

A. CPT: Control power transformer.

B. MCCB: Molded-case circuit breaker.

C. MCP: Motor circuit protector.

D. N.C.: Normally closed.

E. N.O.: Normally open.

F. OCPD: Overcurrent protective device.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed controller.

B. Shop Drawings: For each enclosed controller. Include dimensioned plans, elevations, sections, details, and required clearances and service spaces around controller enclosures.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FULL-VOLTAGE CONTROLLERS

A. General Requirements for Full-Voltage Controllers: Comply with NEMA ICS 2, general purpose, Class A.

B. Motor-Starting Switches: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off or on.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Nonreversing.
3. Surface mounting.
4. Pilot light.

C. Fractional Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Two speed.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

D. Integral Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters and sensors in each phase, matched to nameplate full-load current of actual protected motor and having appropriate adjustment for duty cycle; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

E. Magnetic Controllers: Full voltage, across the line, electrically held.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Contactor Coils: Pressure-encapsulated type.

    a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.

4. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
5. Control Circuits: 120-V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices. (100VA extra minimum.)

6. Solid-State Overload Relay:

    a. Switch or dial selectable for motor running overload protection.
    b. Sensors in each phase.
    c. Class 10/20 selectable tripping characteristic selected to protect motor against voltage and current unbalance and single phasing.

7. External overload reset push button.

F. Combination Magnetic Controller: Factory-assembled combination of magnetic controller, OCPD, and disconnecting means.

G. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

4. MCP Disconnecting Means:

   a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents, instantaneous-only circuit breaker with front-mounted, field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
   b. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
   c. Auxiliary contacts "a" arranged to activate with MCP handle.

2.2 ENCLOSURES

A. Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.

1. Dry and Clean Indoor Locations: Type 1.
2. Outdoor Locations: Type 3R.

2.3 ACCESSORIES

A. Push Buttons, Pilot Lights, and Selector Switches: NEMA ICS 5; heavy-duty type; factory installed in controller enclosure cover unless otherwise indicated. (Start-Stop, HOA, Red Pilot Light)

B. Control Relays: Auxiliary and adjustable time-delay relays.

C. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays: Solid-state sensing circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage, overvoltage, and time-delay settings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Wall-Mounted Controllers: Install enclosed controllers on walls with tops at uniform height, and with disconnect operating handles not higher than 79 inches above finished floor, unless otherwise indicated, and by bolting units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks complying with Section 260529 "Hangers and Supports for Electrical Systems."

B. Install fuses in each fusible-switch enclosed controller.

C. Install fuses in control circuits if not factory installed. Comply with requirements in Section 262813 "Fuses."

D. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been installed.

E. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

3.3 CONTROL WIRING INSTALLATION

A. Install wiring between enclosed controllers and remote devices and facility's central control system. Comply with requirements in Section 260523 "Control-Voltage Electrical Power Cables."

B. Bundle, train, and support wiring in enclosures.

C. Connect selector switches and other automatic-control selection devices where applicable.

1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switch is in manual-control position.
2. Connect selector switches with enclosed-controller circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed controller, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Inspect controllers, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
2. Test insulation resistance for each enclosed-controller element, component, connecting motor supply, feeder, and control circuits.
3. Test continuity of each circuit.
4. Verify that voltages at controller locations are within plus or minus 10 percent of motor nameplate rated voltages. If outside this range for any motor, notify Engineer before starting the motor(s).
5. Test each motor for proper phase rotation.
6. Perform each electrical test and visual and mechanical inspection stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed controllers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Set field-adjustable switches and overload-relay pickup and trip ranges.

B. Adjust the trip settings of MCPs and thermal-magnetic circuit breakers with adjustable instantaneous trip elements. Initially adjust to six times the motor nameplate full-load ampere ratings and attempt to start motors several times, allowing for motor cooldown between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed eight times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Engineer before increasing settings.

3.6 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain enclosed controllers.

END OF SECTION 262913

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 264313 - SURGE PROTECTION FOR LOW-VOLTAGE POWER CIRCUITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For manufacturer's special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

A. SPDs: Comply with UL 1449, Type 2.

1. Include LED indicator lights for power and protection status.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.

B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:

1. Line to Neutral: 700 V for 208Y/120 V.
2. Line to Ground: 700 V for 208Y/120 V.
3. Neutral to Ground: 700 V for 208Y/120 V.
4. Line to Line: 1200 V for 208Y/120 V

D. SCCR: Equal or exceed 100 kA.

E. Inominal Rating: 20 kA.

2.3 ENCLOSURES

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.

1. Compare equipment nameplate data for compliance with Drawings and Specifications.
2. Inspect anchorage, alignment, grounding, and clearances.
3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.3 DEMONSTRATION

A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 264313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

1.2 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, arranged by designation.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires and lamps. See Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of luminaire.

B. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Recessed Fixtures: Comply with NEMA LE 4.

C. CRI of minimum 80. CCT of 4100 K.

D. Rated lamp life of 50,000 hours.

E. Lamps dimmable from 100 percent to 0 percent of maximum light output.

F. Internal driver.

G. Nominal Operating Voltage: 120 V ac or 277 V ac. See Drawings.

1. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

H. Housings:

1. Extruded-aluminum housing and heat sink.
2. White, painted finish.

2.2 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging

B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools.

Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers, and Globes:

1. Clear, UV-stabilized acrylic.
2. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear per plan, powder-coat finish.

2.3 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.4 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports: Sized and rated for luminaire weight.

E. Flush-Mounted Luminaire Support: Secured to outlet box.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

G. Ceiling-Mounted Luminaire Support:

1. Ceiling mount with two 5/32-inch diameter aircraft cable supports adjustable to 120 inches in length.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

J. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 265119

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Addressable interface device.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Locate detectors according to manufacturer's written recommendations.

12. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

a. Trained and certified by manufacturer in fire-alarm system design.
b. NICET-certified, fire-alarm technician; Level III minimum.
c. Licensed or certified by authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

C. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment.
d. Riser diagram.
e. Record copy of site-specific software.
f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

g. Manufacturer's required maintenance related to system warranty requirements.
h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Fire-extinguishing system operation.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
5. Record events in the system memory.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, or remote annunciator.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 FIRE-ALARM CONTROL UNIT

A. The Fire Alarm Control Unit is an existing system and this project shall provide the additional components to expand system to include the new facility..

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38.

1. Dual-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
    c. Multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

C. Ionization Smoke Detector:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.6 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature or a rate of rise.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.

2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.7 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464.

C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- high letters on the lens.

1. Mounting: Wall mounted unless otherwise indicated.
2. Flashing shall be in a temporal pattern, synchronized with other units.
3. Strobe Leads: Factory connected to screw terminals.
4. Mounting Faceplate: Factory finished, red.

2.8 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.9 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.

2. Store an internal identifying code for control panel use to identify the module type.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

C. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

D. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

E. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

G. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

2. Exposed pathways conductors shall be red.

B. Pathways shall be installed in EMT.

C. Exposed EMT junction boxes shall be painted red enamel.

3.3 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Smoke dampers in air ducts of designated HVAC duct systems.
2. Magnetically held-open doors.
3. Electronically locked doors and access gates.
4. Alarm-initiating connection to elevator recall system and components.
5. Supervisory connections at valve supervisory switches.
6. Supervisory connections at elevator shunt-trip breaker.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

3.5 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect and authorities having jurisdiction.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

   a. Inspection shall be based on completed record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter.
   b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.7 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 310000 - GEO-TECHNICAL INVESTIGATION REPORTS

GENERAL

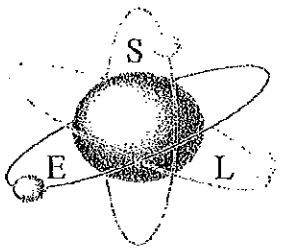
A. The report reproduced on the following pages is an exact copy of the original Subsurface Investigation Report for the Ford Park Multi-Sports Facility, Beaumont, Texas, prepared by Science Engineering, Inc.

B. Procedures and precautions recommended in the following Subsurface Investigation Report and attachments are to be strictly followed by the contractor. Where the technical sections of these specifications differ from the recommendations of the Subsurface Investigation Report, the more stringent requirement shall govern.

C. The Contractor is responsible for examining the site and determining the nature of the materials to be excavated.

D. Contractor shall be responsible for paying for all failed tests. Geo-Technical inspection service will bill all failed tests directly to the Contractor. Evidence of payment shall be a requirement for substantial completion.

SUBSURFACE SOILS INVESTIGATION REPORT FOLLOWS IN ITS ENTIRETY AND COMPLETES SECTION 310000.



SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

GEOTECHNICAL INVESTIGATION

FOR

FORD PARK MULTI-SPORTS FACILITY

IN

BEAUMONT, TEXAS

REPORT NUMBER 14260

REPORTED TO:

AMERICAN BUILDERS
9405 COLLEGE STREET
BEAUMONT, TEXAS 77707

NOVEMBER 2014

PREPARED BY:
SCIENCE ENGINEERING, LTD.

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

GEOTECHNICAL INVESTIGATION
Multi-Sports Facility
Beaumont, Texas

INTRODUCTION

The study reported herein is a preliminary investigation of subsurface conditions for the new Ford Park Multi-Sports Facility in Beaumont, Texas.

AUTHORIZATION

This investigation was authorized by Mr. Don King, P.E. by e-mail dated November 5, 2014.

SUBSURFACE EXPLORATION

The subsurface exploration at the site was accomplished by means of two (2) undisturbed sample core borings drilled to depths of approximately twenty (20) feet below existing ground surface. Approximate locations of the borings are shown on the attached boring plan.

SUBSURFACE INVESTIGATION

The subsurface investigation consisted of drilling three-inch nominal diameter core borings. Undisturbed samples of the cohesive soils were obtained from the borings by means of thin-wall, seamless steel Shelby tube samplers, in accordance with the ASTM D-1587 method. The shear strength of the cohesive soil samples was estimated by hand pentrometer in the field.

All undisturbed samples were extracted mechanically from the core barrels in the field, classified, wrapped in aluminum foil, and sealed in airtight plastic bags to prevent moisture loss and disturbance. The samples were transported to our laboratory for testing and further study.

LABORATORY INVESTIGATIONS

All samples from borings were examined and classified in the laboratory by a soil engineer, according to procedures outlined in ASTM D-2488. Laboratory tests were performed on selected soil samples in order to evaluate the engineering properties of the soil in accordance with the indicated standard procedures.

LABORATORY TESTS	STANDARD TESTS
Atterberg Limits (L.L., P. L., P.I.)	ASTM D-4318
Soil Moisture Content	ASTM D-2216
Unconfined Compressive Strength	ASTM D-2266
Soils Classification	ASTM D-2487

Undrained shear strength of selective cohesive soils was determined by unconfined compression tests. Water content and dry unit weight of the foundation soils were determined as routine parts of the unconfined compression tests. Atterberg limits tests were performed on appropriate cohesive samples. The results of these tests are shown on the attached boring logs.

SUBSURFACE CONDITIONS

Specific types and depths of subsurface strata encountered on the site are shown on the attached boring logs. Review of the boring logs indicates that generalized stratography is approximately as follows:

Stratum No.	Average Depth, feet	Description of Strata
I	0.00 - 6.00	Dark Gray CLAY (CH)
II	6.00 - 17.00	Tan and Gray CLAY (CH) with ferrous nodules and slickensides
III	17.00 - 20.00	Tan and Gray SANDY CLAY (CL)

The near surface soils are "CH" type soils when classified by the unified soils classification system. This type soil normally exhibits high swell potential during seasonal moisture variations.

Hydrostatic water was not encountered at the time of drilling.

CONSTRUCTION VARIATIONS

The information contained in this report summarizes conditions found on the date that the borings was drilled. The depth to the static water table may be expected to vary with the environmental variations, such as frequency and magnitude of precipitation and the time of year that construction begins.

DESIGN ANALYSIS AND RECOMMENDATIONS

Information available to this office indicates that the proposed construction at the site will consist of a new multi-sports facility.

DRILLED FOOTINGS (UNDERREAMS)

From analysis of the borings logs and laboratory tests results, it is recommended that the structural loads be transmitted to the foundation soils by the use of drilled and underreamed type footings. Footings should extend to a depth of nine feet (9') below existing ground surface to be located in Tan and Gray Clay. Utilizing a minimum factor of safety of three for dead load, or a minimum factor of two for total load, the allowable bearing capacity of the foundation soils for circular type footings is given as follows. 2,500 Pounds per square foot (PSF) for dead load, plus long term live loads and 3,700 PSF for total load. Whichever is critical should be used. The allowable loads given can be increased by thirty percent (30%) for wind or temporary lateral loading.

Due to the presence of slickensides at the recommended depth, we suggest that the bell to shaft ratio for the footings be limited to one to two (1:2).

There is potential for upward movement of the plastic clays in contact with the sides of the piers; the pier shafts should be well reinforced throughout their length resist tensional force.

STRUCTURE FOUNDATION

Each footing excavation should be inspected by the project's Engineer, Architect or Owner's representative prior to placing concrete to insure that (a) the footing has been constructed at the correct depth and the correct formation established by previously mentioned criteria, (b) the footing is concentric with the pier shaft or column, and (c) excessive cuttings, build-up or any soft-compressible material(s) have been removed from the bottom of the excavation.

Placement of concrete should be accomplished as soon as possible to prevent changes in the state of stress and the caving of the foundation soils. No footings should be poured without the prior approval of the projects' Engineer, Architect or Owner's representative.

FOUNDATION SETTLEMENT

A detailed settlement analysis was not within the scope of this study. It is anticipated that the footings designed, using the recommended allowable bearing pressures, will experience small settlements that will be well within the tolerable limit for the proposed structure.

FLOOR SLABS AND GRADE BEAMS

Review of the Atterberg Limits determinations indicates that the surface soils are "CH" type soils, with high plasticity, which may exhibit expansion during seasonal wetting and drying cycles. We believe that conventional "slab-on-fill" construction may be used for the interior portion of the structures built at the site. Select fill, a minimum of thirty-six-inch (36") thickness should be used to bring the structure to grade.

Prior to placement of select fill, strip site sufficiently to remove all topsoil, existing vegetation and roots larger than ½" in diameter to an approximate depth of twelve (12) inches. Then scarify the subgrade, add moisture, if necessary, and recompact to 95% of the maximum dry density as determined by ASTM D-698 (Standard Proctor). The moisture content at the time of compaction of subgrade soils should be within +1 to +3% of the proctor optimum value.

Select fill should then be placed, under laboratory control, in no greater than eight-inch (8") loose layers, and compacted to a minimum of 95% of the maximum dry unit weight, as obtained in the laboratory by means ASTM D-698 procedure. Moisture content of ±2% optimum should be maintained during placement of the select fill material. A vapor barrier consisting of six (6) mil Polyethylene shall be placed between the select fill and concrete slab.

The material used as select fill should consist of a non-active sandy clay or clayey sand type substance, having a Liquid Limit of 36 or less and Plasticity Index (P.I.) varying from 10 to 20.

SITE PREPARATION

In order to remedy construction problems, which may develop if attempts are made to work the surface materials following prolonged periods of rainfall which are common to this area, it is recommended that prior to starting any work at the site that proper construction drainage is to be provided to maintain a relatively dry construction site. (Use a minimum slope of 5% within 10 feet of the foundation).

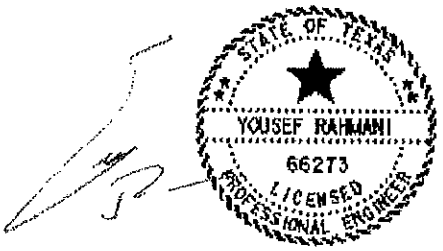
LIMITATIONS

The conclusions and recommendations given in this report are based on the analysis of the data collected for this project. Additive conclusions or recommendations made from this data by others are their responsibility.

Our study is based on the data obtained from soil borings made at the locations shown on borings plan. The nature and extent of variations between borings may become evident during construction. We should be requested to observe exposed conditions. After making these observations, and noting the engineering significance of variations, we will advise you of any changes in recommendations believed appropriate.

We appreciate this opportunity to provide our services to this project. Please let us know if you require additional information. Thank you.

Respectfully submitted for the firm,
TBPE Registration No. 4060



Yousef Rahmani, P.E.
President

Encl.: Boring Plan
Boring Logs 1 and 2
Geotechnical Chart/Symbols

Copies: 2 – Client
1- Fittz & Shipman, Inc.
1- SEL File 14260

YR/nb

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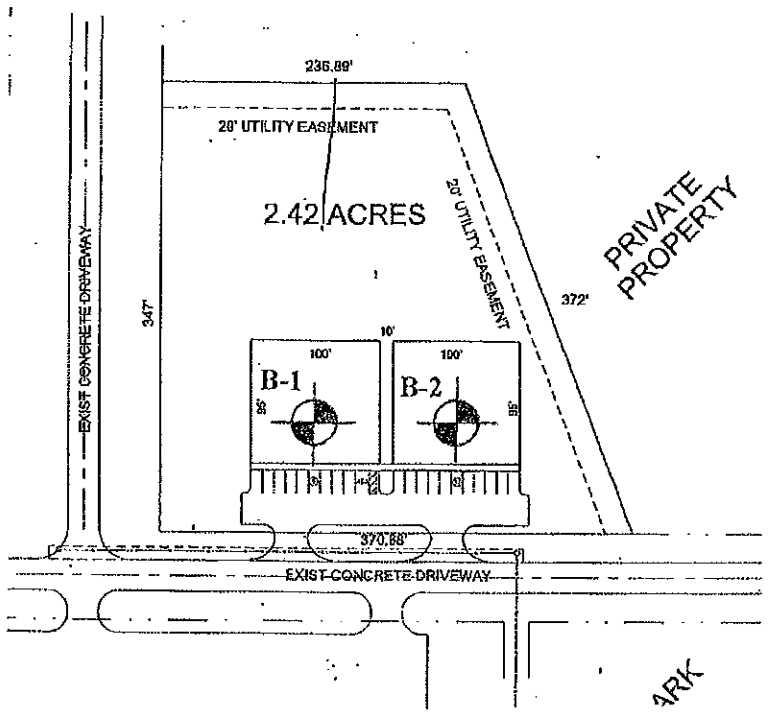
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

Report Number 14260



FORD PARK MULTI-SPORTS FACILTIY
BEAUMONT, TEXAS

BORING PLAN

NOVEMBER 2014

NOT TO SCALE

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Boring Number: B-1
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY								
							71	26	45		0.75	
											0.25	
5				CH	33	80	91	32	59		0.25	0.30
				Gray and Tan CLAY with ferrous nodules								
											0.25	
				tan and gray with slickensides	36	89	90	31	59		0.75	0.90
10												
					38	78	109	36	73		0.75	0.43
					42	81	112	40	72		0.75	0.51
15												
				CH								
				Gray SANDY CLAY								
				CL	22	99	39	19	20		0.50	0.30
20												
				Bottom at 20 feet								
				1. Water was not encountered during drilling.								
				2. Bore hole dry upon completion.								

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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Boring Number: B-2
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY							0.50	
					34	85	100	33	67		0.25	0.37
5				CH							0.25	
				Tan and Gray CLAY with ferrous nodules and slickensides	32	91	87	26	61		0.35	0.40
					29	88					0.65	0.60
10												
					39	78	108	34	74		0.75	0.50
15				CH								
				Tan and Gray SANDY CLAY								
				CL	22	107					1.00	0.85
20				Bottom at 20 feet								

1. Water was not encountered during drilling.
2. Bore hole dry upon completion.

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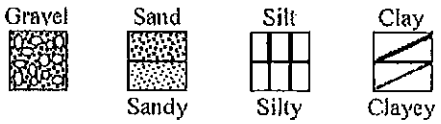
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

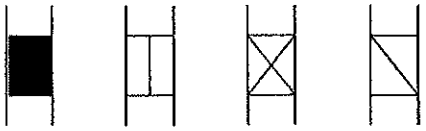
KEY TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPE



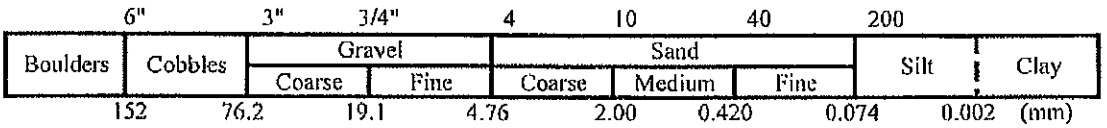
Predominant type shown heavy

SAMPLE TYPE

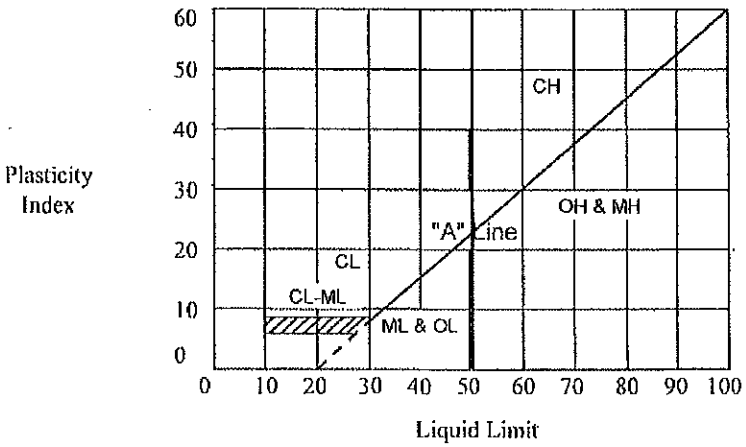


SOIL GRAIN SIZE

U.S. Standard Sieve



PLASTICITY CHART



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance, blows per foot	Consistency	Cohesion TSF	Plasticity Index	Degree of Plasticity
0 - 2	Very Soft	0 - 0.125	0 - 5	None
2 - 4	Soft	0.125 - 0.25	5 - 10	Low
4 - 8	Firm	0.25 - 0.5	10 - 20	Moderate
8 - 15	Stiff	0.5 - 1.0	20 - 40	Plastic
15 -30	Very Stiff	1.0 - 2.0	> 40	Highly Plastic
> 30	Hard	> 2.0		

RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance, blows per foot	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Removal of underground utilities is included in Division 22 and Division 26 Sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
2. Use only hand methods for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of [washed]crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." during earthwork operations.

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit or as indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete".

D. Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

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3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).
3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

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SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Soil treatment with termiticide.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include the EPA-Registered Label.

B. Product certificates.

C. Soil Treatment Application Report: Include the following:

1. Date and time of application.
2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Five years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Termiticides:

a. Aventis Environmental Science USA LP; Termidor.
b. Bayer Corporation; Premise 75.
c. Dow AgroSciences LLC; Dursban TC.
d. FMC Corporation, Agricultural Products Group; Prevail FT.
e. Syngenta; Demon TC.

2.2 SOIL TREATMENT

A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

B. Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

3.2 APPLYING SOIL TREATMENT

A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

1. Slabs-on-Grade: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

D. Post warning signs in areas of application.

E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

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SECTION 316329 - DRILLED CONCRETE PIERS AND SHAFTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes dry-installed drilled piers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For concrete reinforcement.

D. Welding certificates.

E. Material certificates & test reports.

1.3 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.4, "Structural Welding Code - Reinforcing Steel."

B. Drilled-Pier Standard: Comply with ACI 336.1 unless modified in this Section.

1.4 PROJECT CONDITIONS

A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for drilled piers.
2. The geotechnical report is included in Section 310000 – Geotechnical Investigation elsewhere in the Project Manual.

B. Survey Work: Engage a qualified land surveyor or professional engineer to perform surveys, layouts, and measurements for drilled piers. Before excavating, lay out each drilled pier to lines and levels required. Record actual measurements of each drilled

pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.

1. Record and maintain information pertinent to each drilled pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I. Supplement with the following:

a. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33, graded, 1-inch nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94 and potable.

D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
3. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
4. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.3 CONCRETE MIXTURES AND MIXING

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 limits as if concrete were exposed to deicing chemicals.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Proportion normal-weight concrete mixture as follows:

1. Compressive Strength (28 Days): 3000 psi.
2. Air Content: Do not air entrain concrete.

E. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Classified Excavation: Excavation is classified as standard excavation, special excavation, and obstruction removal and includes excavation to bearing elevations as follows:

1. Standard excavation includes excavation accomplished with conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work.
2. Special excavation includes excavation that requires special equipment or procedures above or below indicated depth of drilled piers where drilled-pier excavation equipment used in standard excavation, operating at maximum power, torque, and downthrust, cannot advance the shaft.
3. Obstructions: Payment for removing unanticipated boulders, concrete, masonry, or other subsurface obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.

B. Excavate shafts for drilled piers to indicated elevations. Remove loose material from bottom of excavation.

C. Notify and allow testing and inspecting agency to test and inspect bottom of excavation. If unsuitable bearing stratum is encountered, make adjustments to drilled piers as determined by Architect.

1. Do not excavate shafts deeper than elevations indicated unless approved by Architect.
2. Payment for additional authorized excavation will be according to Contract provisions for changes in the Work.

D. Temporary Casings: Install watertight steel casings of sufficient length and thickness to prevent water seepage into shaft; to withstand compressive, displacement, and withdrawal stresses; and to maintain stability of shaft walls.

1. Remove temporary casings, maintained in plumb position, during concrete placement and before initial set of concrete.

E. Bells: Excavate bells for drilled piers to shape, base thickness, and slope angle indicated. Excavate bottom of bells to level plane and remove loose material before placing concrete.

F. Tolerances: Construct drilled piers to remain within ACI 336.1 tolerances.

3.2 INSTALLATION

A. Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Place concrete in continuous operation and without segregation immediately after inspection and approval of shaft by Owner's independent testing and inspecting agency.

C. Place concrete to fall vertically down the center of drilled pier without striking sides of shaft or steel reinforcement. Vibrate top 60 inches of concrete.

D. Coordinate withdrawal of temporary casings with concrete placement to maintain at least a 60-inch head of concrete above bottom of casing. Vibrate top 60 inches of concrete after withdrawal of temporary casing.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Drilled piers.
2. Excavation.
3. Concrete.
4. Steel reinforcement welding.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Drilled-Pier Tests and Inspections: For each drilled pier, before concrete placement.

1. Soil Testing: Bottom elevations, bearing capacities, and lengths of drilled piers indicated have been estimated from available soil data. Actual elevations and drilled-pier lengths and bearing capacities will be determined by testing and inspecting agency. Final evaluations and approval of data will be determined by Architect.

D. Concrete Tests and Inspections: ACI 301.

END OF SECTION 316329

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SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Driveways and roadways.
2. Walkways.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:]

a. Fly Ash: ASTM C 618, Class C or F.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded, from a single source coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).
4. Air Content: 4-1/2 percent plus or minus 1.5 percent.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. (0.60 kg/cu. m).

C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on pavement surface according to manufacturer's written instructions.

1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch (6 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/4 inch (6 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

B. wheel stop.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

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SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type and color of joint sealant required.

C. Product certificates & test reports.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

A. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

1. Products:

a. Sonneborn, Div. of ChemRex, Inc.; Sonomeric SL-1.

2.4 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 321373

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:
   1. Chain-Link Fences: Industrial
   2. Gates: Motor operated, horizontal slide (two required)

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate framework shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

1. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified and on the following:

   a. Wind Loads: 120 MPH.
   b. Fence Height: to match existing.
   c. Material Group: IA, ASTM F 1043, Schedule 40 steel pipe.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

C. Product Certificates: For each type of chain-link fence and gate, from manufacturer.

D. Product Test Reports: For framing strength according to ASTM F 1043.

E. Operation and maintenance data.

1.4 QUALITY INSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70. Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. UL Standard: Provide gate operators that comply with UL 325.

C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators serving as a required means of access.

1.5 WARRANTY

F. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: to match existing w/ inserts.
2. Steel Wire Fabric: 0.148 inch (3.76 mm)

a. Mesh Size: 2 inches (50 mm).

b. Zinc-Coated Fabric: ASTM A 392, Type II

3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

1. Fence Height: to match existing.

2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

   a. Line Post: 2.25 by 1.70 inches..
   b. End, Corner and Pull Post: 2.375 inches in diameter.

3. Horizontal Framework Members: Top and bottom rails complying with ASTM F 1043.

4. Horizontal-Slide Gate Post: According to ASTM F 1184.
5. Brace Rails: Comply with ASTM F 1043.
6. Metallic Coating for Steel Framing:

   a. Type B zinc with organic overcoat.

2.3 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- (4.5-mm-) diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:

1. Type III, Zn-5-Al-MM alloy with minimum coating weight matching chain-link fabric coating weight

2.4 INDUSTRIAL HORIZONTAL-SLIDE GATES

A. General: Comply with ASTM F 1184 for single slide gated types (two required)
   1. Classification: Type II Cantilever Slide, Class 1 with external roller assemblies.
   2. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1184 for materials and protective coatings.
   3. Metal Pipe and Tubing Aluminum. Comply with ASTM F 699 for materials and protective coatings.

B. Frames and Bracing: Fabricate members from round, aluminum tubing with outside dimension and weight according to ASTM F 1184 and the following:
   1. Gate Fabric Height: As indicated.
   2. Gate Opening Width: As indicated.
   3. Frame Members:
      a) Tubular Aluminum: 2 inches rectangular.

   4. Bracing Members:
      a.) Tubular Aluminum: 2 inches rectangular.

C. Frame Corner Construction:
   1. Welded frame with panels assembled with bolted or riveted corner

Fitting and 5/16" diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame as indicated as required to attach barbed wire assemblies.
E. Overhead Track Assembly: Manufacture's standard track, with overhead framing supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.
F. Roller Guards: As required per ASTM F 1184 for Type II, Class 2 gates.
G. Hardware: Latches permitting operation from both sides of gate, locking devices, hangers, roller assemblies and stops fabricated from mill-finished Grade 319 aluminum-alloy casting with stainless-steel fastners.

2.4 FITTINGS

A. General: Comply with ASTM F 626.

B. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.

a. Polymer coating over metallic coating.

2. Aluminum: Mill finish.

2.5 BARBED WIRE

A. Steel Barbed Wire: Comply with ASTM A 121, for two-strand barbed wire, 0.099-inch- (2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, four-point round barbs spaced not more than 5 inches (127 mm) o.c.

1. Zinc Coating: Type Z, Class 3.

2.6 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at

Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

2.7 GATE OPERATORS

A. General: Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
   1. Provide HySecurity, Model 222 E-ST (02827 HYS), Extra Duty Slide Gate Operator with Smart Touch Controller.

B. Comply with NFPA 70.

C. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG-1 and the following:

   1. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
   2. Horsepower: 1 HP.
   3. Phase: One.

D. Gate Operators: Concrete base/pad mounted and as follows:

   1. Hydraulic Slide Gate Operators:

      a. Duty: Heavy-duty, commercial/industrial.

E. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure and with space for additional optional equipment. Provide station remote-control device(s).

F. Vehicle Detector: Exit Gate Only, (east gate). Presence system including automatic closing timer with adjustable time delay before closing and timer cut-off switch; designed to open and close gate.

G. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.

H. Accessories:

   1. Warning Module: Audio/Visual, ADA-compliant, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.

2. Battery Backup System: Battery-powered drive and access control system, independent of primary drive system.
3. Intercom System:
4. Instructional, Safety, and Warning Labels and Signs: According to UL 325.

I. Tie Wires: Attach wire per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothinh.

J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

K. Barbed Wire: Uniformly spaced, angled toward security side of fence. Pull wire taut and install securely to extension arms and secure to end post or terminal arms.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

D. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

E. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

G. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment.

H. Line Posts: Space line posts uniformly at 10 feet o.c.

I. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing.

J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage unless otherwise indicated.

K. Barbed Wire: Install barbed wire uniformly spaced, angled toward security side of fence. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.

L. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

M. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 323113

H.B. Neild & Sons, Inc.
P. O. Box 22555 Beaumont, Texas 77720

Bid Name: Ford Fields Concession Stand
Bid No: IFB 16-002/JW
Due Date/Time: 11:00 AM, 2/16/2016

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, Texas 77701

RECEIVED 10:56 AM FEB 16 2016

CONSTRUCTION MANUAL

Ford Fields

FORD FIELDS

CONCESSION STAND

5115 IH-10 South, Beaumont, Texas

PROJECT #15036

The LaBiche
ARCHITECTURAL GROUP, INC.

7999 Gladys Ave., Suite 101
Beaumont, Texas 77706
409-860-0197

REGISTERED ARCHITECT
JOHN H. LaBICHE
11592
STATE OF TEXAS

1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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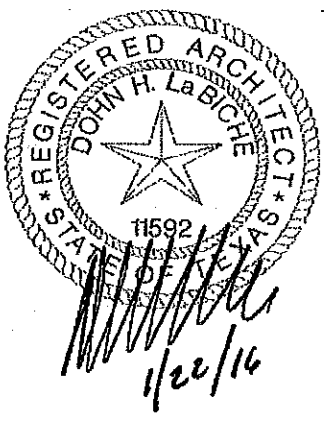

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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REGISTERED ARCHITECT
JOHN H. LaBICHE
STATE OF TEXAS
11592
1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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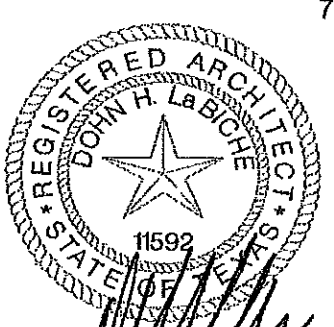

1/22/16

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1001 Pearl Street, 3rd Floor, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

January 19, 2016

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for IFB 16-002/JW, Ford Fields Concession Stand. **Construction Documents for this project may be obtained from the office of The LaBiche Architectural Group, Inc. by calling 409-860-0197 for access to the online drawings and specifications.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Commissioners' Courtroom at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Ford Fields Concession Stand**
BID NO:	**IFB 16-002/JW**
DUE DATE/TIME:	**11:00 AM CDT, Tuesday, February 16, 2016**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1001 Pearl Street, 3rd Floor** **Beaumont, Texas 77701**

There will be a pre-bid conference and walk-through at 10:00 AM CDT on Tuesday, February 2, 2016 at the Ford Park Ball Fields, 5115 IH10 South, Beaumont, Texas 77705.

Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these requirements should be directed to Jamey West, Assistant Purchasing Agent, at 409-835-8593.

Jefferson County encourages Disadvantaged Business Enterprises to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provisions of services. Individuals requiring special accommodations are requested to contact our office at 409-835-8593 to make arrangements no later than seven (7) calendar days prior to the submittal deadline. Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.

Deborah Clark

Deborah L. Clark
Purchasing Agent
Jefferson County, Texas
Publish: Beaumont Enterprise & Port Arthur News – January 20th & January 27th, 2016

IFB 16-002/JW
Ford Fields Concession Stand
Bids due: 11:00 AM CDT, February 16, 2016

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BIDDER IS RESPONSIBLE FOR RETURNING ALL REQUIRED PAGES (MARKED WITH AN "X" ABOVE) WITH THE BID. ADDITIONALLY, BIDDER MUST MONITOR THE PURCHASING WEB SITE (HTTP://WWW.CO.JEFFERSON.TX.US/PURCHASING/MAIN.HTM) TO SEE IF ADDENDA OR ADDITIONAL INSTRUCTIONS HAVE BEEN POSTED. FAILURE TO RETURN ALL REQUIRED FORMS COULD RESULT IN A BID BEING DECLARED AS NON-RESPONSIVE.

Instructions to Bidders

1. Bid Submission

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, TX 77701

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

All bids shall be tightly sealed in an opaque envelope and plainly marked with the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

2. Courthouse Security

Bidders are advised that all visitors to the Courthouse must pass through Security. **Bidders planning to hand deliver bids must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal.** Mondays and Tuesdays are particularly heavy days. Bidders are strongly urged to plan accordingly.

3. Preparation of Bids

The bid shall be legibly printed in ink or typed.

If a unit price or extension already entered is to be altered, it shall be crossed out and initialed in ink by the bidder.

The bid shall be legally signed and shall include the complete address of the bidder.

Jefferson County is exempt from Federal and State Sales Taxes, and such taxes shall not be included in bid prices.

4. Signatures

All bids, notifications, claims, and statements must be signed by an individual authorized to bind the bidder. The individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

5. County Holidays -- 2016:

January 1	Friday	New Year's Day
January 18	Monday	Martin Luther King, Jr. Day
February 15	Monday	President's Day
March 25	Friday	Good Friday
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24 & 25	Thursday & Friday	Thanksgiving
December 26-27	Monday & Tuesday	Christmas

6. Rejection or Withdrawal

Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive any informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date.

7. Emergency/Declared Disaster Requirements

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s). Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

8. Award

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected. Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial nonconformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

9. Contract

A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by mutually agreed terms and conditions in the contract documents.

10. Waiver of Subrogation

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

11. Fiscal Funding

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

12. Bid Results

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page (http://co.jefferson.tx.us/ purchasing/main.htm) as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

13. Changes and Addenda to Bid Documents

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

14. Specifications

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

15. Delivery

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

16. Interpretation of Bid and/or Contract Documents

All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

17. Currency

Prices calculated by the bidder shall be stated in U.S. dollars.

18. Pricing

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

19. Notice to Proceed/Purchase Order

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

20. Certification

By signing the offer section of the Offer and Acceptance page, bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.

- The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.

21. Definitions

"County" – Jefferson County, Texas.

"Contractor" – The bidder whose proposal is accepted by Jefferson County.

22. Minority-Women Business Enterprise Participation

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

General Conditions of Bidding and Terms of Contract

By execution of this document, the vendor accepts all general and special conditions of the contract as outlined below and in the specifications and plans.

1. Bidding

1.1 Bids. All bids must be submitted on the bid form furnished in this package.

1.2 Authorized Signatures. The bid must be executed personally by the vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the vendor shall accompany the bid to become a valid bid.

1.3 Late Bids. Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.4 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 Withdrawal of Bids after Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.6 Bid Amounts. Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.7 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.8 Alternates. The Invitation for Bid and/or specifications may expressly allow bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.9 Descriptions. Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.10 Bid Alterations. Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.11 Tax Exempt Status. Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.12 Quantities. Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.13 Bid Award. Award of contract shall be made to the most responsible, responsive bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended. Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.14 Silence of Specifications for Complete Units. All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.15 Addenda. Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.16 General Bid Bond/Surety Requirements. Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.17 General Insurance Requirements. Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 Responsiveness. A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 Responsible Standing of Bidder. To be considered for award, bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.20 Proprietary Data. Bidder may, by written request, indicate as confidential any portion(s) of a bid that contain proprietary information, including manufacturing and/or design processes exclusive to the vendor. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.

1.21 Public Bid Opening. Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. Performance

2.1 Design, Strength, and Quality. Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be

regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 Age and Manufacture. All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 Delivery Location. All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 Delivery Charges. All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 Installation Charges. All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 Operating Instructions and Training. Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 Compliance with Federal, State, County, and Local Laws. Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA. The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 Samples, Demonstrations and Testing. At Jefferson County's request and direction, bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the bidder/vendor.

2.13 Acceptability. All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 Maintenance. Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on

the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 Material Safety Data Sheets. Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 Evaluation. Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. Purchase Orders and Payment

3.1 Purchase Orders. A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 Invoices. All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful bidder(s) is required to pay subcontractors within ten (10) days after the successful bidder receives payment from the County.

3.4 Funding. Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. Contract

4.1 Contract Definition. The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful bidder and Jefferson County.

4.2 Change Order. No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 Price Re-determination. A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The bidder's past experience of honor-

ing contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 Termination. Jefferson County reserves the right to terminate the contract for default if the bidder breached any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the bidder in default.

4.5 Conflict of Interest. Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 Injuries or Damages Resulting from Negligence. Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 Interest by Public Officials. No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 Warranty. The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 Uniform Commercial Code. The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 Venue. This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 Sale, Assignment, or Transfer of Contract. The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 Silence of Specifications. The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Special Requirements/Instructions

The following requirements and instructions supersede General Requirements where applicable.

1. Bid Requirement

Each bidder shall insure that all parts of the bid are **completed and returned.** The Table of Contents indicates specifically which pages need to be returned; these pages shall constitute the vendor's bid.

Vendor shall use an opaque envelope, clearly indicating on the outside the **Bid Number, Bid Description, and marked "SEALED BID".** Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB. All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court. **Bidders** shall submit (1) one original, and (2) two copies of the bid.

2. Vendor Registration: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov
Bid Respondents are highly encouraged to check their firm's SAM (System for Award Management) status prior to Bid Submission; as it is a requirement for vendors doing business with Jefferson County to be registered.

3. Awarded Vendor(s): Submission of FORM 1295 (Texas Ethics Commission)

As of January 1, 2016, per House Bill 1295, the Texas Ethics Commission (TEC) requires **all awarded vendors** to complete a Certificate of Interested Parties (FORM 1295) at time of notification of award. **Awarded Vendors** must visit the TEC website link below, enter the required information on Form 1295, and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

At the time of award, the Jefferson County Purchasing Department will submit a request to the Awarded Vendor to both:

1. Submit FORM 1295 online via the Texas Ethics Commission website link below.

2. Submit a printed copy of FORM 1295, signed by an Authorized Agent of the Awarded Vendor and notarized to the Jefferson County Purchasing Department.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at:https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4. Multiple Vendor Award

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. Delivery

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. Payment

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to: Jefferson County Auditing Department, Attention: Accounts Payable, 1149 Pearl Street, 7th floor, Beaumont, TX 77701.

7. Usage Reports

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. Insurance

The contractor (including any and all subcontractors as defined in Section 7.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

Minimum Insurance Requirements

Public Liability	$1,000,000.00
Excess Liability	$1,000,000.00

Property Insurance (policy below that is applicable to this project):
Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)
Builder's Risk Policy: Structural Coverage for Construction Projects
Installation Floater Policy: Improvements/Alterations to Existing Structure

Workers' Compensation	Statutory Coverage (see attached)

9. Workers' Compensation Insurance

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 6 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

Minimum Specifications

The following requirements and specifications supersede General Requirements where applicable. Contact Dohn H. LaBiche, FAIA (e-mail: dlabiche@labiche.com; phone: 409-860-0197), regarding any questions or comments. Please reference bid number **IFB 16-002/JW**.

Scope

FURNISH ALL MATERIALS AND LABOR FOR THE CONSTRUCTION OF A NEW CONCESSION STAND TO BE LOCATED AT FORD FIELDS.

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): 1, 2, 3, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

GADV Inc dba L&L General Contractors
Company Name

11988 FM 365
Address

Beaumont | Texas | 77705
City | State | Zip

Signature of Person Authorized to Sign

Kirk LeBlanc
Printed Name

Vice President
Title

For clarification of this offer, contact:

Kirk LeBlanc
Name

409-796-1344 | 409-796-1341
Phone | Fax

landlinc@att.net
E-mail

Bidder Shall Return Completed Form with Offer.

Bid Form

We propose to furnish all labor, material and equipment, and to perform all work necessary to construct the **Ford Fields Concession Stand** including Mechanical, Plumbing and Electrical Work, in accordance with drawings and specifications prepared by The LaBiche Architectural Group, Inc., for the following sum:

BASE BID : FOUR HUNDRED SIXTY FIVE THOUSAND DOLLARS AND 00/100

Dollars $ 465,000

Materials $ 186,000

Labor $ 279,000

We have examined the site of the Work and the nature and kind of work to be performed and have informed ourselves of all local conditions and other things that might affect the cost or difficulty of performing the Work, and we represent and warrant that we have experience in the use of materials and methods of performance specified, and that we can and will do the Work and construct the improvements with the specified materials as contemplated and indicated by the Drawings and Specifications.

Upon receipt of notice of acceptance of our bid, we agree to execute the Contract within 10 (ten) days after such notice, deliver Performance and Payment Bonds for the faithful performance of the Work, to begin work on or before the date of commencement of the Work established in the Notice to Proceed, and to complete the Work in 200 calendar days.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project on or before the date of completion shown on the "Notice to Proceed". Bidder further agrees to pay as liquidated damages, the sum of **$300.00** for each consecutive calendar day thereafter.

Acknowledgment of Addenda (if any):

Addendum 1 KL Date Received 2-8-2016

Addendum 2 KL Date Received 2-11-2016

Addendum 3 KL Date Received 2-15-2016

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: City of Orange

Address: 303 8th Street, Orange, Texas 77630

Contact Person and Title: Grants Planner

Phone: 409-988-7395 Fax: 409-988-7417

Contract Period: 10-2015 - 1-2016 Scope of Work: Concrete Splash Park

REFERENCE TWO

Government/Company Name: City of Nederland

Address: 207 N 12th Street

Contact Person and Title: Chris Duque

Phone: 409-723-1503 Fax: cduque@ci.nederland.tx.us

Contract Period: 8-2015 to 11-2015 Scope of Work: Veteran's Memorial Park

REFERENCE THREE

Government/Company Name: Diocese of Beaumont

Address: 710 Archie Street, Beaumont, Texas 77701

Contact Person and Title: Jack Moser

Phone: 409-924-4259 Fax: jmoser@dioceseofbmt.org

Contract Period: Year Round Scope of Work: 12,000 sf Religious Education Facility

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☒ **No** ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

GADV Inc dba L&L General Contractors
Bidder (Entity Name)

Signature

11988 FM 365
Street & Mailing Address

Kirk LeBlanc
Print Name

Beaumont, Texas 77705
City, State & Zip

2-16-2016
Date Signed

409-796-1344
Telephone Number

409-796-1341
Fax Number

landlinc@att.net
E-mail Address

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

N/A

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

NONE

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No N/A

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No N/A

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No N/A

D. Describe each employment or business and family relationship with the local government officer named in this section.

NONE

4

Signature of vendor doing business with the governmental entity

Kirk LeBlanc

2-16-2016

Date

Adopted 9/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☒ Yes ☐ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☒ Yes ☐ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☒ Yes ☐ No 3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☒ Yes ☐ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?

☒ Yes ☐ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☐ Yes ☐ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

L&L Intends to Self Perform the Concrete, Building Erection. JPL Electric who is a sub was notified and came to the prebid meeting but then later decided not to bid. MC Mechanical is a HVAC sub did not respond to multiple calls, there were no HUB plumbers contacted

If "No" was selected, please explain and include any pertinent documentation with your bid.
If necessary, please use a separate sheet to answer the above questions.

Kirk LeBlanc
Printed Name of Authorized Representative

Signature

Vice President
Title

2-16-2016
Date

Bidder Shall Return Completed Form with Offer.

Due to the bidding time frame we are unable to qualify all the bids prior to making a subcontractor selection. GADV Inc dba L&L General Contractors will provide this information within 48 hours from the request of the Owner if we are notified as the succesful bidder

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: _____ HUB: ☐ Yes ☐ No

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____

Prime Contract Amount: $ _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Kirk LeBlanc		2-16-2016
Printed Name of Contractor Representative	Signature of Representative	Date
To Be Announced		
Printed Name of HUB	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Due to the bidding time frame we are unable to qualify all the bids prior to making a subcontractor selection. GADV Inc dba L&L General Contractors will provide this information within 48 hours from the request of the Owner if we are notified as the succesful bidder

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Prime Contractor: GADV Inc dba L&L General Contractors HUB: ☐ Yes ☒ No

HUB Status (Gender & Ethnicity): _____

Address: 11988 FM 365, Beaumont, Texas 77705
Street City State Zip

Phone (with area code): 409-796-1344 Fax (with area code): 409-796-1341

Project Title & No.: Ford Fields Concession Stand IFB/RFP No.: 16-002/JW

Total Contract: $ TBA Total HUB Subcontract(s): $ TBA

Construction HUB Goals: 12.8% MBE:: TBA % 12.6% WBE: TBA %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American.
Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Due to the bidding time frame we are unable to qualify all the bids prior to making a subcontractor selection. GADV Inc dba L&L General Contractors will provide this information within 48 hours from the request of the Owner if we are notified as the succesful bidder

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Due to the bidding time frame we are unable to qualify all the bids prior to making a subcontractor selection. GADV Inc dba L&L General Contractors will provide this information within 48 hours from the request of the Owner if we are notified as the succesful bidder

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☒ Other: See Below

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☒ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Due to the bidding time frame we are unable to qualify all the bids prior to making a subcontractor selection. GADV Inc dba L&L General Contractors will provide this information within 48 hours from the request of the Owner if we are notified as the succesful bidder

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required.** I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): Kirk LeBlanc

Title: Vice President

Signature: _____

Date: 2-16-2016

E-mail address: landlinc@att.net

Contact person that will be in charge of invoicing for this project:

Name (print or type): Kirk LeBlanc

Title: Vice President

Date: 2-16-2016

E-mail address: landlinc@att.net

Bidder Shall Return Completed Form with Offer.

Due to the bidding time frame we are unable to qualify all the bids prior to making a subcontractor selection. GADV Inc dba L&L General Contractors will provide this information within 48 hours from the request of the Owner if we are notified as the succesful bidder

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that GADV Inc dba L&L General Contractors [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	Federal EIN 26-3262015
Company Name submitting bid/proposal:	GADV Inc dba L&L General Contractors
Mailing address:	11988 FM 365, Beaumont, Texas 77705
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas,

on this day personally appeared Kirk LeBlanc (name), who

after being by me duly sworn, did depose and say:

"I, Kirk LeBlanc (name) am a duly authorized officer of/agent

for GADV Inc dba L&L General Contractors (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said GADV Inc dba L&L General Contractors (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: GADV Inc dba L&L General Contractors

11988 FM 365, Beaumont, Texas 77705

Fax: 409-796-1341 Telephone# 409-796-1344

by: Kirk LeBlanc (print name) Title: Vice President

Signature: [signature]

SUBSCRIBED AND SWORN to before me by the above-named Kirk LeBlanc on

this the 16th day of February, 2016.

MCCLAIN ALLEN MCDONALD
Notary Public, State of Texas
My Commission Expires
January 18, 2017

[signature]
Notary Public in and for
the State of Texas

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The project is located at 5115 IH-10 South, in Beaumont, Texas.

B. The Work of this Contract consists of the furnishing of all labor, materials, services, equipment and appliances as indicated in the Drawings and Specifications.

1. **Base Bid:** Construct a new concession stand on the grounds of Ford Park Fields.

C. The Drawings and Specifications do not necessarily indicate or describe all Work required for completion of the Project. Contractor shall provide and install all incidentals reasonably inferable from the Contract Documents that are required for a complete Project.

D. These documents describe the essential elements sufficiently to determine the scope of the Project.

E. Provide all items required for complete operating systems including items not necessarily shown in these documents, but that can be reasonably inferred as being required for the complete operating system.

F. The Drawings and Specifications indicate the basic quality of materials and quality of construction required for the entire project.

G. Site Inspection: Offers' can access the site at any day and time. Access to the Sub Courthouse requires contacting County Maintenance Supervisor Mark Bernard at (409) 466-1790.

H. Inquiries Concerning Proposal and Contract Documents: Prior to submitting a proposal, technical questions concerning the proposal documents shall be directed to:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
dlabiche@labiche.com
Tel: 409/860-0197
Fax: 409/860-0198

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 CONTRACT

A. The Contract will be executed as a lump-sum agreement on the forms provided.

B. Employ subcontractors for the disconnection, re-connection and installation of all mechanical and electrical Work in conjunction with all Work required, or implied, to be performed by licensed mechanics of these disciplines:
   1. Subcontractors of Contractor shall furnish to Contractor bonds covering faithful performance of subcontract Work and payment of all obligations there under, when Contractor is required to furnish such bonds to the Owner.
   2. Subcontractors of Contractor shall purchase and maintain liability insurance as will protect him from claims, for not less than limits of liability which Contractor is required to provide to Owner.
   3. The Contractor shall include in Contract Amount costs of supervision, coordination and monitoring Work of his selected Subcontractors.

1.04 CONTRACTOR'S USE OF PREMISES

A. Contractor shall be responsible for monitoring the use of premises by Contractor's employees and Subcontractors.

B. Access routes for delivery of materials and equipment shall be as indicated by Owner. Do not use access routes other than those indicated without written permission of the Owner.

C. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site. Store materials and products only in those areas indicated for staging.

D. Protect existing lawns, sidewalks, pavements, curbs and utilities subject to damage by Work under this Contract. Repair or replace any existing Work damaged by the Contractor.

E. Parking areas for Contractor's personnel shall be on the project site to the extent it does not interfere with on-going contract Work and in areas designated by the Owner.

1.05 WORK ON PROPERTY

A. Obtain and pay all fees required applicable governing authorities, prior to commencing Work on this Project.

B. Post all notices and warning signs required by applicable governing authorities.

C. Perform Work on this Project in accordance with local codes and ordinance and utility company requirements.

1.06 WORK SEQUENCE AND CLAIMS FOR ADDITIONAL TIME

A. Construct Work in phases to accommodate Owner's occupancy requirements. During the construction period, coordinate construction schedule and operation with the Architect.

B. Claims for additional time as a result of adverse weather conditions will be considered only for weather conditions which are abnormal and if such weather conditions had an adverse effect on the scheduled construction: Rain Day claims for day(s) when Contractor is normally not on site are not legitimate. The Contractor shall document rain delays on a regular basis and submit an itemized listing to the Owner at each payment application meeting. Only requests for extra time, which prevents Work on critical activities for fifty percent (50%) or more of a scheduled workday will be considered. If no request is submitted for a given month, it will be assumed that no time was lost and the contract time shall not be adjusted.

C. No extension of time shall be deemed as waiver by the Owner of its right to terminate the contract for abandonment or delay by the Contractor. Once the Work has begun the contractor shall properly man the project in a continuous manner and proceed with all diligence to complete the project within the contract time. The Contractor must Work continuously and will not be allowed to stop activity on any weekday unless due to adverse weather of to reason pre-approved in writing by the Owner.

1.07 OWNER OCCUPANCY

A. The Owner may occupy all portions of the building and conduct normal operations during the Work. Owner occupancy shall be during the course of the normal Work day and not include evenings. Owner activities may occur on weekends. The Contractor shall fully clean the site and remove all debris and materials from the grounds on days when scheduled Owner's activities will conflict with the Work.

B. Cooperate with the Owner and schedule the Work to minimize conflicts, and to facilitate Owner's normal operations.

C. All electrical, HVAC units and controls shall remain in operation during times the building is occupied.

1.08 OWNER'S OPERATIONS

A. The Contractor shall conduct its Work in a manner to provide minimal interruption of the school campus during all construction Work. The Work shall be done at such times and in such manner and locations as to cause a minimum of inconvenience for the students, instructors, and staff. Limit operations to specific Work areas. A system of barricades, fences and enclosures shall be used by the Contractor to avoid conflict between construction and operations of the facility.

1.09 HAZARDOUS MATERIALS

A. If, during the progress of the Work, Contractor uncovers work which he believes contains asbestos or other hazardous materials, he shall immediately cease operations in the area of such discovery and notify the both the Architect and the Owner's Representative in writing.

B. Owner will arrange with the Abatement Contractor to perform necessary testing, barricades, enclosures, filtering, and ventilation in areas containing hazardous materials; decontamination, or removal and disposal of hazardous materials in accordance with requirements of authorities having jurisdiction.

C. Owner's Abatement Consultant will notify Owner's Representative and Architect in writing when it is safe to resume construction operations in the areas in question.

D. Contractor shall identify potential lead containing material hazards at the Site and oversee appropriate protective measures, including protection of persons, establishing

END OF SECTION 01010

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010300 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 REFERENCES

A. References to known standard specifications shall mean and shall refer to the latest edition of such specifications adopted and published at date of invitation to submit proposals.

B. Reference to technical society, organization or body is made in these Specifications in accordance with the following abbreviations:

AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
ANAAMM	National Association Architectural Metals Manufacturers
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
FS	Federal Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NFPA	National Fire Protection Association
NRCA	National Roofing Contractors Association
UL	Underwriters' Laboratories, Inc.

1.02 CONDITIONS

A. "General Conditions" apply with equal force to the General Contractor, Subcontractors, Work, extra Work, and the like that may be specified herein or performed in or about the building or site under this Contract.

B. For convenience of reference and to facilitate letting of subcontracts, these Specifications are separated into sections. Such separation shall not operate to make Owner an arbitrator to establish subcontract limits between subcontractors.

C. Execute Work as per Contract Documents. Make no changes therefore without having first received written permission. Where detailed information is lacking before proceeding with Work, refer matter to Architect for clarification.

D. All Work shall be executed by mechanics skilled in their respective trades. Mechanics whose Work is unsatisfactory to the Owner and/or Architect, or who are considered by the Owner to be careless, incompetent, unskilled, or otherwise objectionable, are to be dismissed from Work upon notice from the Owner.

E. The Owner will provide temporary water and electrical power required for the Work at no cost to the Contractor. The Contractor shall make necessary connections to existing fireplugs and/or tap the existing water service, and to power transformer or

other power sources at each building or site as required for performance of his Work. Coordinate all connections with the Owner's Maintenance Department.

F. Contractor shall be responsible for furnishing storage trailers, temporary security fencing, temporary fire protection, telephones, etc., as required to carry out construction operations.

G. Construction related access to the site, shall be limited to areas permitted by the Owner and/or as shown on the Drawings. It shall be the responsibility of the Contractor to prevent damage to the existing paving, to repair all damage, and to recognize and respect all traffic safety requirements and signage. Any loss or damage to the Owner's property caused by the Contractor or his workmen shall be repaired or replaced at no cost to the Owner. Restore the grounds to original condition at the completion of the Project. Remove all fences, barricades, etc. Replace all vegetation damaged by construction operations, including grass, shrubs, and trees, to the satisfaction of the Owner.

H. Work hours in general are between 7:00 am and 6:00 pm, Monday through Friday, unless an exception is granted by the Owner and Architect, or as otherwise defined by various Section of these Specifications.

I. The Contractor shall remove trash and rubbish from the Owner's premises at the end of each Workday. This shall mean that these materials shall be cleaned from the grounds and shall not be left in areas or locations other that containers specified for this purpose. Burning of combustibles will not be permitted.

1.03 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.04 PROJECT SUPERINTENDENT

A. In addition to other duties imposed by these Specifications the Project Superintendent shall meet the following requirements:

B. Show prior to the start of Work references from Owners of a minimum of five (5) previously completed jobs of similar size, complexity and construction cost.

C. Show proficiency prior to the start of the Work that the Superintendent is fluent in the English language, or if not, provide a competent and approved interpreter for such purposes. The purpose of this clause is to assure adequate communications with all parties involved in the Work.

D. The Project Superintendent shall be present at the project site at all times that any Work of this contract is underway. In the case that the Project Superintendent must be away from the project site the Contractor shall first file written documentation of the absence with the Architect at least 48-hours in advance of the new replacement. The replacement, or acting Project Superintendent, shall meet the minimum requirements defined above and elsewhere in the Specifications for the Project Superintendent. The only exception to this shall be when the Contractor, an officer of the company with

a majority share of ownership, shall be permitted to act as the Project Superintendent. A majority owner of the contracting company may act as the Project Superintendent for the entirety of the project.

E. No Work shall be performed and no subcontractor(s) shall be permitted to Work at any time when the Project Superintendent is not present.

1.05 INSURANCE CLAIMS FOR PROPERTY DAMAGES

A. In the event that any damage is incurred to the Owner's or employees property due to any act of the Contractor, the Contractor shall make payment of the claim through its own resources or via its insurance carrier within thirty (30) days of the claim occurrence.

1.06 ADDITIONAL INSPECTIONS BY ARCHITECT

A. In the event that the Contractor exceeds the completion date for whatever reason he/she shall be responsible for reimbursing the Owner through authorized change order for all costs of the Architect's staff and expenses to carry on inspection duties at the rate performed during the project before the completion date.

B. The rate of reimbursement shall be as follows:

Construction Observer	$ 65.00 per hour
Architect / Roofing Consultant	$135.00 per hour
Re-Inspection Following Substantial or Final Completion	$135.00 per hour
Mileage	$ 0.45 per mile
Other Expenses	Cost plus 10%

END OF SECTION 010300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010410 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Coordinate Work with that of other contractors and trades and on-going Work by Owner under administration of the Architect.

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 VISIT TO SITE

A. Prior to submitting his quotation for Work under this project, the Contractor shall visit the site to examine all conditions related to his Work, and to acquaint himself with these conditions. FIELD MEASUREMENTS ARE REQUIRED FOR THIS PROJECT.

B. The Contractor shall verify that existing facilities, utilities and/or conditions are adequate and if equipment, utilities, facilities or conditions are such that other items and services, in addition to those specified, are required to achieve operational systems as described herein, the Contractor shall advise the Architect of the scope and costs of necessary additional Work or services at the time of proposal submittal.

1.04 CONSTRUCTION MOBILIZATION

A. The Contractor shall attend the scheduled pre-construction conference as directed by the Architect and Owner for the purpose of project coordination.

B. Cooperate with the Owner and Architect in location of mobilization areas on site for access, traffic, and parking facilities. During construction coordinate use of site and facilities through the Architect and Owner.

C. Comply with the Architect's procedures for intra-project communications: Submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Architect for use of temporary facilities.

E. Coordinate field and layout Work under instructions of the Architect.

1.05 SUBMITTALS TO THE ARCHITECT

A. All submittals for this project will be required to be submitted at the same time and shall be in accordance with requirements of Section 010300. The Contractor shall provide submittals covering all materials specified in the Specifications. Any changes from the existing Work or sheet metal profiles shown in the Drawings will be forwarded in the

form of shop drawings to the Architect by facsimile prior to beginning fabrication or installation. Update and provide revised schedules at each pay application meeting.

B. Deliver submittals to the Architect for transmittal to all required parties. The office of the Architect is located as follows:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
Tel: 409/860-0197
Fax: 409/860-0198

C. Submit written requests for interpretation of Contract Documents and obtain instructions through the Architect.

1.06 COORDINATION DRAWINGS

A. Provide information required by the Architect for preparation of coordination drawings.

B. Review Drawings carefully prior to submission of all submittals to the Architect.

1.07 CLOSEOUT PROCEDURES

Submit in accordance with Section 017000.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 010410

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010450 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of Work.

B. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other Work, and subsequent fitting and patching required for restoration of surfaces to their original condition.
   1. "Cutting and patching" is performed for coordination of the Work, to uncover Work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 SUBMITTALS

A. Submit written request in advance of cutting or alteration, which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather-exposed or moisture-resistant element.
   3. Efficiency, maintenance, or safety of any operational equipment.
   4. Visual qualities of sight-exposed elements.
   5. Work of Owner or separate contractor.

B. Include in request:
   1. Identification of Project.
   2. Location and description of affected Work.
   3. Necessity for cutting or alteration.
   4. Description of proposed Work, and products to be used.
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the Work.
      c. Products proposed to be used.
      d. Extent of re-finishing.
      e. Cost proposal when applicable.
      f. Alternatives to cutting and patching.
   5. Effect on Work of Owner or separate contractor, if any
   6. Written permission of affected separate contractor, if any.
   7. Date and time Work will be executed.

1.04 QUALITY ASSURANCE

Requirements for Structural Work: Do not cut or alter any structural Work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated, or as directed by the Owner, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Those required for original installation.

C. No substitutions of materials will be accepted after proposals are submitted.

PART 3 - EXECUTION

3.01 GENERAL

A. Execute cutting, fitting and patching including excavation and fill, to complete Work and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

3.02 INSPECTION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the Work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the Work.

B. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

C. After uncovering, inspect conditions affecting performance of Work.

D. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

A. Provide supports to assure structural integrity of surroundings, devices and methods to protect other portions of Work from damage.

B. Provide protection from elements for areas, which may be exposed by uncovering Work; maintain excavations and openings free of water.

C. Prevent debris from entering facility; do not permit product contamination.

3.04 PERFORMANCE

A. Employ skilled workers to perform cutting and patching Work. Except as otherwise indicated or as approved by the Architect, proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut the Work using methods that are least likely to damage Work to be retained or adjoining Work. Where possible review proposed procedures with the original installer and comply with its recommendations.

C. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine, such as a carborundum saw, or core drill, to ensure a neat hole. Cut holes and slots neatly to size required with a minimum disturbance of adjacent Work. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces. Temporarily cover unused openings.

D. Patch with seams, which are durable and as invisible as possible. Comply with specified tolerances for the Work. Where feasible, inspect and test patched areas to demonstrate integrity of Work. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining Work in a manner which will eliminate evidence of patching and re-finishing.

E. Where removal of walls or partitions extends from one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall covering; replace with new materials.

F. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface of wall or ceiling containing patch, after patched area has received prime and base coat. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

G. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through roof, wall, floor or other surfaces.

H. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire rated material, full thickness of the construction element.

I. Do not leave facility open to contamination or rain; close off at end of each Work day.

J. Thoroughly clean areas and spaces where Work is performed or used as access to Work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied.

END OF SECTION 010450

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 011200 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedural requirements

B. Rehabilitation and renovations of existing spaces and materials.

C. Installation of products removed in Sections as specified.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials shall be as specified in individual Sections

B. Match existing products and Work for patching and extending Work.

C. Determine type and quality of existing products by inspection and any necessary testing, and workmanship by use of existing as a standard. Presence of a product, finish or type of Work requires that patching, extending or matching shall be performed as necessary to make Work complete and consistent with the Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move or remove items as necessary for access to alteration and renovation Work; replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, rusted metals, and deteriorated masonry and concrete: replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new Work and new finishes.

E. Close openings in exterior surfaces to protect existing Work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.03 INSTALLATION

A. Coordinate Work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.

B. Designated areas, rooms and spaces and finishes shall be complete in all respects, including operational mechanical and electrical systems.

C. Remove, cut and patch Work in a manner to minimize damage and to provide means to minimize products and finishes to specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent new finishes.

E. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full operational condition.

F. Install products as specified in individual sections.

3.04 TRANSITIONS

A. Where new Work abuts or aligns with existing make a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to the Architect for completion.

3.05 ADJUSTMENTS

Fit Work at penetrations of surfaces as specified in Section 01045.

3.06 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored or showing other imperfections.

B. Repair substrate prior to patching finish.

3.07 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersection or natural termination point.

3.08 CLEANING

In addition to cleaning specified in Section 01500, clean Owner-occupied areas of Work as required.

END OF SECTION 011200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Section:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Requested substitution will not adversely affect Contractor's construction schedule.
    c. Requested substitution has received necessary approvals of authorities having jurisdiction.
    d. Requested substitution is compatible with other portions of the Work.
    e. Requested substitution has been coordinated with other portions of the Work.
    f. Requested substitution provides specified warranty.
    g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    b. Requested substitution does not require extensive revisions to the Contract Documents.
    c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    d. Requested substitution will not adversely affect Contractor's construction schedule.
    e. Requested substitution has received necessary approvals of authorities having jurisdiction.
    f. Requested substitution is compatible with other portions of the Work.
    g. Requested substitution has been coordinated with other portions of the Work.
    h. Requested substitution provides specified warranty.
    i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has

changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of Initial Applications for Payment.
3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project Identification on the Schedule of Values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to Architect by the 23rd of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

    1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
    2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Initial progress report.
11. Report of preconstruction conference.
12. Certificates of insurance and insurance policies.

I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

FORD FIELDS CONCESSION STAND
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SECTION 013000 - SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures
B. Construction Progress Schedule
C. Shop Drawings
D. Product Data
E. Samples
F. Manufacturer's Instructions
G. Manufacturer's Certificates
H. Schedule of Required Submittals
I. Request for Substitution Form

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

1.03 PROCEDURES - BEFORE PROPOSAL OPENING

No substitute systems or materials will be considered prior to proposal opening.

1.04 PROCEDURES - AFTER PROPOSAL OPENING

A. Deliver submittals to: The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706

B. All submittals required for the project shall be submitted at the same time.

C. Transmit each item under form acceptable to the Architect in this document. Identify Project, Contractor, Subcontractor and major suppliers. Identify pertinent drawing sheet and detail number, and specification section number as appropriate. Identify any and all deviations from Contract Documents. Provide 3-inch x 5-inch space each for Contractor and Architect review stamps. Provide certification stamp on all submittal sets.

D. Submit Submittal Schedule at the same time as all other submittals.

E. All submittals including shop drawings, product data and samples for this project will be submitted at the same time to the Architect and within ten (10) days after receipt of the Notice to Proceed.

F. After Architect's review of submittal, revise and re-submit as required, identifying changes made since previous submittal.

G. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to

promptly report any inability to comply with provisions.

H. Bind sets of submittals in labeled three-ring binders identified on the outside with the project title, date, Contractor's, Architect's and Owner's names, and including a table of contents corresponding to the Specification format, with all contents correlated.

1.05 CONSTRUCTION PROGRESS SCHEDULES

A. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first Workday of each week.

B. Show submittal dates required for Shop Drawings product data and samples and product delivery dates including those, if any, identified to be furnished by the Owner.

1.06 SHOP DRAWINGS

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all shop drawings on opaque reproductions.

B. Present in a clear and thorough manner. Title each Drawing with Project Name and the same information indicated for 1.04.H above. Identify each element of Drawings by reference to sheet number and detail of the Contract Documents.

C. Identify field dimensions. Show relation to adjacent or critical features or Work or products.

1.07 PRODUCT DATA

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all product data.

B. Submit only pages that are pertinent. Mark each copy of standard printed data with yellow hi-liter to identify pertinent products, reference to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

C. Modify manufacturer standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete or cross-out information not applicable.

D. Any deviation from the Contract Documents must be clearly identified when submitted. Any items not identified will be deemed to be the items exactly as specified in the Contract Documents.

1.08 MANUFACTURER'S INSTRUCTIONS

When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

1.09 SAMPLES

A. Submit full range of manufacturer's standard colors, textures, and patterns for Owner's selection. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all samples unless otherwise indicated by these Specifications.

B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing Work.

C. Include identification on each sample, giving full information.

D. Submit the number specified in respective Specification Section: Two (2) will be retained by the Architect. Reviewed samples that may be used in the Work are indicated in the Specification Section.

1.10 FIELD SAMPLES

Provide field samples of finishes at the project site as required by individual Specification Sections. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.11 CONTRACTOR REVIEW

A. Review submittals prior to transmittal. Determine and verify field measurements, field construction criteria, manufacturer's catalog numbers and conformance of submittal with requirements of Contract Documents.

B. Coordinate submittals with requirements of Work and of Contract Documents.

C. Apply Contractor's stamp on each section of Shop Drawings and Product Data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.

D. The Contractor is encouraged not to fabricate products or begin Work which requires submittals until return of reviewed submittal with Architect's review stamp. Fabrication of items and beginning of Work when submittals have not been reviewed will be at the Contractor's risk.

1.12 SUBMITTAL REQUIREMENTS

A. Transmit submittals in such sequence to avoid delay in the Work or Work of other contracts.

B. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

C. Submit under Architect approved transmittal letter. Identify Project by title and number. Identify Work and product by Specification Section and Article Number.

1.13 RE-SUBMITTAL REQUIREMENTS

A. Make re-submittals under procedures specified for initial submittals. Identify changes made since previous submittal.

B. Re-submittals beyond the initial and a second will be reviewed by the Architect and/or his consultants at the Contractor's expense.

1.14 ARCHITECT AND OWNER REVIEW

A. The Architect and Owner and/or other authorized representative will review all submittals. Submittals will be returned to the Contractor with the Architect's review stamp affixed, and/or with the indication of any changes, which may need to be made, shown thereon, or with disapproval.

B. The Architect's review of any such Submittal shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, nor shall it relieve him from responsibility for errors of any sort in the Submittal, nor shall it in any way diminish the Contractor's obligation to conduct the Work in accordance with the Contract Documents.

C. Approval of samples shall be for design and appearance only, and such approval shall not relieve Contractor from any obligation as provided in the Contract Documents.

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REQUEST FOR SUBSTITUTION
(Attach Additional Sheets As Necessary)

From: _____
_____
To: _____
_____

Date of Request: _____
Project: Project Name
Location: Project Location
Architect's Project No.: 09015

References: Specification Section: _____ Part: _____ Paragraph: _____ Subparagraph: _____
Specified Product Name: _____ Model No.: _____
Drawing Sheet(s): _____ De tail(s): _____

Description of Proposed Substitution:
Substitute Product Name: _____ Model No.: _____
Manufacturer: _____ Address: _____ Phone: _____
Installer: _____ Address: _____ Phone: _____
Reason for not providing specified item: _____
_____
Differences between proposed substitution and specified product: _____
_____
_____
☐ Point-by-point comparative data attached (Required for analysis and review by Architect)

Substitution Product History: ☐ New Product ☐ 2 to 5 Years Old ☐ 5 to 10 Years Old ☐ More than 10 Years Old
Similar Installations of Proposed Product:
Project: _____ Architect: _____ Phone: _____
Project Address: _____ Owner: _____ Phone: _____
_____ Date Product Installed: _____

Effect of Proposed Substitution:
Acceptance of proposed substitute will require the following change in Contract Sum and Contract Time:
☐ No Change In Contract Sum ☐ No Change in Contract Time
☐ Increase Contract Sum By $ _____ ☐ Increase Contract Time By _____ Calendar Days
☐ Decrease Contract Sum By $ _____ ☐ Decrease Contract Time By _____ Calendar Days.
Effect of proposed request for substitution on (Attach additional sheets if necessary):
a. Change in Construction Progress Schedule: ☐ No Effect ☐ _____
_____
b. Changes required in details and construction of related work: ☐ No Change ☐ Yes, Explain: _____
_____
c. Change in warranty requirements: ☐ No Change ☐ _____

Representations by Contractor: (1) Substitute item is equivalent or superior to that specified in quality and durability, design, appearance, function, finish, performance, is of size and weight that will permit installation in spaces provided, and that will allow adequate service access; (2) Substitute item is compatible with other portions of the Work; (3) Substitute item has been coordinated with other portions of the Work; (4) Substitute item has received necessary approvals from authorities having jurisdiction; (5) Substitute item is consistent with the Contract Documents and will produce the intended results; (6) Substitute item provides specified warranty; and (7) If requested substitution involves more than one contractor, or subcontractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors, or subcontractors involved.

_____ _____
(Signature) (Typed or Printed Name and Title) (Date)

END OF SECTION 013000

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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Project meetings.
3. Requests for Interpretation (RFIs).

B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque copies of each submittal. Architect will return four copies.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. LEED requirements.
    l. Preparation of Record Documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Owner's occupancy requirements.
    p. Responsibility for temporary facilities and controls.
    q. Construction waste management and recycling.
    r. Parking availability.
    s. Office, work, and storage areas.
    t. Equipment deliveries and priorities.
    u. First aid.
    v. Security.
    w. Progress cleaning.
    x. Working hours.

3. Minutes: Record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at monthly intervals in conjunction with the review of the month's payment request. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) RFIs.
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Hard-Copy RFIs:

1. Identify each page of attachments with the RFI number and sequential page number.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Daily construction reports.
4. Field condition reports.

B. See Division 01 Section "Payment Procedures" for submitting the Schedule of Values.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

C. Daily Construction Reports: Submit three copies at monthly intervals.

D. Field Condition Reports: Submit three copies at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than seven days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

6. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.

C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.

D. See Division 01 Section "Closeout Procedures" for submitting warranties.

E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810 or approved Contractor Transmittal Form.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked approved on Architect's Submittal review form attached at the end of this section.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating approval taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Approval by the Architect and Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

   a. Manufacturer's written recommendations.
   b. Manufacturer's product specifications.
   c. Manufacturer's installation instructions.
   d. Manufacturer's catalog cuts.
   e. Wiring diagrams showing factory-installed wiring.
   f. Printed performance curves.
   g. Operational range diagrams.
   h. Compliance with specified referenced standards.
   i. Testing by recognized testing agency.

4. Number of Copies: Submit seven copies of Product Data, unless otherwise indicated. Architect will return five copies. Mark up and retain two returned copies as Project Record Documents.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
   f. Shopwork manufacturing instructions.
   g. Templates and patterns.
   h. Schedules.
   i. Notation of coordination requirements.
   j. Notation of dimensions established by field measurement.
   k. Relationship to adjoining construction clearly indicated.
   l. Seal and signature of professional engineer if specified.
   m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque (bond) copies of each submittal. Architect will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

   a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

   1. Number of Copies: Submit seven copies of product schedule or list, unless otherwise indicated. Architect will return five copies.

F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. See sample of Architect's Shop Drawing Review Sheet at the end of this section.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

Submittals not required by the Contract Documents may not be reviewed and may be discarded.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

The LaBiche
ARCHITECTURAL GROUP, INC.

Dohn H. LaBiche, FAIA - Principal
Greg Wall, AIA - Principal

7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
(409) 860-0197 • Fax (409) 860-0198

SHOP DRAWING REVIEW

Project Name: XX

Project Number: XX

Submittal For: **XX**

	No Exception		Exceptions Noted		Rejected
	Revise & Resubmit		Submit Specified Item		

NOTE:
Our checking is only to determine general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is solely responsible for confirming and correlating dimensions at the job site; for information which pertains to fabrication processes or construction techniques, and for coordinating the work of all trades. Our checking of shop drawings and submittals shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents nor for errors or emissions in the shop drawings and submittals.

By: Dohn H. LaBiche, FAIA Date:

Remarks:

END OF SECTION 013300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those

operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.6 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which situations tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

B. Special Tests and Inspections: Conducted by a qualified testing agency required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers

AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)

AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute

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CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FIBA	Federation Internationale de Basketball (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FM Approvals	FM Approvals
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)

GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)

LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association

NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections

RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BOCA	BOCA International, Inc. (See ICC)

IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials (See ICC)
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
SBCCI	Southern Building Code Congress International, Inc. (See ICC)
UBC	Uniform Building Code (See ICC)

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)

NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PBS	Public Building Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA)
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)
FS	Federal Specification
FTMS	Federal Test Method Standard (See FS)
MIL	(See MILSPEC)
MIL-STD	(See MILSPEC)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CCR	California Code of Regulations
CPUC	California Public Utilities Commission
TFS	Texas Forest Service Forest Resource Development

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

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SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. See Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.

C. See Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: type written letter on company stationary.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.

b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.

3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.

a. Fly Ash: ASTM C 618.

B. Normal-Weight Aggregates: ASTM C 33, graded, 1-inch (25-mm) nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm) nominal maximum aggregate size.

D. Water: ASTM C 94/C 94M and potable.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For steel reinforcement. Material test reports and certificates.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete".

2. ACI 318, "Building Code Requirements for Reinforced Concrete".
3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
4. CRSI, "Manual of Standard Practice".

C. Preinstallation Conference: Conduct conference with Architect and Testing Laboratory representative at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

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PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

C. See Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit two set(s) of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set of corrected Record Transparencies and two set(s) of marked-up Record Prints. Architect will initial and date each transparency and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.
b. Final Submittal: Submit two set(s) of marked-up Record Prints, and the following:

1) Record Transparencies: One (1) set.
2) Copies printed from Record Transparencies: Two (2). Print each Drawing, whether or not changes and additional information were recorded.
3) Scanned PDF document record set.

B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit two copies of each Product Data submittal.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data Include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

   a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, water leak, power failure, water outage, equipment failure and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Emergency manuals.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. See Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. See Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

C. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

D. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

E. See Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.

F. See Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. See Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 SUBMITTALS

A. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work,

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 7days of the Bid date. Requests received after that time may be considered or rejected at discretion of Architect. In no case will substitutions submitted more than 30 days after the Notice to Proceed be reviewed.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

G. Synthetic Fiber: Polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 5 inches maximum.
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

    a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after

initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. Testing Services: Tests shall be performed according to ACI 301.

2. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

3. Slump: ASTM C 143, one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

4. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 degrees F (4 deg. C) and below; when 80 degrees F (27 deg. C) and above, and one test for each set of compressive-strength specimens.

6. Compression Test Specimen: ASTM C 31, one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

7. Compressive-Strength Tests: ASTM C 39, one set for each day's pour exceeding 5 cubic yards plus additional sets for 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

B. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

D. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test results falls below specified compressive strength by more than 500 psi.

E. Test Results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for each of the 7-day tests and 28-day tests.

F. Additional Tests: The testing agency will make additional tests of in-place concrete, as directed by Architect, when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed by Architect.

END OF SECTION 033000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Wood blocking, cants, and nailers.
2. Wood furring and grounds.
3. Wood sleepers.
4. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Power-driven fasteners.
5. Powder-actuated fasteners.
6. Expansion anchors.
7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an

agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:
1. Plywood backing panels.

2.3 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exterior, AC in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plastic Wall Panel Backing Panels: Interior grade CD in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Do not splice structural members between supports unless otherwise indicated.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 066400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes plastic sheet paneling.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For plastic paneling and trim accessories.

1.3 QUALITY ASSURANCE

A. Testing Agency: Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. Glass-Fiber-Reinforced Plastic Paneling: Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D 5319.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. Crane Composites, Inc.
    b. Glasteel.
    c. Marlite.
    d. Newcourt, Inc.
    e. Nudo Products, Inc.
    f. Parkland Plastics, Inc.

2. Nominal Thickness: Not less than 0.12 inch.
3. Surface Finish: As selected by Architect from manufacturer's full range.
4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Adhesive: As recommended by plastic paneling manufacturer and with a VOC content of 50g/L or less.

C. Sealant: Mildew-resistant, single-component, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 079200 "Joint Sealants."

1. Sealant shall have a VOC content of 250 g/L or less.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that could impair adhesive bond, including oil, grease, dirt, and dust.

B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

C. Lay out paneling before installing. Locate panel joints so that trimmed panels at corners are not less than 12 inches (300 mm) wide.

3.2 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing panels, and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 066400

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers four samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

D. Product test reports.

E. Preconstruction compatibility and adhesion test reports.

F. Preconstruction field-adhesion test reports.

G. Field-adhesion test reports.

H. Warranties.

1.4 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Minimum Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

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2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF Building Systems.
b. Dow Corning Corporation.
c. GE Advanced Materials - Silicones.
d. May National Associates, Inc.
e. Pecora Corporation.
f. Polymeric Systems, Inc.
g. Schnee-Morehead, Inc.
h. Sika Corporation; Construction Products Division.
i. Tremco Incorporated.

2. Type: Single component (S).
3. Grade: Nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF Building Systems.
b. Bostik, Inc.
c. Lymtal, International, Inc.
d. May National Associates, Inc.
e. Pacific Polymers International, Inc.
f. Pecora Corporation.
g. Polymeric Systems, Inc.
h. Schnee-Morehead, Inc.
i. Sika Corporation; Construction Products Division.
j. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Traffic (T).

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Bostik, Inc.
    c. May National Associates, Inc.
    d. Pecora Corporation.
    e. Schnee-Morehead, Inc.
    f. Tremco Incorporated.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Pecora Corporation.
    b. USG Corporation.

2.6 JOINT SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

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PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Tile control and expansion joints.
   c. Joints between different materials listed above.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surface.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints between metal panels.
   c. Joints between different materials listed above.
   d. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
   e. Control and expansion joints in ceilings and other overhead surfaces.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation joints in cast-in-place concrete slabs.

b. Control and expansion joints in tile flooring.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings.
c. Tile control and expansion joints.
d. Vertical joints on exposed surfaces of interior unit masonry, concrete, walls and partitions.
e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.

2. Joint Sealant: Latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints.

2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 079200

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SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard hollow metal doors and frames to be supplied by metal building manufacturer.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required.

E. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.3 QUALITY ASSURANCE

A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Metal Building manufacturer's standard.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS, Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, CS, Type B.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I.

H. Glazing: Division 08 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Comply with ANSI/SDI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
   a. Thermal-Rated (Insulated) Doors: R-value of not less than 12.3 deg F x h x sq. ft./Btu (2.166 K x sq. m/W) when tested according to ASTM C 1363.
3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.
5. Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Comply with ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

   a. Width: 1-3/4 inches (44.5 mm).

   b. Fabricate of metallic-coated sheet.

C. Hardware Reinforcement: ANSI/SDI A250.6.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.

C. Interior Frames: Fabricated from cold-rolled steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
4. Frames for Level 1 Steel Doors: 0.042-inch- (1.0-mm-) thick steel sheet.
5. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
6. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
7. Frames for Borrowed Lights: 0.053-inch- (1.3-mm-) thick steel sheet.

D. Hardware Reinforcement: ANSI/SDI A250.6.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, same material as door face sheet.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, same material as frames.

D. Terminated Stops: Where indicated, terminate stops 6 inches (152 mm) above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

2.8 FABRICATION

A. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.

B. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow Metal Frames: Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) high.
        2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
        3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
        5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

    b. Compression Type: Not less than two anchors in each jamb.
    c. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers.

    a. Single-Door Frames: Three door silencers.
    b. Double-Door Frames: Two door silencers.

D. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 electrical Sections.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: ANSI/SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

    a. At fire-protection-rated openings, install frames according to NFPA 80.
    b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
    c. Install frames with removable glazing stops located on secure side of opening.
    d. Install door silencers in frames before grouting.
    e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
    g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

    a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. In-Place Concrete: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
4. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

B. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

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SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:

1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
2. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. Sound Transmission Characteristics: For STC-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
2. Protective Coating: manufacturer's standard corrosion-resistant zinc coating, unless otherwise indicated.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

   a. Type: Post installed, chemical anchor or Post installed, expansion anchor.

2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.

D. Flat Hangers: Steel sheet, 1 by 3/16 inch (25.4 by 4.76 mm) by length indicated.

E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38 mm).

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges, 3/4 inch (19.1 mm) deep.
2. Steel Studs: ASTM C 645.

   a. Minimum Base-Metal Thickness: 0.0312 inch (0.79 mm).
   b. Depth: 1-5/8 inches (41.3 mm).

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.

   a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).

4. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.

   a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

   a. Armstrong World Industries, Inc.; Drywall Grid Systems.
   b. Chicago Metallic Corporation; Drywall Furring System.

c. USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: As indicated on Drawings.

B. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-(50.8-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
b. Products: Subject to compliance with requirements, provide one of the following:

1) Steel Network Inc. (The); VertiClip SLD Series.
2) Superior Metal Trim; Superior Flex Track System (SFT).

C. Firestop Track: As specified in Division 07 Section "Fire-Resistive Joint Systems."

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.027 inch (0.7 mm).

E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38.1 mm).
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38.1 by 38.1 mm), 0.068-inch-(1.73-mm-) thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: As indicated on Drawings.
2. Depth: 1-1/2 inches (38.1 mm).

G. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

H. Cold-Rolled Furring Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: As indicated on Drawings.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch (0.79 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

I. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare-metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.

2.4 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.2 INSTALLING SUSPENSION SYSTEMS

A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

B. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Do not attach hangers to steel roof deck.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

C. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb, unless otherwise indicated.

b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (12.7-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

C. Direct Furring:

1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

D. Z-Furring Members:

1. Erect insulation (specified in Division 07 Section "Thermal Insulation") vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Drawn to scale and coordinating acoustical panel ceiling installation with hanger attachment to building structure and ceiling mounted items:

C. Samples: For each exposed finish.

D. Product test reports.

E. Research/evaluation reports.

F. Maintenance data.

1.3 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Anchors in Concrete: Expansion or Bonded anchors fabricated from corrosion-resistant materials, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or

ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

1. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; "Clean Room VL", unperforated square lay-in.

B. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:

1. Type and Form: Type IV, Form 2, Pattern E, Fire Class A. Wet-formed mineral fiber, vinyl-faced membrane.

C. Color: White.

D. NRC: Not less than 0.50- 0.60, Type E-400 mounting per ASTM E 795.

E. Edge/Joint Detail: Square.

F. Thickness: 5/8 inch (15 mm).

G. Modular Size: 24 by 24 inches (610 by 610 mm).

2.3 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; Prelude Plus XL, AL7200 Series, Non-rated.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders.

C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counters playing, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
2. Do not attach hangers to steel deck tabs.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

END OF SECTION 095113

FORD FIELDS CONCESSION STAND
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SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE

A. Roppe Corporation.

B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Style and Location:
   a. Style C, Butt to: Provide in areas indicated.

C. Thickness: 0.125 inch (3.2 mm).

D. Height: 6 inches.

E. Lengths: Cut lengths 48 inches (1219 mm) long or coils in manufacturer's standard length.

F. Outside Corners: Job formed or preformed.

G. Inside Corners: Job formed or preformed.

H. Colors: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Miter or cope corners to minimize open joints.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

FORD FIELDS CONCESSION STAND
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SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on exterior substrates.

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Galvanized metal.
6. Aluminum (not anodized or otherwise coated)

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles for the paint category indicated.

B. Acceptable Manufacturers:
1. ICI
2. Pittsburgh Paint
3. Sherwin Williams

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As indicated in Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:

1. SW: Loxon Block Surfacer.

2.4 PRIMERS/SEALERS

A. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams, Loxon Exterior Concrete and Masonry Primer, #A24W8300.

2.5 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive for all Metal: [MPI #79]

1. Sherwin Williams, Water Based Rust Inhibited Primer, Pro Industrial Pro-Cryl Universal Metal Primer.

2.6 WOOD PRIMERS

A. Primer, Latex for Exterior Plywood:

1. Sherwin Williams, Exterior Latex Wood Primer, B42W8041

B. Primer, Oil for Exterior Wood:[MPI #7]
1. ICI: #2110-1200.
2. Pittburgh: Speedhide exterior oil based primer.
3. SW: A-100 Exterior oil wood primer, Y24W8020.

2.7 WATER-BASED PAINTS

A. Latex, Exterior Flat (Gloss Level 1):[MPI #10.]

1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

B. Latex, Exterior Semi-Gloss (Gloss Level 5):[MPI #11]
1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

C. Light Industrial Coating, Exterior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #163.]

1. Sherwin Williams, DTM Acrylic

2.8 SOLVENT-BASED PAINTS

A. Alkyd, Exterior Gloss (Gloss Level 6) for metal handrails, doors and bollards:[MPI #9.]

1. Sherwin Williams, Pro Industrial Urethane Alkyd, #B54W151.

2.9 ALUMINUM PAINT

A. Aluminum Paint, 100% Acrylic D.T.M.: [MPI#1]
1. ICI: Devflex 4208 Series.
2. Pittsburgh: 90-Line Finish.
3. SW: Bondplex Waterbased Acrylic Aluminum, B71S200.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Portland Cement Plaster: 12 percent.
5. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Latex, exterior, matching topcoat.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior gloss (Gloss Level 6)[, MPI #119].

B. Concrete Substrates, Traffic Surfaces:

1. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
d. Additive: Manufacturer's standard additive to increase skid resistance of painted surface.

2. Solvent-Based Clear Sealer System:

a. Prime Coat: Sealer, solvent based, for concrete floors[, MPI #104].
b. Intermediate Coat: Sealer, solvent based, for concrete floors[, MPI #104].
c. Topcoat: Sealer, solvent based, for concrete floors[, MPI #104].

C. CMU Substrates:

1. Latex over Alkali-Resistant Primer System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior semi-gloss (Gloss Level 5)[, MPI #11].

D. Steel Substrates:

1. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

2. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

E. Galvanized-Metal Substrates:

1. Latex System:

2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, galvanized, water based[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

END OF SECTION 099113

FORD FIELDS CONCESSION STAND
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SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Cast iron.
6. Galvanized metal.
7. Aluminum (not anodized or otherwise coated).
8. Wood.
9. Gypsum board

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide product by one of the following:

1. Sherwin Williams
2. Pittsburgh Paint
3. ICI

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Colors: As indicated on Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:[MPI #4.]

1. Sherwin Williams Pro Mar Block Filler, B25W25.

2.4 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior:[MPI #50.]

1. Sherwin Williams Pro Mar 200 Latex Primer.

B. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams Loxon Concrete & Masonry Primer, A24W8300.

C. Primer Sealer, Interior, Institutional Low Odor/VOC:[MPI #149.]

1. Sherwin Williams Pro Mar 200 Zero VOC Primer, B28W2600.

D. Primer, Latex, for Interior Wood:[MPI #39.]

1. Sherwin Williams Multi Purpose Latex Primer, B31W8020.

E. Primer Sealer, Alkyd, Interior:[MPI #45.]

1. Sherwin Williams Pro Block Alkyd Primer, B79W8810.

F. Primer, Bonding, Water Based:[MPI #17.]

1. Sherwin Williams Adhesion Primer, B51W8050.

2.5 METAL PRIMERS

A. Primer, Rust-Inhibitive, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

B. Primer, Alkyd, Anti-Corrosive, for Metal:[MPI #79.]

1. Sherwin Williams Kem Kromik Primer, B50NZ2.

C. Primer, Galvanized, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

D. Primer, Quick Dry, for Aluminum:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

2.6 WATER-BASED PAINTS

A. Latex, Interior, Institutional Low Odor/VOC, Flat (Gloss Level 1):[MPI #143.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Flat, B30W2600.

B. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 2):[MPI #144.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Low Sheen, B24W2600.

C. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3):[MPI #145.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Eg-Shel, B20W2600.

D. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5):[MPI #147.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Semi-Gloss, B31W2600.

E. Latex, Interior, High Performance Architectural, (Gloss Level 2):[MPI #138.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Gloss, B21W2251.

F. Latex, Interior, High Performance Architectural, Semi-Gloss (Gloss Level 5):[MPI #141.]

1. Sherwin Williams Pro Industrial Zero VOC Semi-Gloss, B66W600 Series.

G. Light Industrial Coating, Interior, Water Based (Gloss Level 3):[MPI #151.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Eg-Shel, K45.

H. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #153.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Semi-Gloss, K46.

I. Light Industrial Coating, Interior, Water Based, Gloss (Gloss Level 6):[MPI #154.]

1. Sherwin Williams Pro Industrial Zero VOC Gloss, B66W600 Series.

2.7 DRY FOG/FALL COATINGS

A. Dry Fall, Latex, Flat:[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

B. Dry Fall, Water Based, for Galvanized Steel, Flat (Gloss Level 1):[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

2.8 FLOOR COATINGS

A. Floor Epoxy (Water Based), Gloss (Gloss Level 6):[MPI #212.]

1. Sherwin Williams Armor Seal 8100 Water Based Epoxy.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Latex Aggregate System:

a. Prime Coat: Textured coating, latex, flat[, MPI #42].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].

b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

B. Concrete Substrates, Traffic Surfaces:

1. Water Based Epoxy Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6).
b. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6).
c. Embed in top coat: non-sip floor addative.

C. Clay-Masonry Substrates:

1. Latex System:

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].

h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex Aggregate System:

a. Prime Coat: Primer for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
b. Intermediate Coat: Intermediate coat for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
c. Topcoat: Textured coating, latex, flat[, MPI #42].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
   b. Intermediate Coat: Alkyd, interior, matching topcoat.
   c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

D. CMU Substrates:

1. Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, matching topcoat.
   c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Sealer Coat: Primer sealer, latex, interior[, MPI #50].
   c. Intermediate Coat: Alkyd, interior, matching topcoat.
   d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

E. Steel Substrates:

1. Latex over Alkyd Primer System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, matching topcoat.
   f. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   g. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   h. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   i. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   j. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   k. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Topcoat: Dry fall, latex, flat[, MPI #118].
   f. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   g. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   h. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   i. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.

e. Intermediate Coat: Alkyd, interior, matching topcoat.
f. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
g. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
h. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
i. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

7. Quick-Drying Enamel System:

a. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
b. Intermediate Coat: Alkyd, quick dry, matching topcoat.
c. Topcoat: Alkyd, quick dry, semi-gloss (Gloss Level 5)[, MPI #81].
d. Topcoat: Alkyd, quick dry, gloss (Gloss Level 7)[, MPI #96].

8. Alkyd Dry-Fall System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Topcoat: Dry fall, alkyd, flat[, MPI #55].

9. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Intermediate Coat: Aluminum paint[, MPI #1].
f. Topcoat: Aluminum paint[, MPI #1].

F. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

a. Prime Coat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

b. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating Over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Aluminum Paint System:

a. Prime Coat: Primer, galvanized metal, as recommended in writing by topcoat manufacturer for use on galvanized-metal substrates with topcoat indicated.
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

G. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].

e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

6. Aluminum Paint System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

H. Wood Substrates: Including wood trim, architectural woodwork, doors, windows, wood-based panel products, glued-laminated construction, exposed joists and exposed beams.

1. Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].

b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[. MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

I. Wood Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].
c. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].

2. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].

J. Fiberglass and Plastic Substrates:

1. Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, matching topcoat.
    d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
    e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
    f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
    g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
    h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
    i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
    d. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
    e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
    f. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
    g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
    d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
    e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
    f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
    g. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    d. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].

e. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
f. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, bonding, water based[, MPI #17].
b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

K. Gypsum Board & Plaster Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].

d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

L. Spray-Textured Ceiling Substrates:

1. Latex (Flat) System: Spray applied.

a. Prime Coat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

2. Latex System: Spray applied.

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

c. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
d. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
e. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
f. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
g. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

4. Alkyd (Flat) System:

a. Prime Coat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
b. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

M. Cotton or Canvas and ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

4. Aluminum Paint System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

END OF SECTION 099123

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Operation and maintenance data.

C. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Failure of hydrostatic test according to NFPA 10.
   b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

FORD FIELDS CONCESSION STAND
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PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
h. Larsen's Manufacturing Company.
i. Moon-American.
j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
k. Potter Roemer LLC.
l. Pyro-Chem; Tyco Safety Products.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type : UL-rated 2-A:10:B:C 10-lb. nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Larsen's Manufacturing Company.
h. Potter Roemer LLC.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: In cabinets.

C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal roof panels.
3. Metal wall panels.
4. Thermal insulation.
5. Doors and frames.
6. Accessories.

1.2 SUBMITTALS

A. Product Data: For each type of metal building system component.

B. Shop Drawings: For metal building system components. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

E. Welding certificates.

F. Metal Building System Certificates: For each type of metal building system, from manufacturer.

1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

a. Name and location of Project.
b. Order number.
c. Name of manufacturer.
d. Name of Contractor.
e. Building dimensions including width, length, height, and roof slope.
f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
g. Governing building code and year of edition.
h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category

or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).

i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.

j. Building-Use Category: Indicate category of building use and its effect on load importance factors.

k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

G. Material test reports.

H. Source quality-control reports.

I. Field quality-control reports.

J. Maintenance data.

K. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

D. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.

E. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

1.4 WARRANTY

A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:

1. A&S Building Systems, Inc.; Division of NCI Building Systems, L.P.
2. Alliance Steel, Inc.
3. American Buildings Company; Division of Magnatrax Corp.
4. American Steel Building Co., Inc.
5. BC Steel Buildings, Inc.
6. Behlen Mfg. Co.
7. Bigbee Steel Buildings, Inc.
8. Butler Manufacturing Company; a BlueScope Steel company.
9. CBC Steel Buildings; Division of Magnatrax Corp.
10. Ceco Building Systems; Division of NCI Building Systems, L.P.
11. Chief Buildings; Division of Chief Industries, Inc.
12. Elite Structures, Inc.
13. Garco Building Systems; Division of NCI Building Systems, L.P.
14. Gulf States Manufacturers, Inc.; Division of Magnatrax Corp.
15. Inland Buildings; Subsidiary of Behlen Mfg. Co.
16. Kirby Building Systems; Division of Magnatrax Corp.
17. Mesco Building Solutions; Division of NCI Building Systems, L.P.
18. Metallic Building Company; Division of NCI Building Systems, L.P.
19. Metco Metal Supply.
20. Mid-West Steel Building Company; Division of NCI Building Systems, L.P.
21. Mueller, Inc.
22. Nucor Building Systems.

23. Oakland Metal Buildings, Inc.
24. Olympia Steel Building Systems.
25. Package Industries, Inc.
26. Pinnacle Structures, Inc.
27. Robertson Building Systems; an NCI company.
28. Ruffin Building Systems, Inc.
29. Schulte Building Systems, LLP.
30. Spirco Manufacturing.
31. Star Building Systems; an NCI company.
32. Tyler Building Systems, L.P.
33. USA, Inc.
34. VP Buildings; a United Dominion company.
35. Vulcan Steel Structures, Inc.
36. Whirlwind Building Systems.

2.2 METAL BUILDING SYSTEM PERFORMANCE

A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Metal building systems shall be designed according to procedures in MBMA's "Metal Building Systems Manual."

1. Design Loads: As indicated on Drawings.
2. Design Loads: As required by [MBMA's "Metal Building Systems Manual."] [ASCE/SEI 7.] <Insert applicable code requirement.>
3. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:

    a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
    b. Girts: Horizontal deflection of 1/240 of the span.
    c. Metal Roof Panels: Vertical deflection of 1/240 of the span.
    d. Metal Wall Panels: Horizontal deflection of 1/240 of the span.
    e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.

4. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:

    a. Lateral Drift: Maximum of 1/400 of the building height.

5. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.

C. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of

connections, and other detrimental effects. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of roof area when tested according to ASTM E 1680 at negative test-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

E. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of wall area when tested according to ASTM E 283 at static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 2.86 lbf/sq. ft. (137 Pa).

G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 2.86 lbf/sq. ft. (137 Pa).

H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for Class 90.

2.3 STRUCTURAL-STEEL FRAMING

A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.
2. Frame Configuration: One-directional sloped.
3. Exterior Column Type: Uniform depth.
4. Rafter Type: Tapered.

B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly.

C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating.

D. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide zinc-plated or hot-dip galvanized bolts for structural-framing components that are galvanized.

E. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

2.4 METAL ROOF PANELS

A. Tapered-Rib-Profile, Lap-Seam Metal Roof Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Galalume.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches.

2.5 METAL WALL PANELS

A. Tapered-Rib-Profile, Exposed-Fastener Metal Wall Panels, Panel Type "A": Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Kynar 500.
   b. Color: As selected by Architect from manufacturer's full range.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches (32 mm).

B. Corrigated Profile, Exposed-Fastener Metal Wall Panels Panel Type "B": Designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Kynar 500.
   b. Color: As selected by Architect from manufacturer's full range.

2. Corrugated Spacing: 2 ¾" o.c.
3. Panel Coverage: 29 ½".
4. Panel Height: 7/8".

2.6 THERMAL INSULATION

A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.

2.7 DOORS AND FRAMES

A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.

1. Hardware:

a. Provide hardware for each door leaf, as follows:

1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
2) Lockset: BHMA A156.2. Heavy-duty Key-in-lever cylindrical type. Cylinders shall match owners existing keyway.
3) Exit Device: BHMA A156.3. Touch- or push-bar type.
4) Threshold: BHMA A156.21. Extruded aluminum. ADA compliant.
5) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
6) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
7) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.
8) Double Doors: Provide head and sill bolts on enactive leaf. Provide heavy-duty floor mounted stops/hold open devices on both leafs of exterior doors.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.

C. Overhead Coiling type Door: Mueller W300 Windlock Roll Up Door (RUD) are approved equal.

1. Quantity: Three (3).

2. Size: 4'-6" height x 12'-0" width.

3. Operation: Manual.

4. Security: Manual locking mechanism.

2.8 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.

D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.

E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch-(2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

G. Roof Curbs: Fabricated from minimum 0.052-inch (1.32-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal roof panels; capable of withstanding loads of size and height indicated.

H. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

D. Secondary Framing: Shop fabricate framing components to size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.

   a. Joint Type: Snug tightened or pretensioned.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Locate canopy framing as indicated.
4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Steel Joists: Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Standard Specifications and Load Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
4. Bolt joists to supporting steel framework using carbon-steel bolts unless high-strength structural bolts are required by the manufacturer.

5. Comply with RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
6. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.2 METAL PANEL INSTALLATION, GENERAL

A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.3 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge[and hip] caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.

1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

3.5 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

B. Blanket Roof Insulation: Comply with the following installation method:

1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.

C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.

1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.

3.6 DOOR AND FRAME INSTALLATION

A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.

B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8.

C. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing."

D. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

1. Install surface-mounted items after finishes have been completed on substrates involved.
2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in Division 07 Section "Joint Sealants."

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide

concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Tests and Inspections:

1. High-Strength, Field-Bolted Connections: Connections shall be[tested and] inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:

   a. Liquid Penetrant Inspection: ASTM E 165.
   b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
   c. Ultrasonic Inspection: ASTM E 164.
   d. Radiographic Inspection: ASTM E 94.

D. Product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 133419

CERTIFICATION OF RESPONSIBILITY FOR

DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	NATURAL GAS PIPING/DISTRIBUTION

Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 00 - GENERAL PROVISIONS FOR PLUMBING

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	GAS DISTRIBUTION

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Plumbing subcontractor shall be the sole source responsible party to furnish and install the plumbing system. Plumbing contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 22 of these specifications, it is intended to mean the Plumbing Contractor as appropriate. These are sub contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 22 – Plumbing) under the contract with the owner. The General Contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete plumbing portion of this contract, as called for herein and on accompanying drawings. Parts of the plumbing division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items covered in the Plumbing Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Mechanical and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all plumbing systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections, meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than 7 days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Plumbing Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect. After initial surfacing has been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The plumbing piping shall be run at proper slopes and without conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire plumbing work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all plumbing work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. National Electric Code
2. National Fire Protection Association
3. American Society of Mechanical Engineers
4. Underwriters's Laboratories
5. American Gas Association
6. Energy Code for Commercial and High Rise Residential Buildings
7. International Energy Conservation Code
8. International Building Code
9. International Plumbing Code

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift pipes or to change the shape of and these changes shall be made as required. All such changes shall be referred to the Architect/Engineer for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Plumbing Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect/Engineer is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, highest quality and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between plumbing and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the sprinkler system with the structure, ceilings, lights, ductwork, etc. In some cases, due to space limitations, it may be necessary to reroute piping to meet the conditions of the project. Any rerouting required shall be part of this project and done without any additional cost to the Owner. **DO NOT MAKE PIPING WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of sewer lines with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams or concrete beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per the instructions and details of structural engineer.

F. All piping shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.

4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the Owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

I. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

J. All submittals shall be submitted prepaid and in ample time for review before installation.

K. Six (6) copies of each submittal shall be submitted to the Architect.

L. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted.**

M. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

N. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

O. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 UTILITIES

A. Connect all utilities at the points indicated on the drawings and extend such utilities to the building and to equipment or facilities requiring same.

B. Contractor shall pay all service and connection charges required by utility companies and/or site conditions (offsets, conflict boxes, etc.).

C. Contractor shall include all costs required by utility companies to extend utilities to the site. It is the responsibility of the contractor to obtain these fees from the utility companies and include those costs in the bid.

1.13 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done per the Federal, State or Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.14 EXCAVATION AND BACK FILL

A. Trench and excavation work shall include excavating, preparing of trenches, and backfilling as specified. Contractor shall install caution tape 12 inches above all piping, conduit, etc., as backfilling processes.

B. Trench and excavation work shall not include pavement breaking, cutting of holes through foundation walls and floors, removal of obstructions, relaying and/or repairing of floors, and repaving, which work shall be the responsibility of the General Contractor.

C. Contractor shall do all necessary trenching, excavation and backfilling for the proper installation of his work. Care shall be taken not to excavate below depth required, that trench beds are well rounded and that ground under pipe line is firm and secure before any pipe is laid. Trenches shall be excavated where bells of pipe occur in order to insure a pipe resting on the entire length of the bottom of the trench.

D. Unless otherwise noted, minimum cover over underground lines shall be 2-1/2 feet, except under streets and parking lots where minimum cover shall be 3 feet.

E. The width of the trench shall be sufficient to permit thorough compaction of the backfill under and around the pipe but not exceeding the external diameter of the pipe by more than 12 inches. Excavation for pipes shall be by hand and/or machine and as specified herein and shall confirm to the lines and elevations indicated on the plans.

F. The pipe shall be placed on a uniformly firm and compacted bed of sand, carefully shaped to support the pipe at the desired grade and so that any reaction will be distributed as nearly uniform as possible over a horizontal width of not less than six-tenths (6/10) of the outside diameter and all possibility of concentration of the reaction at or near the vertical diameter eliminated. The bed shall be shaped as to fit the lower part of the pipe exterior for at least 10 percent of its overall height.

G. The pipe shall be placed on a firm foundation. Any muck or other objectionable material found during excavation and preparation of the bed shall be removed and replaced with suitable bed material directed by the Architect.

H. All trenches and excavation shall be backfilled in a reasonable time after the pipes are installed unless otherwise directed by the Architect. Special care shall be taken in placing the backfill and extra care shall be used to obtain compaction under and along sides to the top of the pipe.

I. The backfill shall be placed in loose layers not exceeding 6 inches in depth under and around the pipe and not exceeding 8 inches over the pipe. Each layer shall be compacted to the compaction requirements as specified by the Architect.

J. Compaction shall be by hand and pneumatic tampers and the successive layers shall be added and compacted until the trench is completely filled and brought to elevation as directed. Back-filling shall be done in such a manner as to avoid injurious top or side pressures on the pipe.

K. Improper backfilling and compacting shall be cause to have the trench opened to expose the pipe for inspection then properly backfilled and compacted with fill material.

L. Where trenching is for piping, the bottom of the trench shall have minimum 95 percent compaction and shall be bedded with a minimum 12 inches compacted sand, crushed stone or shell on undisturbed soil (minimum 95 percent compaction).

1.15 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.16 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.17 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.18 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.19 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.20 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guideline. (Chlorination, chemical treatment, etc.)

1.21 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.22 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major plumbing equipment (water heaters, pumps, starters, mixing valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to

Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.23 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction.

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes.

1.24 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, etc., and leave entire installation in good working order.

1.25 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of his contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color samples). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.26 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.27 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.28 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all plumbing systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.29 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques.

B. Contractor shall use factory start-up personnel to train the Owner's maintenance personnel.

1.30 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspections.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.31 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.32 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
   c. Contractor, name of responsible principal, address and telephone number.
   d. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
   e. Provide owner with contact information for warranties which extend beyond one year.

1.33 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.34 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.35 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 22 05 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 03 - BASIC MATERIALS AND METHODS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 SANITARY SEWER WASTE AND VENT LINES

A. All sanitary sewer waste and vent lines above and below building slab shall be constructed of service weight bell and spigot cast iron pipe and fittings. Where space requirements do not allow the use of the above materials, government type DWV copper pipe shall be used. All cast iron pipes shall comply with Commercial Standards CS 188-59 coated with tar inside and out and marked with manufacturer's identification and proper weight classification. Joints shall be made with neoprene gaskets.

B. At contractor's option, all sanitary sewer waste and vent lines **excluding grease waste piping** may be Schedule 40 PVC plastic lines and fittings with solvent weld joints (solid core allowed only; foam or cell core not acceptable). Grease waste piping shall remain cast iron.

C. Sanitary sewer lines exterior of building (5 feet from building) **excluding grease waste piping** shall be constructed of ABS or PVC Schedule 40 type "DWV" plastic pipe and fittings (solid core allowed only; foam or cell core not acceptable). Do not mix PVC and ABS materials. Grease waste piping shall remain cast iron.

D. At contractor's option, sanitary sewer vent lines above grade may be constructed of "no hub" service weight cast iron pipe with neoprene/stainless steel clamp couplings.

2.2 DOMESTIC WATER PIPE/WATER HEATER RELIEF PIPE/EQUIPMENT DRAIN PIPE/TRAP PRIMER

A. All domestic cold water lines/hot water lines within building, water heater relief lines and equipment drain piping shall be government type "L" hard copper water tube of standard weight and thickness, unless indicated otherwise. Use 95-5 "lead free" solder on all piping above slab. Use Silfos 1000 degrees Fahrenheit solder on all piping beneath slabs. "Press-Fit" or "Pro-Press" piping is not acceptable.

B. Site water piping (beyond 5 feet of building footprint) shall be Schedule 40 PVC pipe and fittings solvent weld joints (solid core allowed only; foam or cell core not acceptable).

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for domestic water lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe unless other material is approved by the Structural Engineer. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers for cast iron pipes shall be 5 feet; for other than soil, use 10 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported piping or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures.

B. Valves and unions shall be as follows:

COPPER PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 1320	115	Crane 461	M-2882
Globe Valve	Crane 1310	1590T	Crane 359	F-2981
Unions	Crane 633		Crane Std. Gal.	
Check Valve	Crane 1303	1509	Crane 373	2974M

IRON PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 440	148	Crane 461	F2882-M
Globe Valve	Crane 7	590	Crane 359	F
Unions	Crane 633			
Check Valve	Crane 1303	1509	Crane 373	2974M

C. The following valves are considered equal to Crane Company:

CRANE	POWELL	NIBCO	HAMMOND	STOCKHAM	MV
7	150	T-235-Y	1B413T	B-22	590T
359	301	F-718-Y	1R126	G514	F2981
373	559	F918B	1R1124	G931	M2974
440	500	T113	1B640	B114	148
461	1787	F619	1R1138	G612	M-2882
1303	1825	S413(BWY)	1B943	B309	1509
1310	1823	S211(YW)	424	B14	1502
1320	1822	S113	1B647	B112	115

D. All valves, unions, etc., where pipe is chrome plated shall have similar finish. All exposed supplies to plumbing fixtures shall be chrome plated.

E. Ball valves shall be as manufactured by Milwaukee Valve (MV), Watts, Stockham, Powell, NIBCO, Neles-Jamesbury or Hammond.

	2" and Smaller	2-1/2 to 4"	Over 4"
Watts	Series B-6800	Series G-4000	Series G-4000
Neles-Jamesbury	Series 4000	Full Port Series	Full Port Series
Milwaukee Valve	BA-300	F-20CS	F-20CS

F. All valves over 2 inches shall be flanged type and full port type. All valves 2 inches and smaller shall be screw type, sweat type or flanged type as appropriate for type of pipe.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Plumbing Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Plumbing Contractor. The Electrical Contractor shall do all power wiring required for the installation of all equipment including equipment interlocking power wiring, etc. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Plumbing Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

D. Plumbing contractor shall provide and install transformers and low voltage wiring (below 120-1-60) from transformer to equipment. Electrical contractor shall provide and install power wiring to transformers.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall or ceiling where located.

B. Access panels located in rated walls, floors, ceilings, shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 SANITARY SEWER PIPE

A. Pipe ends shall be square cut. Ends of pipes shall be reamed and shall be wiped clean to remove cuttings. Before installation, pipe shall be stood on end and tapped sharply to remove cuttings and other foreign materials from interior. Pipe shall be thoroughly cleaned inside and outside. Bending or springing of pipe shall not be permitted.

B. Various service pipes, valves, fittings, etc., running parallel with each other and near together shall be in line with each other and shall be kept at a sufficient distance from

each other and other work to permit no less than 1/2 inch between finished coverings on different services.

C. Each contractor shall furnish all foundations, structural or pipe supports indicated, called for specifically or that may be required to support his particular equipment and material unless hangers are definitely indicated as being furnished by others. Sewer waste and vent lines shall be supported every 4 feet.

D. Perforated strap hangers shall not be allowed for any part of the hangers.

E. Drainage and vent pipes: Horizontal soil and waste pipes 3 inches and smaller shall have a grade of 1/4 inch per foot and line 4 inches and larger shall have a grade of 1/8 inch per foot unless otherwise specified. The main vertical soil and waste vent shall be extended full size through the wall. Cast-iron pipe inside the building shall be extended 6 inches above the floor.

F. Fittings: Changes in pipe size on soil, waste, and drain lines shall be made with reducing fittings of recessed reducers. All changes in direction shall be made by the appropriate use of 45 degree wyes, long or short sweep 1/4 bends, 1/6, 1/8, or 1/16 bends, or by a combination of those or equivalent fitting, except that single and double sanitary tees may be used in drainage lines only where the direction of flow is from horizontal to vertical. Short sweeps not less than 3 inches in diameter may be used where the change in direction of flow is either from horizontal to vertical or from vertical to horizontal.

G. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.

4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

H. Make connections to equipment and branch mains with unions.

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Install each fixture with trap, easily removable for servicing and cleaning. Each trap shall be placed as near the fixture as possible, and no fixture shall be double trapped. At completion thoroughly clean plumbing fixtures and equipment.

K. Fixture connections: Connections between earthenware fixtures and flanges on soil pipes shall be made absolutely gas tight and water tight with a closet-setting compound or gasket. Bolts shall be not less than 1/4 inch in diameter and shall be equipped with chromium-plated nuts and washers.

L. Test sanitary drainage, condensate drains and vent systems with water or air in accordance with requirements of the State Sanitary Code, International Plumbing Code and all applicable local codes. Water test may be applied to entire drainage systems or sections of systems. All openings shall be tightly closed in section to be tested except at highest opening. All portions of systems shall be subject to a minimum of 10 feet head of water. Water must have been in the system two hours prior to inspection. Air test in accordance with the Plumbing Code may be used at contractor's option.

M. Sanitary sewer or storm drain pipe penetrating concrete slabs shall be wrapped with foam insulation tape.

3.2 DOMESTIC WATER PIPE

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.

5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide non-conducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Domestic cold water lines penetrating concrete slabs shall be wrapped with vinyl flexible tube. Domestic hot or return water piping penetrating concrete slabs shall be insulated at all penetrations through slab (refer to insulation specifications).

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Hydrostatically test entire domestic water system to 200 psig or 2-1/2 times normal working pressure.

K. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

L. Sealing or flashing the building envelope due to penetrations in building shall be the responsibility of the general contractor.

M. Water service to fixtures or groups of fixtures shall have 12 inch long air chambers at the same diameter as header or service pipe on both hot and cold water lines. Air chamber shall be installed close to fixture. Provide and install shock arrestors on sterilizer water supplies or supplies with quick closing valves such as flush valves, dishwashers, tempering valves, etc. Location and size of shock arrestor shall be as per manufacturer's instructions.

END OF SECTION 22 05 03

FORD FIELDS CONCESSION STAND
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SECTION 22 05 93 - SYSTEM TESTING AND BALANCING FOR PLUMBING

PART 1 - GENERAL

1.1 SCOPE

A. Includes But Not Limited To -

1. Witnessing of all plumbing system testing required of Plumbing Subcontractor.
2. Test and Balance agency shall be present for factory start-up of equipment when factory start-up is required.

B. Related Work Specified Elsewhere -

1. The plumbing subcontractor shall address all issues as recommended by Air Balance and Testing Agency at no additional cost to Owner.

1.2 QUALITY ASSURANCE

A. Testing Agency -

1. **General Contractor shall procure services of an independent AABC or NEBB Air Balance and Testing Agency which specializes in balancing and testing of heating, ventilating, and cooling systems. These services shall not be provided by the installing Plumbing Contractor on the project but shall be direct subcontractor of the general contractor. This shall be the same contractor providing Air Balance and Testing services as indicated in Division 23.**
2. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Technician employed by Agency.
3. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
4. If requested, conduct tests in presence of Engineer.
5. Agency shall be approved in writing by Engineer. Plumbing Contractor shall not be permitted to do this work. Submit qualifications for review.

B. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of balancing test report.**

1.3 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

PART 2 - EXECUTION

2.1 Begin balance and testing upon completion of plumbing systems including installation of all specialties and devices.

A. General Contractor shall put systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance Manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

2.2 STANDARDS

A. Perform testing and balancing in complete accordance with the Associated Air Balance Council Standards for Field Measurement and Instructions, Form P1266, Volume I. Record test data on AABC standard forms or facsimile thereof.

2.3 TESTING PROCEDURE

A. Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when piping installation begins.**

B. The following minimum information shall be included in the finished report:

1. Plumbing:
The Test and Balance Contractor shall observe witness and record all plumbing tests required by these specs. The Plumbing Contractor shall contact the Test and Balance Contractor when testing is done. FAILURE TO DO SO WILL REQUIRE TESTING OF THE ENTIRE SYSTEM.

END OF SECTION 22 05 93

FORD FIELDS CONCESSION STAND
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SECTION 22 07 00 – PLUMBING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 DOMESTIC WATER PIPING

A. Cover cold water lines above ceilings and in exterior walls with 1 inch thick and all hot water lines with 1-1/2 inch thick closed cell rubber type insulation. At contractor's option, fiberglass insulation with white universal jacket may be used. All flanges, valves and fittings shall be insulated with closed cell rubber type molded fittings insulation, fabricated mitered segments of pipe insulation or closed cell rubber type insulation equivalent in thickness to insulation of adjoining pipe.

B. All water lines exposed in mechanical rooms shall be covered with 0.020 color coded PVC jacket with solvent welded seams and joints.

C. All water lines outside of building exposed to the weather shall have 1 inch thick closed cell rubber type insulation covered with 0.016 smooth aluminum jacket and elbows.

D. All water lines below building slab shall be insulated with 1 inch thick closed cell insulation with two (2) coats of mastic.

2.2 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, shall be insulated with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.3 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.4 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 22 07 00

FORD FIELDS CONCESSION STAND
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SECTION 22 10 00 - PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish all labor and materials as hereinbefore specified, indicated or reasonably implied for the complete installation of the following systems:

1. Cold Water
2. Hot Water System
3. Sanitary Drainage System

PART 2 - MATERIALS

2.1 FLOOR DRAINS

A. All floor drains shall be constructed of cast iron and shall be complete with clamping devices as required.

B. Floor drains (Marked "FD"): shall be bottom outlet with duracoated cast iron body with clamping collar and 6 inch diameter nickel bronze strainer adjustable vertically to floor level, with square perforations and vandal proof screws. Refer to fixture schedule for specific types.

2.2 CLEANOUTS

A. Cleanouts shall be provided where shown on plans, at each change of direction of the building drain greater than 45 degrees and at or near the foot of each vertical waste or soil stack. Location of all cleanouts shall be same size as piping up to 4 inches. Larger pipes shall have 4 inch cleanouts unless noted otherwise. Every cleanout shall be installed so that the cleanout opens in the direction of flow of the drainage line or at right angles thereto. Floor cleanouts shall be adjustable type, double drainage flange, clamping collar (above ground installations), 2 pound lead flashing, nickel bronze cover. Top of cleanout shall be level with top of finished floor so there is a continuous surface. Floor cleanouts shall be Jay R. Smith, Josam or Wade. Wall cleanouts shall be nickel bronze access frame and cover Zurn, Jay R. Smith, Josam or Wade. Outside cleanouts shall be installed with cover, set flush with finished grade, or as detailed on plans.

2.3 FLASHING

A. Flash around all pipes passing through roof in connection with this contract with sheet lead, not less than 2-1/2 pound to the square foot, built 6 inches into the waterproofing, running 10 inches up the pipe and turned over into the pipe cavity. Flashing around roof

drains shall be not less than 2-1/2 pound lead extending at least 12 inches from the drain rim into membrane waterproofing. Fasten flashing to drain clamp device making watertight durable joint.

2.4 EQUIPMENT FURNISHED BY OWNER AND/OR BY OTHER TRADES

A. This equipment and other miscellaneous equipment shall be furnished and set in place under other sections of these Specifications and/or by the Owner, unless specified otherwise.

B. Plumbing Contractor shall provide necessary rough-in required for the equipment and shall completely connect all plumbing services for this equipment providing cut-off valves and unions for each plumbing supply service to each piece of equipment. It is the obligation of the Plumbing Contractor to obtain correct rough-in dimension plans for this equipment as well as the equipment furnished under this contractor.

C. The various Equipment Contractors shall provide access holes for service lines that enter his equipment. This work to be performed on the job site, as necessary. Plumbing Contractor shall furnish and install escutcheons, locknut type, at these locations.

2.5 PLUMBING FIXTURES

A. Plumbing Contractor shall furnish and install all plumbing fixtures shown on accompanying drawings. Refer to both plumbing and architectural drawings and provide all fixtures shown on either. Fixtures shall be complete with all necessary brass and accessories required for a complete installation including traps, escutcheons, angle supplies, basin cocks, etc. All fixtures shall be new and must be delivered to the building properly crated in perfect condition.

B. All brass must be of the best quality, lightweight goods will not be accepted. All brass pipe shall be seamless brass tubing and nipples shall be extra heavy. All fittings and trim shall be chromium plated heavy brass unless otherwise specified. "P" traps shall be cast brass with cleanouts. All exposed piping shall be chromium plated. Provide cutoff valves at each fixture in both hot and cold water piping.

C. For the purpose of establishing type and class of fixtures required, the scheduled plate numbers have been taken from the indicated catalog. Approved equals shall be as follows: Fixtures: Kohler, Briggs, American Standard, Crane, Eljer, Elkay, Dayton, Just or Universal Rundle. Flush Valves: Sloan, Zurn. Faucets: Elkay, Just, Chicago, Kohler, American Standard, Delta Commercial, Zurn, Speakman. Water Heaters: A.O. Smith, Ruud/Rheem, State, Bradford White. Drains: Wade, J.R. Smith, Zurn, Josam. Hose Bibbs: Josam, Woodford, J.R. Smith, Wade, Zurn.

D. All vitreous china plumbing fixtures shall be manufactured in the United States, Canada or Mexico.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Prior to all work of this section, carefully inspect the installed work of adjacent trades and verify that all such work is complete to the point where fixture installation may properly commence.
2. Verify that all hangers and fixture supports are properly installed to receive plumbing fixtures.

3.2 PLUMBING FIXTURE

A. Each plumbing fixture shall be fitted with all necessary and proper fittings, trimmings and operating devices, and shall be in perfect operating condition.

B. Refer to architectural drawings for any other information that may be necessary or required in connection with plumbing installation.

C. Before setting any fixtures, obtain the exact mounting height, as desired, from the Architect.

D. Wall mounted water closets, urinals, and lavatories shall have a floor anchored carrier to fit in available wall space (coordinate requirements in drawings).

END OF SECTION 22 10 00

FORD FIELDS CONCESSION STAND
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SECTION 22 11 00 - WATER SUPPLY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Install water supply piping as indicated on plans.

PART 2 - MATERIALS

2.1 PIPING

A. All water supply piping shall be of materials hereinbefore specified.

B. All water lines shall be disinfected in accordance with the State Sanitary Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water lines run underground shall have a minimum of 24 inches cover to finished grade.

B. Make up complete water supply system. Connect to all fixtures and outlets requiring water.

C. At each fixture or group of fixtures furnish and install a 12 inch high air chamber of same size as branch feed line except at fixtures with quick closing valves such as flush valves, dishwashers, etc., in which cases provide "Shock Arrester" properly sized for each unit.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 11 00

FORD FIELDS CONCESSION STAND
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SECTION 22 13 00 - WASTE WATER DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Extend sanitary sewer lines to the location as shown on the plans.

PART 2 - MATERIALS

2.1 PIPING

A. The system of sewage and drainage shall be of materials as hereinbefore specified except where space requirements necessitate the use of Type "DWV" copper.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All work shall be in strict conformity with the International Plumbing Code and in accordance with all local codes. Piping shall be routed as shown on plans or in acceptable manner to meet building conditions. Venting shall be as shown on plumbing riser diagrams.

B. Connections between traps and cast iron pipes are to be made with heavy brass ferrules.

C. Provide reducers, increasers, special flanges, and fittings where required between piping work and fixtures in order to connect and complete work and render it ready for use. Make any offsets required to avoid construction.

D. All lines 3 inches and smaller shall be sloped 1/4 inch per foot, lines 4 inches shall be sloped 1/8 inch per foot, lines 6 inches shall be sloped 1/16 inch per foot and all lines 8 inches and larger shall be sloped 0.4 percent. Piping shall be laid so slope is continuous.

E. All vents shall extend 10 inches above roof and terminate in an appropriate flashing collar. No vents shall penetrate roof within 48 inches of an exterior wall. Offset in ceiling as required. All back vents shall be taken off as near trap as possible.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 13 00

FORD FIELDS CONCESSION STAND
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SECTION 22 16 00 – NATURAL GAS PIPING/DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Fuel gas systems, including piping, equipment and all necessary accessories as designated in this section. Fuel gas piping to equipment shall be routed as shown on plans.

1.2 RELATED WORK

A. FIRESTOPPING: Penetrations in rated enclosures.

B. PAINTING: Preparation and finish painting and identification of piping systems.

C. COMMON WORK RESULTS FOR PLUMBING.

D. GENERAL DUTY VALVES FOR PLUMBING PIPING

1.3 SUBMITTALS

A. Submit SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.

B. Manufacturer's Literature and Data:

1. Pipe & Fittings.
2. Valves.
3. Strainers.
4. All items listed in Part 2 - Products.

C. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Use the edition listed or most recent edition adopted by Local, State or Federal agencies having jurisdiction.

B. Federal Specifications (Fed. Spec.):
A-A-59617 ..... Unions, Brass or Bronze Threaded, Pipe Connections and Solder-Joint Tube Connections

C. American National Standards Institute (ANSI):
American Society of Mechanical Engineers (ASME): (Copyrighted Society)

A13.1-(2007)	Scheme for Identification of Piping Systems
B16.3-(2006)	Malleable Iron Threaded Fittings: Classes 150 and 300 ANSI/ASME
B16.9-2007	Factory-Made Wrought Steel Buttwelding Fittings ANSI/ASME
B16.11-2009	Forged Steel Fittings, Socket-Welding and Threaded ANSI/ASME
B16.15-2006	Cast Copper Alloy Threaded Fittings: Classes 125 and 250 ANSI/ASME
B31.8-2010	Gas Transmission and Distribution Piping Systems ANSI/ASME

D. American Society for Testing and Materials (ASTM):

A47-99(2009)	Standard Specification for Ferritic Malleable Iron Castings
A53-10	Standard Specification for Pipe, Steel, Black And Hot-Dipped, Zinc- coated Welded and Seamless
A183-09	Standard Specification for Carbon Steel Track Bolts and Nuts
A536-09	Standard Specification for Ductile Iron Castings
A733-03(2009)e1	Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples
B687-99(2005)e1	Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

E. National Fire Protection Association (NFPA):

54-2009	National Fuel Gas Code

F. International Code Council

IPC 2009	International Plumbing Code
IFGC 2009	International Fuel Gas Code

G. International Association of Plumbing and Mechanical Officials (IAPMO):
Uniform Plumbing Code – 2009

IS6-06	Installation Standard

H. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):

SP-72-2010	Ball Valves with Flanged or Butt-Welding For General Service
SP-110-2010	Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

1.5 SYSTEM PRESSURE

A. Natural gas systems, unless otherwise noted are designed and materials and equipment selected to prevent failure under gas pressure at downstream side of pressure regulator.

PART 2 - MATERIALS

2.1 FUEL GAS SERVICE CONNECTIONS TO BUILDING (UNDERGROUND AND/OR EXPOSED TO WEATHER)

A. From inside face of exterior wall (outside of building), use coated piping as herein before and/or herein after specified.

B. Pipe: Black Steel, ASTM A53, Schedule 40. Shop-applied pipe coating shall be one of the following types:

1. Coal Tar Enamel Coating: Exterior of pipe and fittings shall be cleaned, primed with Type B primer and coated with hot-applied coal tar enamel with bonded layer of felt wrap in accordance with AWWA C203. **Asbestos felt shall not be used**; felt material shall be fibrous glass mat as specified in Appendix Section A2.1 of AWWA C203.
2. Adhesive-thermoplastic Resin Coating: Fed. Spec. L-C-530, Type I
3. Thermosetting Epoxy Coating: Fed. Spec. L-C-530, Type II
4. Field-applied plastic tape material used on pipe joints and for repairing damaged areas of shop-applied coatings, Fed. Spec. L-T-1512, Type I, 10 mils nominal thickness for pipe joints, and Type II, 20 mils nominal thickness for coating repairs.

C. Holiday Inspections: Procedure for holiday inspection: Holiday Inspection shall be conducted on all coatings to determine the presence and number of discontinuities in those coatings referenced in 2.6/B - 1, 2, 3, and 4 using a Tinker & Rasor model AP/W Holiday Detector. Holiday inspection shall be performed in a manner spelled out in the Tinker & Rasor operating instructions and at a voltage level recommended by the coating manufacturer or applicable NACE International Standard such as RPO 274-93 or RPO 490-90 in the case thermosetting epoxy coating. Holiday Detectors shall be calibrated and supplied with a certificate of calibration from the factory. A calibration of the Holiday Detector shall be performed once every 6 months to verify output voltages are true and correct.

D. Fittings:

1. Butt weld fittings, wrought steel, ANSI B16.9.
2. Socket weld and threaded fittings forged steel, ANSI B16.11.
3. Grooved End: Ductile iron (ASTM A536, Grade 65-45-12), malleable iron (ASTM A47, Grade 32510), or steel (ASTM A53, Type F or Type E or S, Grade B).

E. Joints: Welded, ANSI B31.8.

2.2. FUEL GAS PIPING

A. Pipe: Black steel, ASTM A53, Schedule 40.

B. Nipples: Steel, ASTM A733, Schedule 40.

C. Fittings:

1. Sizes 2 inches under ANSI B 16.3 threaded malleable iron.
2. Over 2 inches and up to 4 inches ANSI B16.11 socket welded.
3. Over 4 inches ANSI 16.9 butt welded.

D. Joints: Provide welded or threaded joints.

2.3 EXPOSED FUEL GAS PIPING

A. Finished Room: Use full iron pipe size chrome plated brass piping for exposed fuel gas piping connecting fixtures, casework, cabinets, equipment and reagent racks when not concealed by apron including those furnished by the Government or specified in other sections.

1. Pipe: Fed. Spec. WW-P-351, standard weight
2. Fittings: ANSI B16.15 cast bronze threaded fittings with chrome finish, (125 and 250).
3. Nipples: ASTM B 687, Chromium-plated.
4. Unions: 2 inches and smaller Mss SP-72, SP-110, Brass or Bronze threaded with chrome finish. Unions 2-1/2 inches and larger shall be flange type with approved gaskets.
5. Valves: Mss SP-72, SP-110, Brass or bronze with chrome finish.

B. Unfinished Rooms, Mechanical Rooms and Kitchens: Chrome-plated brass piping is not required. Paint piping systems as specified in Section PAINTING.

2.4 VALVES

A. Ball Valve: Bronze body, rated for 1025 kPA at 185°C (150 psi at 365°F), 1725 kPa at 121°C (250 psi at 250°F), reinforced TFE seat, stem seal and thrust washer; end entry, threaded ends, UL-listed for natural or LP gas shut off service when used on those services.

B. Gas Vent Cocks: Type 701: Bronze body, tee handle, rated for 205 kPa at 38°C (30 psi at 100°F), ground plug, rated for tight shut-off on fuel gas service.

2.5. WATERPROOFING

A. Provide at points where pipes pass through membrane waterproofed floors or walls in contact with earth.

B. Floors: Provide cast iron stack sleeve with flashing device and a underdeck clamp. After stack is passed through sleeve, provide a waterproofed caulked joint at top hub.

C. Walls: See detail shown on drawings.

2.6 STRAINERS

A. Provide on high pressure side of pressure reducing valves, on inlet side of indicating and control instruments and equipment subject to sediment damage and where shown on drawings. Strainer element shall be removable without disconnection of piping.

B. Gas Lines: "Y" type with removable mesh lined brass strainer sleeve.

C. Body: Smaller than 3 inches, brass or bronze; 3 inches and larger, cast iron or semi-steel.

2.7 DIELECTRIC FITTINGS

A. Provide dielectric couplings or unions between ferrous and non-ferrous pipe.

2.8 GAS EQUIPMENT CONNECTORS

A. Flexible connectors with teflon core, interlocked galvanized steel protective casing, AGA certified design.

2.9 REGULATORS

A. Provide all pressure regulators for the project. Contractor shall be responsible for providing regulators properly selected for pressure, flow, and location. All regulators shall be field adjustable. All regulators shall be vented type. Regulators installed inside buildings shall have vent piping extended to the exterior of the building.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with the International Fuel Gas Code and the following:

1. Install branch piping for fuel gas and connect to all fixtures, valves, cocks, outlets, casework, cabinets and equipment, including those furnished by the Government or specified in other sections.
2. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe, shall be reamed to full size after cutting.
3. All pipe runs shall be laid out to avoid interference with other work.
4. Install valves with stem in horizontal position whenever possible. All valves shall be easily accessible.
5. Install union and shut-off valve on pressure piping at connections to equipment.
6. Pipe Hangers, Supports and Accessories:
   a. All piping shall be supported per the International Fuel Gas Code, Chapter No. 4.
   b. Shop Painting and Plating: Hangers, supports, rods, inserts and accessories used for Pipe supports shall be shop coated with zinc Chromate primer paint. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.
   c. Floor, Wall and Ceiling Plates, Supports, Hangers:
      1) Solid or split unplated cast iron, chrome plated in finished areas.
      2) All plates shall be provided with set screws.
      3) Pipe Hangers: Height adjustable clevis type.
      4) Adjustable Floor Rests and Base Flanges: Steel.
      5) Concrete Inserts: "Universal" or continuous slotted type.
      6) Hanger Rods: Mild, low carbon steel, fully threaded or Threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.
      7) Riser Clamps: Malleable iron or steel.
      8) Rollers: Cast iron.
      9) Self-drilling type expansion shields shall be "Phillips" type, with case hardened steel expander plugs.
      10) Miscellaneous Materials: As specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories.
7. Install cast chrome plated escutcheon with set screw at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.
8. Penetrations:
   a. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases. Completely fill and seal clearances between piping and openings with the fire stopping materials.
   b. Waterproofing: At floor penetrations, completely seal clearances around the pipe and make watertight with appropriate sealant.

B. Piping shall conform to the following:

1. Fuel Gas:
   a. Entire fuel gas piping installation shall be in accordance with requirements of NFPA 54.
   b. Provide fuel gas piping with plugged drip pockets at low points.

3.2. CLEANING OF SYSTEM AFTER INSTALLATION

A. Clean all piping systems to remove all dirt, coatings and debris.

3.3 TESTING

A. General: Test system either in its entirety or in sections after system is installed and cleaned.

B. Test shall be made in accordance with Section 406 of the International Fuel Gas Code. The system shall be tested at a minimum of 1.5 times maximum working pressure, but not less than 30 psig (20 kPa) gage).

END OF SECTION 22 16 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

CERTIFICATION OF RESPONSIBILITY FOR

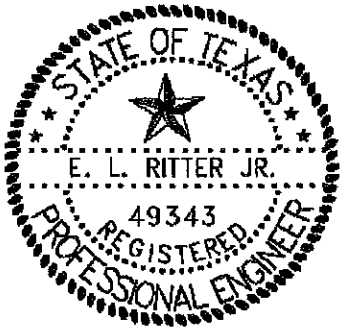
DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC



Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 00 - GENERAL PROVISIONS FOR HVAC

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Mechanical subcontractor shall be the sole source responsible party to furnish and install the mechanical system. Mechanical contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 23 of these specifications, it is intended to mean the Mechanical Contractor as appropriate. These are sub-contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 23 – Mechanical) under the contract with the owner. The General contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete mechanical portion of this contract, including air conditioning, heating, and ventilating systems as called for herein and on accompanying drawings. Parts of the mechanical division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items

covered in the Mechanical Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Plumbing and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project.**

C. It is the intention of these Specifications that all mechanical systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than seven days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Mechanical Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect/Engineer. After initial surfacing has

been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The HVAC piping shall be run in such a manner as to avoid conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire mechanical work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all mechanical work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. American Society of Heating, Refrigeration and Air Conditioning Engineers
2. National Electric Code
3. National Fire Protection Association
4. American Society of Mechanical Engineers
5. Underwriters's Laboratories
6. American Gas Association
7. Energy Code for Commercial and High Rise Residential Buildings
8. International Energy Conservation Code
9. International Building Code
10. International Mechanical Code
11. SMACNA Guidelines

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift ducts or pipes or to change the shape of ducts and these changes shall be made as required. All such changes shall be referred to the Architect for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Mechanical Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

E. Materials and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between mechanical and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the HVAC ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. **Any resizing required shall be part of this project and done without any additional cost to the Owner. DO NOT MAKE DUCTWORK WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of HVAC piping with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per instructions and details of the structural engineer.

F. All pipng shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.
4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. **HVAC ductwork shop drawings shall be prepared showing all conditions of installation coordinated with structure, lights, sprinklers, ceiling, etc. These shop drawings shall be prepared within 45 days of the award of the general contract for the project. Drawings shall be done at minimum 1/8 inch scale on 24 inch x 36 inch sheets.**

I. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

J. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

K. All submittals shall be submitted prepaid and in ample time for review before installation.

L. Six (6) copies of each submittal shall be submitted to the Architect.

M. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted (except in the case of the HVAC ductwork shop drawings).**

N. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

O. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

P. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done as per the Federal, State of Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.13 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.14 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect/Engineer prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.15 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.16 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.17 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any mechanical equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.18 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guidelines (chlorination, chemical treatment, etc.).

1.19 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.20 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major mechanical equipment (pumps, AHUs, starters, valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.21 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction. **Contractor shall provide temporary dehumidification and drying equipment as required to maintain clean, dry air during construction.**

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes, operation of refrigeration and heating system for short periods to adjust controls and temperature regulation, or the operation of fans for air balance.

1.22 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, ductwork, etc., and leave entire installation in good working order.

1.23 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of the contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, ducts, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color sample). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.24 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.25 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.26 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all mechanical systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.27 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques of the air conditioning unit.

B. Contractor shall use factory start-up personnel to train the owner's maintenance personnel.

1.28 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspection.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.29 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters. Additional warranties beyond the above shall be furnished as specified elsewhere in these specifications.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.30 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
7. Contractor, name of responsible principal, address and telephone number.
8. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
9. Provide owner with contact information for warranties which extend beyond one year.

1.31 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.32 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.33 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 23 05 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 03 - BASIC MATERIALS AND METHODS FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 REFRIGERANT PIPING/EQUIPMENT DRAIN PIPING

A. All refrigerant and equipment drain piping shall be government type "L" hard copper tube standard weight and thickness as made by Mueller, Chase, Anaconda or equivalent, unless indicated otherwise. Use Silfos 1000 degrees Fahrenheit solder on all joints.

B. Tubing shall be brought to the site with ends sealed.

2.2 A/C CONDENSATE DRAIN PIPING

A. All A/C condensate drain piping shall be government type "L" hard copper water tube of standard weight and thickness. Fittings shall be compatible with pipe. Use Silfos 1000 degrees Fahrenheit solder on all joints.

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for refrigerant piping and other copper lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers shall be 5 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported fixtures or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures, refer to Division 22.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Mechanical Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Mechanical Contractor. The Electrical Contractor shall do all power wiring required for the installation of all mechanical equipment including equipment interlocking power wiring, etc. Temperature control wiring shall be furnished and installed by the Mechanical Contractor. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Mechanical Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All motors for the mechanical equipment shall be of the 40 degrees Celsius rise type and shall be furnished and installed by the Mechanical Contractor. All motors shall be wound for +/- 10 percent of the specified voltage. Motors shall be voltages indicated on drawings. All motors shall have copper windings, Class F insulation and shall be rated for continuous duty service. All three-phase motors shall be inverter-duty type motors.

D. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

E. Starters for single phase motors 1/2 HP and below shall be furnished with pilot light and "hand-off-auto" selector switch where required.

F. Starters for three-phase, single speed motors shall be stepless solid state soft starter with "hand-off-auto" selector switch, three overload relays and auxiliary contacts as required. The starter shall operate at manufacturers ratings with 10 percent and -15 percent applied voltage tolerance and be capable of operating continuously under ambient temperatures of 0 to 50 degrees Celsius. The starter control circuitry shall be designed for current ramp operation and utilize current feedback for closed loop operation to minimize variation of acceleration time with varying load conditions. The starter shall use metal oxide varistors to clip transient voltage spikes on incoming power lines with protection to limit the rate of rise of voltage spikes to protect the SCR's from damage. The starter shall provide electronic motor overload protection. The starter shall shut down (or shall not start) to protect itself from either phase loss or phase rotation. The starter shall have adjustments for initial torque, pulse, ramp up time, ramp down time, and current limit. The starter shall have a main trip breaker to act as a disconnect and necessary contactors. The starter shall have contacts for remote starting from a building energy management system.

G. Mechanical contractor shall provide and install all smoke dampers and smoke or duct detectors. The electrical contractor shall provide and install all wiring/interlocks with fire alarm.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor, Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall of ceiling where located.

B. Access panels located in rated walls, floors, or ceilings shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 PIPING

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be

repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.

a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.

2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide nonconducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Provide drain valves at main shutoff valves, low points of piping and apparatus.

I. Provide and install air vents with shutoff valve at all high points in the system.

J. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

END OF SECTION 23 05 03

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Division 23 Specification Sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.2 SCOPE OF WORK

A. The General Contractor shall obtain the services of an independent test and balance company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s). These services shall not be provided by the installing mechanical contractor on the project but shall be a direct subcontractor of the general contractor.

1. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Heating and Ventilating Technician employed by Agency.
2. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
3. If requested, conduct tests in presence of Engineer.
4. Agency shall be approved in writing by Engineer. Mechanical Contractor shall not be permitted to do this work. Submit qualifications for review.

B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems, as described in these Specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. Refer to Plumbing Division 22 for additional work required of Air System Test and Balance agency.

C. **Test and Balance agency shall be present for factory start-up of equipment when factory startup is required.**

D. Representatives of the test and balance company shall visit the job site at 60 percent and 90 percent completion of installation of the HVAC equipment, piping and ductwork to review the installation. After each site visit, the test and balance company shall report to the Architect any items that are not installed properly, are missing from the Contract Documents or items that are required to enable him to perform the testing and balancing of the HVAC systems as per normal standard practice. After review, the Architect shall instruct the contractor to implement the recommendations at no additional cost to the Owner if these items were specified in the original scope of the project.

E. Upon completion of the HVAC system installation, the test and balance company shall perform all testing and balancing with the full cooperation of the contractor and his

subcontractors. The contractor shall make changes and/or adjustments to the HVAC system components that are required by the test and balance company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work by the contractor shall be performed at no additional cost to the Owner.

F. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of air balancing test report.**

G. Engineer will choose and direct spot balancing of one zone. Differences between the spot balance and test report will be justification for requiring repeat of testing and balancing for entire building.

1. Be prepared to spot smoke test one ducted system as directed by Architect's Engineer.
2. Rebalancing shall be done in presence of Architect and subject to his approval.
3. Spot balance and rebalance shall be performed at no additional cost to Owner.

H. The test and balance report shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. If he does not concur with the report, he shall meet with the Test and Balance Company to determine what needs to be done to obtain a properly balanced system.

I. After the Mechanical Engineer signs the testing and balancing report, the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.

1.3 The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

A. AIR SYSTEMS:
Air Handling Units
Fans
Zone Branch and Main Ducts
Diffusers, Registers, Grilles and Dampers
Coils (Air Temperatures)
Valves
Vibration Isolators
Duct Smoke/Pressure Leak Testing

1.4 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

1.5 DEFINITIONS, REFERENCES, STANDARDS

A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.6 QUALIFICATIONS

A. Agency Qualifications: The TAB agency shall be a current member of the AABC,NEBB or TABB.

B. Prior to working on this project, the technicians shall attend training provided by the manufacturer of the various equipment on this project on the specific aspects of balancing the equipment. Include letters or certificates from the manufacturer on attendance and satisfactory completion of the factory training. These certifications may be used for continuing education. At a minimum, the technicians shall receive training from the air distribution equipment manufacturer, air unit manufacturer, and temperature controls manufacturer. This should be done prior to any equipment start-ups.

1.7 SUBMITTALS

A. Qualifications: The TAB agency shall submit a company resume listing personnel and project experience in air and hydronic system balancing and a copy of the agency's test and balance engineer (TBE) or technician certificate.

B. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.

C. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

D. Submit continuing educations training on each lead technician working on the project.

1.8 TAB PREPARATION AND COORDINATION

A. Shop drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days prior to the start of TAB work.

B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.

C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all

necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution. The BCA contractor shall provide all necessary software to the TAB Agency at no additional cost.

D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.

E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

F. If, upon commencing the work, the TAB contractor finds that the systems are not ready, or if a dispute occurs as to the readiness of the systems, the TAB contractor may request an inspection to be made by the Designer's Mechanical Engineer. This inspection shall establish to the satisfaction of the represented parties whether or not the systems meet the basic requirements for testing and balancing. Items that are determined to be not ready for testing and balancing shall be completed by the Mechanical Contractor and placed in operational readiness before TAB services are again requested.

1.9 TAB REPORTS

A. Final TAB Report: The TAB agency shall submit the final TAB report for review by the Engineer. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified, along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC or NEBB "National Project Performance Guaranty" assuring that the project systems were tested, adjusted and balanced in accordance with the project Specifications and AABC or NEBB National Standards.

B. Submit four (4) copies of the final TAB report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

2.1 All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC or NEBB National Standards.

PART 3 - EXECUTION

3.1 GENERAL

A. General Contractor with Mechanical Contractor shall put heating, ventilating, and cooling systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Air Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

D. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC or NEBB National Standards. Adjustment tolerances shall be + or -10 percent unless otherwise stated.

E. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.

F. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.

G. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.

H. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 AIR SYSTEMS

A. **TESTING PROCEDURE**
Air Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements. Perform the following tests at high and low speeds of multi-speed systems and single speed system.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when ductwork installation begins. Coordinate and verify the installation of all balancing dampers, fire dampers, etc.**
2. Smoke test or pressure test each low pressure steel duct system to test for air tightness. Use zinc chloride smoke candles or titanium tetrachloride ampules (sticks) to generate smoke.

a. If ducted systems leak, do not continue with air balance. Report findings to Engineer in writing and begin testing again after Mechanical Contractor has repaired ducts or applied duct sealers.
b. If ducted systems appear air tight, proceed with air balance procedure as outlined below.
c. Include in air balance report a letter indicating smoke testing has been accomplished and a report of findings regarding airtightness of each ducted system.
d. Maximum leakage loss shall not exceed 2 percent. If losses are greater, the Mechanical Contractor shall correct the leakage, then the test and balance agency shall retest the ductwork.

3. Test and adjust blower rpm to design requirements.
4. Test and record motor full load amperes.
5. Make Pitot Tube traverse of main supply and return and obtain design cfm.
6. Test and record system static pressures, suction, and discharge.
7. Test and adjust system for design cfm air.
8. Test and adjust system for design cfm outside air.
9. Test and record entering air temperatures (db heating and cooling).
10. Test and record entering air temperatures (wb cooling).
11. Test and record leaving air temperatures (db heating and cooling).
12. Test and record leaving air temperatures (wb cooling).
13. Adjust main supply and return air ducts to proper design cfm.
14. Adjust zones to proper design cfm, supply and return.
15. Test and adjust each diffuser, grille, and register to within 10 percent of design requirements.
16. Identify each diffuser, grille, and register to location and area.
17. Identify and list size, type, and Manufacturer of diffusers, grilles, registers, and testing equipment. Use Manufacturer's rating on equipment to make required calculations.
18. In readings and tests of diffusers, grilles, and registers, include required fpm velocity and test fpm velocity and required cfm and test cfm after adjustments.
19. In cooperation with Mechanical Contractor, set adjustments of automatically operated dampers to operate as specified, indicated, or noted.
20. Adjust diffusers, grilles, and registers to minimize drafts.
21. Verify the calibration of temperature control devices, thermostats, etc.
22. Verify all control sequences with specifications.
23. Include manufacturer's performance data with reports.
24. Schedule three inspections to verify original test and balance of systems within 90 days of acceptance by Owner. Make opposite season adjustment and inspection of systems at one year after acceptance by Owner. Submit reports after each inspection. Submit schedule as part of initial report.

B. Where systems supplied to job site provides over 5 percent more air than schedule requirements, rooms supplied by that system shall have their supply air quantities increased by the ratio of the actual total air quantity supplied to the minimum air quantity required by the schedule.

C. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall

perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:

1. Fans
   a. Fan Speeds--Test and adjust fan RPM to achieve design cfm requirements.
   b. Current and Voltage--Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
   c. Pitot-Tube Traverse--Perform pitot-tube traverse of the main exhaust ducts to obtain total CFM. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
   d. Static Pressure--Test and record system static pressure, including the static pressure profile of each exhaust fan.
2. Zone, Branch, and Main Ducts
   a. Adjust ducts to within design cfm requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.
3. Diffusers, Registers, and Grilles
   a. Tolerances--Test, adjust, and balance each diffuser, grille, and register to within 10 percent of design requirements. Minimize drafts.
   b. Identification--Identify the type, location, and size of each grille, diffuser and register. This information shall be recorded on air outlet data sheets.
4. Coils
   a. Air Temperature--Once air flow are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry bulb temperature shall be taken on the entering and leaving side of each heating coil.
5. Air Handling Units:
   a. Location, manufacturer, model number, serial number, motor manufacturer, fan and motor sheaves, belts. Required and test data with unit operating at full air flow conditions (all space thermostats calling for cooling) for each of following: total CFM, return and outside air CFM, total static pressure, suction and discharge static pressures across unit fan, HP, amperage, voltage, fan RPM. Verify performance of static pressure controls, vane operators, dampers and controls. Adjust and/or change pulleys and belts as required to obtain delivery of system specified or required full load air quantities.
6. Diffusers and Grilles:
   a. Space served; type and size of diffuser or grille, specified CFM, initial test CFM and final test CFM. Each air outlet shall be adjusted for +/- 5 percent of required quantity as shown on plans.
7. Control Systems:
   a. Verify all control sequences and calibration of all thermostats and sensors.
8. Equipment Start-up:
   a. The Test and Balance Contractor shall be on site to witness and record all factory start-up of mechanical equipment. Include start-up reports in final balancing report.
9. Plumbing:
   a. Refer to Plumbing Division 22 for additional work required by the Air System Testing and Balancing Agency.

3.3 INDOOR AIR QUALITY VERIFICATION:

A. The TAB agency shall take measurements at minimum outside air. It shall measure temperature and humidity uniformity throughout the space, check filter installation for proper fit, seal and operation and verify condensate drain operation. The TAB agency shall note any water damage or obvious contamination sources from inside or outside.

B. The TAB agency shall prepare a short report showing the results and location of each test, a summary of the HVAC operating conditions, and a listing of any discrepancies.

3.4 ADDITIONAL TAB SERVICES:

A. Job Site Inspections:
During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems. Inspections shall be conducted a minimum of two times. (Typically, these are performed when 60 percent of the total system is installed and again when 90 percent of the total system is installed, prior to insulation of the duct and piping.) The TAB agency shall submit a written report of each inspection to the Architect.

B. Duct Leakage Testing:
The Installing Contractor shall isolate and seal sections of ductwork for testing. The pressurization fan and test apparatus shall be connected to the test section and the test performed. The test pressure required and the amount of duct to be tested shall be described by the engineer in the appropriate duct classification section. All testing shall be based on one test per section.

C. Verification of HVAC Controls:

1. The TAB agency shall be assisted by the building control Systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
2. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
3. Verify that all controlling instruments are calibrated and set for design operating conditions.

D. Temperature Testing:
To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than 2 degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.

E. TAB Report Verification:
At the time of final inspection, the TAB agency may be required to recheck, in the presence of the Owner's representative, specific and random selections of data, air

quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the Owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10 percent of the total number tabulated in the report.

F. Kitchen Hood Testing:
The TAB agency shall test and adjust kitchen hood total air flow by duct pitot-tube traverse if applicable under local code. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. All sealing of test holes in the exhaust duct to be by others per local code requirements. The TAB agency shall test and record face velocities in accordance with design requirements. It shall test and adjust makeup air flow (if included) to meet design face velocities and pressurization and to minimize turbulence.

G. Building/Zone Pressurization:
The TAB agency shall test and adjust building/zone pressurization by setting the design flows to meet the required flow direction and pressure differential. For positive pressure areas, it shall set the supply air to design flow, and gradually reduce the exhaust air rate to obtain the required flow or pressure difference. For negative pressure areas, it shall set the supply air to design flow, and gradually increase the exhaust air rate to obtain the required flow or pressure difference.

END OF SECTION 25 05 93

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 07 00 - MECHANICAL INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 CONDENSATE DRAIN PIPING

A. Insulate condensate drain piping with 3/4 inch thick closed cell rubber type insulation.

2.2 REFRIGERANT LINES

A. Insulate all refrigerant suction lines with 1 inch thick closed cell rubber insulation. Apply two (2) coats of black mastic where the lines are exposed to the weather. Refrigerant piping below grade shall be installed in watertight PVC sleeve.

2.3 AIR CONDITIONING DUCTWORK

A. Insulate all ducts above ceiling with one layer of 3 inch thick, 3/4 pound density flexible Fiberglass duct insulation with aluminum foil facing. Duct insulation to be applied with 2 inches lap of facing sealed with tape and outward clinch staples. Seal all joints with 2 inch wide vapor barrier tape. An additional band of tape shall be applied between the circumferential joints for a maximum 2 foot spacing of taped bands.

B. The ductwrap shall have a minimum installed R-value of 8.5 and shall comply with Energy Code requirements..

2.4 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, roof drain bodies, shall be insulated same with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.5 KITCHEN HOOD EXHAUST DUCTWORK

A. Refer to Kitchen Hood specifications section.

2.6 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.7 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 23 07 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 09 00 - TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Refer to Section 23 05 00, Section 23 05 03, Section 23 30 00 and Section 23 70 00, provisions of which apply to work under this Section.

B. All control systems shall be furnished complete and functioning.

C. Coordinate all control work with the mechanical and electrical contractors. Contact the Test and Balance Contractor and notify them as to when controls work shall be installed. Test and Balance controller shall verify controls systems installation and proper operations.

1.2 DESCRIPTION OF WORK

A. Provide a complete system of "hard-wired" automatic controls (wireless unacceptable) as indicated herein. Control system shall consist of all thermostats, sensors, actuators, operators, wiring, switches, relays and control panels necessary to accomplish the control sequence specified herein.

1.3 RELATED WORK IN OTHER SECTIONS

A. For extent of power wiring and connection to mechanical equipment under Electrical Work, refer to Division 26.

B. For control devices furnished with equipment, refer to equipment specifications and schedules. Any controls equipment not specifically called for elsewhere shall be provided by controls contractor. All control wiring shall be done by controls contractor.

C. All power for control devices such as actuators, operators, fire/smoke dampers, control dampers, etc. shall be furnished, installed and wired by the Controls Contractor. Controls Contractor may use 24 VAC or 120 VAC for the control system. The controls contractor shall be responsible for obtaining the necessary power and pay all costs associated with obtaining power to controls and controls equipment.

D. All interior control wiring shall be installed in galvanized EMT conduit. The last 6 inches at connection to equipment shall be flexible metal conduit. All control wiring on exterior of building shall be in Seal-Tite conduit and/ or Liquid Tight flexible conduit.

E. All control wiring shall be furnished and installed by this contractor.

1.4 SERVICE

A. Installing Contractor (Mechanical Contractor or subcontractor under the Mechanical Contractor) shall maintain adequate automatic control personnel on his payroll to provide back-up project control service on the automatic control system provided under this contract.

1.5 WARRANTY

A. Contractor shall warranty all work performed under this contract to be free of any defects in workmanship or material for a period of one year after final acceptance by the Owner's representative. The installing controls contractor shall include a second year of extended warranty to cover all parts and labor. The warranty and extended warranty shall include quarterly calibration and set-up checks of all controls. THIS WARRANTY DOES NOT START ON DATE THAT THE MECHANICAL EQUIPMENT IS STARTED.

1.6 SUBMITTAL

A. Submit shop drawings and product data sheets indicating configuration, general assembly, and materials used in fabrication.

B. Submit manufacturer's installation instructions. Instructions shall include complete wiring diagrams drawn specifically for this project.

1.7 OPERATION AND MAINTENANCE

A. Include manufacturer's descriptive literature, operating instructions, and maintenance data.

1.8 QUALITY ASSURANCE

A. Manufacturer shall be a company specializing in products of the type specified in this section. All components shall be Class A quality commercial or industrial grade for installation in locations or environments shown on plans.

1.9 SYSTEM RESPONSIBILITY

A. The entire control system, shall be furnished by a single source manufacturer who shall be responsible for the entire system. The installations shall be by technicians employed by the controls system manufacturer.

PART 2 - PRODUCTS

2.1 FIRESTATS AND SMOKE DETECTORS

A. Duct smoke detectors shall be furnished and installed by mechanical contractor. Install a smoke detector in the supply air section/duct and return air section/ duct of each unit delivering over 2000 cfm to stop the fan and close the outside air dampers in the event of excessive temperature or smoke. Firestats to be provided in the return air units of all units over 600 cfm.

B. Smoke detectors shall be addressable and compatible with the fire alarm system.

C. Where and when the building does not have a fire alarm system, provide a remote annunciator with remote reset for each detector.

D. All smoke detectors shall have remote reset.

2.2 TEMPERATURE CONTROLLER

A. Refer to Section 23 70 00, Packaged Outside Air Unit for controller.

2.3 WIRING

A. Factory mount and wire controls. Mount electrical components in control box with removable cover. Provide clearance for access to controls (36 inch clearance).

B. Provide terminal strip(s) for field wiring of thermostat, communications and power source. DO NOT USE WIRE NUTS IN JUNCTION BOX.

C. All wiring shall comply with local and national electric codes and the manufacturer's published installation manual.

D. Provide terminal strip(s) for field wiring of air conditioning unit input connections, duct temperature sensor, velocity sensor, static pressure sensor, communications, start/stop devices, VFD controls, time clock, bypass damper motor and power wiring, etc. Do not use wire nuts on loose wire. All wire shall be in conduit, flexible conduit or wiring harness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Division 26, ELECTRICAL, shall be responsible for point to point wiring of all starters and starting switches not factory installed in the HVAC equipment.

B. Install all components of control systems under this Section using experienced control mechanics, all in the regular employ of the Installing Contractor, or the apparatus manufacturer.

3.2 WIRING

A. Install all control, pilot circuit and interlock wiring, including wiring through interposed safety or other auxiliary control devices within the confines of the mechanical equipment only. Wiring of thermostats shall be by the Mechanical Contractor.

B. All wiring shall conform to the Local and National Electrical Codes.

C. All control and interlock wiring shall be fused at conductor capacity as shown in the National Electrical Code.

D. No splices will be allowed except at junction boxes and control centers.

E. All wires to each control device must be different colors. All wires to each device must be laced or tied at point of entry into control panel and tagged as to its point of origin.

F. All wires shall be run directly from controller or controlled device to control center. There shall be no looping of wires from one device to another external to the control centers.

G. Control voltage shall be a maximum of 120-volt, unless otherwise indicated herein.

H. Control or interlock wiring shall not be run in conduit with any power wiring other than that serving the equipment controlled.

I. Refer to Division 26, ELECTRICAL, for extent of work under that Division. Provide other wiring systems required to accomplish the work of this Section, following requirements of Division 26 for products and execution.

J. Wiring connection to terminal posts shall be made by means of compression type lugs. Wire splices shall be made with sketch locks.

K. Safety devices in motor control circuits shall be wired to interrupt the holding coil circuit regardless of the position of any selector switches in the circuit.

L. Control circuit conductors shall be sized for a maximum voltage drop of 10 percent of the circuit voltage.

M. All electrical power wiring shall conform in all respects with the provisions of the National Electrical Code and Division 26, ELECTRICAL, of the Specifications.

N. Provide all necessary contactors, switches, transformers to accomplish operating sequences.

3.3 SYSTEM CHECK-OUT

A. Check-out each system for control function through entire sequence, check calibration of instruments, reset instruments control points.

B. Owner maintenance personnel shall be made thoroughly familiar, by the contractor, with the operation and service of the project automatic temperature control circuits.

3.4 SOFTWARE FOR CONTROLS SYSTEMS

A. All software required for the operation of the temperature control system shall be furnished with the control system. The temperature controls manufacturer/contractor shall furnish the software plus two years of software updates.

B. The software shall be provided in original sealed packaging with all written/printed documentation to the Test and Balance Contractor for use in balancing the project. The temperature controls contractor shall turn the software over to the owner upon completion of the project.

END OF SECTION 23 09 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 28 13 - COMMERCIAL KITCHEN HOODS

PART 1 - GENERAL

1.1 GENERAL

A. The General Section the Mechanical Specification is a part of the Commercial Kitchen Hood Specification and applies same as if herein specified.

1.2 SCOPE OF WORK

A. Furnish and install all materials, labor, tools, equipment and working plans as required to install and place in operation the complete Kitchen Hood System.

1.3 WORK INCLUDED

A. The work shall include but not be limited to the following:

1. All exhaust/make-up air ductwork
2. Fan packages
3. Kitchen hoods (Existing)
4. Insulation and controls

1.4 PLANS AND DIAGRAM

A. Working plans (drawings) shall be prepared by the contractor before commencing hood installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

1. State Fire Marshal/AHJ

B. Drawings must first be submitted to the Mechanical Engineer (POR) for approval. POR will then forward the plans to the State Fire Marshal/AHJ. Drawings must be submitted in conjunction with hood Fire Suppression Drawings. Refer to the State Fire Marshal's website for all fees, checklists, forms and requirements for submittal.

1.5 PERMITS, INSPECTIONS AND TESTS

A. All permits, fees, etc., for the installation, inspection, review or construction of the work which are required by any authority and/or agencies having jurisdiction, shall be obtained and paid for by the contractor.

B. All inspections, examinations and tests required shall be arranged and paid for by the contractor as necessary to obtain complete and final acceptance.

PART 2 - MATERIALS

2.1 KITCHEN HOOD EXHAUST DUCTWORK

A. All kitchen hood exhaust ductwork shall be constructed of 16 gauge black iron with weld seams and joints. All seams and joints shall be liquid tight. All construction of ductwork shall be in compliance with NFPA 96.

B. Cover the kitchen exhaust with a flexible wrap system listed and labeled (labeling on scrim shall include product name and certification mark) by a NRTL, Nationally Recognized Testing Laboratory. System shall be tested per internal fire test ASTM E 2336 and per ASTM E 119 engulfment test and achieve a 2 hour fire resistance rating. Wrap system shall be fully encapsulated to resist moisture absorption. System shall provide zero clearance to combustible protection at all locations on the system surface. Access doors shall be installed per the manufacturer's instructions to comply with local code. A listed and labeled firestop system must be available to seal the opening where the protected grease duct penetrates a fire rated floor or wall. The field applied grease duct enclosure system must be mechanically attached to the duct using steel banding and/or weld pins per manufacturer's instructions. System shall be NFPA 96 approved. Material shall be Unifrax FryeWrap® Elite® 1.5 3M Fire Barrier 615+ or prior approved equivalent.

2.2 KITCHEN HOOD FAN PACKAGE

A. Provide roof top pre-engineered exhaust and supply fan package(s) in sizes and quantities as shown on plans. The fan packages shall be a complete system manufactured and assembled by Greenheck, (Accurex) or prior approved equal.

B. The exhaust fan shall be constructed of heavy gauge aluminum. The fan wheel and cone shall be aluminum and of the high performance, centrifugal blower type, statically and dynamically balanced. The exhaust fan shall be constructed as to include a built-in grease drain. Motor and drives shall be isolated from the exhaust airstream and shall be located in a chamber cooled by air brought in through a tube from a location free of discharge contaminates. The entire drive assembly and wheel as unit shall be serviceable and removable through the support structure without dismantling the fan housing. The wheel shaft shall be mounted in heavy duty ball bearings. Drives shall be sized for 165 percent of driven horsepower. Motor pulleys shall be of the adjustable type for final system balancing made of cast iron and be keyed to motor and wheel shafts. The entire drive assembly shall be mounted in rubber vibration isolators. The exhaust fan assembly shall also include a rigid bird screen mounted within the discharge perimeter and a thermal barrier insulating the wheel compartment from the drive compartment. The fan shall be AMCA approved for sound and air performance and also shall be U.L. listed for grease removal in accordance with Underwriters Laboratories standards.

C. The supply fan unit shall be of the belt-driven, double width, double inlet, forward curved centrifugal blower type. The blower assembly shall be mounted on vibration isolators. Drives shall be sized for a minimum of 165 percent of driven horsepower. All exterior housing components of the supply unit shall be constructed of minimum 18 gauge galvanized steel, painted with a weatherproof finish that has been baked for durability. Heavy gauge adjustable angle iron support legs shall be furnished as required. The inlet of the unit shall contain bird screen and a bank of washable, removable air filters. Filters shall be of 1 inch aluminum mesh type, coated with filter adhesive compound and shall be U.L. Classified. The total fan package shall be furnished with a pre-wired control center which shall include, but not be limited to, a master-fused disconnect for main power. Connection, magnetic motor starters with thermal overloads and manual reset, fused 24-volt control transformer and distribution terminal strip for control wiring connection. All electrical components shall be U.L. Listed, Approved or Classified where applicable and wired in compliance with the National Electrical Code. Wiring shall be complete, requiring only one-point field connection for power service (exception: electric heater) and one-point field connection for low-voltage control harness.

D. Furnish motorized backdraft damper as integral part of supply unit. Damper unit shall open upon energization of supply fan and close upon shut-off of supply fan.

E. Furnish pre-fabricated roof curbs constructed of minimum 18 gauge galvanized steel with integral wood nailer, run-off cant and 1 inch rigid insulation. Provide curb extensions as required for exhaust fan to meet N.F.P.A. requirements for discharge height.

2.3 KITCHEN HOOD

A. Kitchen hoods are existing. Installation of existing hoods shall be by Mechanical Contractor. Furnish all hangers and stainless steel wrappers for a complete installation.

B. Contractor shall submit hood shop drawings along with hood suppression system for submittal to the Fire Marshal. Contractor shall obtain a copy of the required checklist for all requirements and shall pay all fees required.

2.4 FIRE PROTECTION SYSTEM - KITCHEN HOODS

A. GENERAL

1. The General Section of the Mechanical Specifications is a part of the Fire Protection System Specification and applies same as if herein included.

B. SCOPE OF WORK

1. Furnish all materials, labor, tools, equipment and working plans to install and place in operation the complete Hood Fire Protection System for the kitchen hood as herein specified. The contractor shall be responsible for preparing the plans, calculations, fees and Fire Marshal review of the system layout.

C. WORK INCLUDED

1. The work shall include providing hood fire protection system and shall include but not be limited to the following: all piping and fittings; automatic systems; alarm system; testing and approval; and service fees and installation cost.

D. PLAN AND DIAGRAM

1. Working plans (drawings) shall be prepared by the contractor before commencing fire protection installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

   a. State Fire Marshal.

E. HOOD FIRE PROTECTION SYSTEM

1. Furnish and install a fire protection system for the commercial type cooking hood as listed in these specs. The system shall be installed to meet the requirements of NFPA 96, NFPA 17A and UL 300. The Installing Contractor shall also prepare shop drawings for submittal to the State Fire Marshal for review. The Installing Contractor shall be responsible for paying all fees required for submittal to the state and local review agencies. The system shall be installed by all licensed hood fire protection contractor. The Installing Contractor shall be responsible for providing all certificates for Owner's records. The Installing Contractor shall make two (2) inspections of the system during the first year after acceptance by the Owner.
2. The fire protection system shall utilize a wet type fire suppression agent. The liquid agent shall be a potassium carbonate-based solution designed to suppress fires by its saponifying and cooling effects. The agent shall not require periodic replacement. For rapid fire knockdown, the agent shall have an expansion ratio of approximately 2200 to 1. It shall not have an adverse effect on stainless steel appliance, hoods and ducts.
3. The cylinder shall be manufactured and tested in accordance with DOT specifications. It shall be under coated with zinc chromate or red oxide and over coated with white high gloss enamel. The cylinder shall be pressurized to 175 psi to ensure rapid discharge at temperatures as low as 1 degree Fahrenheit. A highly polished metal enclosure shall be provided to conceal the cylinder.
4. The valve shall be heavy duty forged brass, chrome-plated. It shall incorporate an oil-filled bourdon tube gauge to indicate cylinder pressure.
5. The nozzles shall be heavy duty brass, chrome-plated. It shall incorporate a stainless steel strainer to remove scale and foreign matter from pipe or stainless steel tubing. A pure tin foil seal shall protect the nozzle orifice from grease build up. This seal shall be kept tightly in position by a threaded nut to ensure its permanence through the continuous heating-cooling cycle.
6. The system shall be designed for automatic operation with provision for remote and/or local manual control(s). Automatic operation shall be initiated by fusible metallic links, glass bulb links, or electric detectors. The links and glass bulbs are to be utilized with stainless steel cable and corner pulleys employing stainless steel ball bearings. All cable and wiring shall be enclosed in conduit. Where used, the electric detectors are to be utilized with a control panel and an electro-thermal link

that are UL listed for use with the system. All electrical work shall comply with the National Electric Code.

7. Where gas-fired appliances exist, a gas shut-off valve of either the mechanical or electrical type shall be automatically closed upon system actuation. The mechanical type shall be shut-off though the mechanical actuator or a pneumatic release installed in the discharge line. The electric type shall be wired through a manual reset relay to either micro-switch or pressure switch wired through a magnetic contactor. All work shall comply with the National Electric Code.
8. Pipe shall be black steel, stainless steel, or brass standard weight (Schedule 40). Fittings shall be malleable, ductile, or cast iron, steel, stainless steel, or brass and may be standard weight. Stainless steel tubing incorporating bends or stainless steel fittings may also be used. Fittings may be chrome-plated and piping chrome-plated or sleeved. All pipe runs shall be rigidly secured with suitable straps or hangers. Wherever possible, multiple cylinder systems shall be manifolded to minimize pipe.
9. The system shall be installed by an authorized factory trained contractor. The Installing Contractor shall visit the project to take all field measurements and verify the conditions. The Installing Contractor shall acquire and submit all plans, permits and approvals necessary for proper installation and final acceptance. Upon completion, the Installing Contractor shall conduct any and all tests required. The installation shall comply with the manufacturer's installation manual, Underwriters Laboratories listing, National Fire Protection Association Pamphlets 96 and 17A and all applicable regulatory and insurance requirements.

PART 3 - INSTALLATION

3.1 DUCTS

A. Refer to specification section 23 30 00 for any additional comments regarding general duct construction or layout.

PART 4 - EXECUTION

4.1 INSTALLATION

A. The Installing Contractor shall install to meet the manufacturer's instructions.

END OF SECTION 23 28 13

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 30 00 - AIR DISTRIBUTION

PART 1 - GENERAL

1.1 GENERAL

A. Furnish and install all ducts for Air Conditioning, Heating, and Ventilating Systems as shown on the plans and as may be required to provide complete system. Ductwork shall be complete with grilles, vanes, flashings, hangers, flexible connections, splitters, manual dampers, fresh air inlets, louvers, reinforcing angles, etc. All ductwork shall be concealed and insulated as hereinafter specified.

1.2 COORDINATION

A. The General Contractor and Mechanical Contractor shall coordinate the space clearances required for ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. Any re-sizing required shall be part of this project and done without any additional cost to the project. DO NOT MAKE DUCTWORK WITHOUT COORDINATION.

1.3 DUCTWORK SHOP DRAWINGS

A. The Mechanical Contractor/ Sheetmetal Contractor shall prepare complete sheetmetal ductwork shop drawings showing coordination with all trades on the project. The shop drawings shall show all offsets, transitions, size changes to resolve conflict, dampers, fire dampers, grilles, air units, etc. These shop drawings shall be submitted prior to starting work and ductwork fabrication.

1.4 Sealing or flashing the building envelope due to penetrations in the building shall be the responsibility of the general contractor.

PART 2 - MATERIALS

2.1 DUCT HANGERS AND SUPPORTS

A. All ductwork shall be properly braced to prevent rattling, breathing, or other unnecessary noise. No sharp edges or obstructions shall project into air stream.

2.2 LOW PRESSURE DUCTWORK

A. All ductwork shall be galvanized steel and shall be of gauges and construction as recommended by ASHRAE Guide and Data Book and SMACNA guidelines. Gauges are as follows with longest side governing.

Dimension of longest side	Low Pressure Ductwork Sheet Metal Gauge
0"-12"	26 gauge
13"-30"	24 gauge
31"-54"	22 gauge
55"-84"	20 gauge

B. Low pressure ductwork shall be all exhaust ducts, return air ducts, fresh air ducts and supply ducts.

C. Joints and reinforcing shall be as per ASHRAE Guide and Data Book and all slips shall be installed without edge of internal part of slip facing downstream.

D. Construction standard of Article 110, of the National Board of Fire Underwriters Bulletin 90, latest edition, shall apply throughout.

E. Flashings shall be of sheet copper and shall be furnished and installed around all outside openings used for ducts of fans and wherever required. Roof flashings shall extend at least 8 inches above roof.

F. All ducts shall be straight and true and installed in a neat and workmanlike manner.

G. All edges shall be straight and true and all bends shall be made with veined turns. Where long radius turns cannot be used, the contractor shall use square turns and use air splitters spaced not more than 3 inches center to center, and of a length so air will be properly distributed over ducts.

H. All ducts shown are metal to metal dimensions.

I. Mastic shall be applied to both male and female connections (all seams and joints) to make all duct joints air tight (applies to all ductwork; round or rectangular). Surplus mastic shall be removed. Tape and re-mastic joints if necessary. Mastic (hard-cast or equivalent duct sealer : tape not acceptable) shall be applied to the joints during assembly so that sealant is on all mating surfaces of the joint.

2.3 DUCT LINERS

A. Low pressure rectangular supply ductwork shall not be lined. All supply and return air ductwork shall be wrapped with same insulation as specified for round ductwork. Exhaust ductwork shall not be insulated. LINED DUCTWORK IS NOT PERMITTED IN THIS PROJECT. WRAP ALL DUCTWORK.

2.4 FILTERS--PRIMARY

A. Units shall be equipped with low velocity filter section with 30 percent efficient 2 inches thick pleated type (Continental air filters "cono pleat" FARR 3030, American Air Filter or equal) throwaway filters.

B. Provide and install one set of filters as called for in these Specifications for initial testing and start-up and another complete set upon completion of the project.

2.5 DUCT ACCESSORIES

A. Dampers of the fusible link operated type shall be provided in all ductwork passing through floor or fire walls.

B. Provide quadrant or adjustable splitters and mark shaft to give position of splitter damper in duct.

C. Provide vanes behind every supply grille or diffuser. Splitters shall be provided where shown on plans and where located in concealed non-accessible space provided Young Regulators to operate splitter. Vanes shall be Tuttle and Bailey "Ducturns", Barber-Coleman, Uniflo, or equivalent. Shop fabricated vanes will be acceptable. All dampers shall be constructed of 14 gauge steel.

2.6 REGISTERS, GRILLES AND DIFFUSERS

A. Ceiling supply outlets, unless otherwise indicated on plans shall be Titus, Price, Nailor or approved equal. Outlets shall be mounted tight to the construction, and shall have frame suitable for type of ceiling used unless otherwise noted.

B. Return air grilles shall be as manufactured by Titus, Price, Nailor or approved equivalent and shall be of style called for on plans.

C. All supply outlets shall have sponge rubber gaskets.

D. All grilles, diffusers, and registers shall be of sizes indicated on plans or scheduled on drawings.

E. Unless otherwise shown on drawings, all grilles installed in the ceiling shall be furnished with white baked-on enamel finish.

2.7 FIRE DAMPERS

A. Furnish and install, at locations shown on plans, fire dampers constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 hour fire protection rating, 212 degrees Fahrenheit fusible link, and shall include a UL label in accordance with established UL labeling procedures. Damper manufacturer's literature

submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with AMCA Standard 500 and shall illustrate pressure drops for all sizes of dampers required at all anticipated air flow rates. Fire dampers shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing steel sleeves, angles, other materials, and practices required to provide an installation equivalent to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. Fire dampers shall be Ruskin type IBD, Arrow, Cesco, Pref-Co, or equal.

B. Fire dampers installed within 10 feet of the air handling unit or where velocities exceed 2000 fpm. Dampers shall be static type for systems with duct smoke detectors, dynamic for systems without duct detector fan shut down.

1. Furnish and install at locations within 10 feet of the air handling unit multi blade fire dampers constructed and tested in accordance with UL safety standard 555 (dynamic) that meet or exceed the following specifications:
   a. Frame shall be a minimum of 16 gauge galvanized (1.52) steel formed into a structural hat and tabbed with tabbed corners for reinforcement. The blades shall be air foil-shaped double skin with 14 gauge (1.90) equivalent thickness. Bearing shall be stainless steel sleeve turning in an extruded hole in the frame.
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in accordance with established labeling procedure.
   c. Damper manufacturers' literature submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with the UL 555 standard.
   d. Fire dampers shall have been tested to close under dynamic air flow conditions with pressures up to 4 inches w.g. and to 4,000 fpm air velocity.
   e. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
   f. Fire dampers shall be installed in a wall or floor opening using steel sleeves, angles and other materials and practices required to provide an installation equivalent used by manufacturer when damper was tested at UL. Installation shall be in accordance with the damper manufacturers' instructions.

C. Fire dampers installed beyond 10 feet of the air handling unit and where velocities are under 2000 fpm.

1. Furnish and install at locations shown on plan fire dampers constructed and tested in accordance with UL safety standard 555.
   a. Fire dampers shall have been tested to close under dynamic air flow conditions and be labeled as a dynamic fire damper (static fire dampers are not allowed).
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in this specification accordance with UL 555 standards, and a dynamic label that shall illustrate maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable at 4 inches static pressure for un-ducted, in-wall mounting.

c. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
d. Fire dampers shall be installed in wall and floor openings using steel sleeves, angles and other materials and practices required to provide an installation equivalent to that used by the manufacturer when dampers were tested at UL. Installation shall be in accordance with damper manufacturers' instructions.

D. Round fire dampers: All systems with pressures to 6 inches w.q. and velocities to 4000 fpm.

1. Furnish and install at locations shown on plans, or as described in schedules, round fire dampers meeting or exceeding the following specifications.
a. Frame shall be a minimum of 20 gauge galvanized steel and blade shall be two piece equivalent to 14 gauge minimum galvanized. Bearings shall be stainless steel sleeve with grooves to receive the 20 gauge retaining plate for damper mounting.
b. Each round fire damper shall be 1-1/2 hour fire rated under UL standard 555, and bear a UL label attesting to same.
c. Each round fire damper shall be equipped with a Fuse Link which shall activate at (specifier select one) 165 degrees, 212 degrees, causing damper to close in a locked position.
d. Manufacturer must provide UL installation instructions for both masonry walls and metal stud drywall partitions.

2.8 PRE-INSULATED FLEXIBLE DUCT

A. Flexible duct shall be rated for a maximum pressure of 16 inches (4-10 inches I.D.) or 10 inches (12-16 inches I.D.) water column positive pressure and 2 inches water column maximum negative pressure and 6000 FPM maximum velocity and listed by Underwriters Laboratories, Inc. under UL Standard 181 as a Class 1 air duct complying with NFPA Standards 90A and 90B. Flexible air duct shall be factory-made and composed of an inner duct of woven and coated fiber glass fabric providing an air seal and permanently bonded to coated steel wire helix, a fiber glass insulating blanket with minimum R-8.0 value (minimum 2 inch thickness) and low permeability outer vapor barrier of fiberglass reinforced metalized film laminate. Flexible air ducts shall be Thermaflex M-KC or Flexmaster type 4M with minimum R-8.0 insulation to meet ASHRAE 90.1 energy code. Maximum installed length shall not exceed 3 feet-0 inches without approval.

PART 3 - INSTALLATION

3.1 DUCTS

A. Ductwork shall be constructed and installed as follows:

1. Straight and smooth on inside with joints neatly finished unless otherwise directed.

2. Duct panels through 48 inch dimension having acoustic duct liner need not be crossbroken or beaded.
3. Crossbreak unlined ducts and duct panels larger than 48 inches or bead 12 inches on center.
4. Securely anchor ducts to building structure with specified duct hangers attached with screws.
5. Brace and install ducts so they shall be free of vibration under all conditions of operation.
6. Ducts shall not bear on the top of structural member.
7. Make duct take-offs to branches, registers, grilles, and diffusers as detailed on Drawings.
8. Properly flash where ducts protrude above roof.
9. Install internal ends of slip joints in direction of flow. Make joints air tight using specified duct sealer.

B. Install flexible duct connections to each air handling unit.

C. Provide each take-off with an adjustable volume damper to balance that branch.

1. Anchor dampers securely to duct.
2. Install dampers in main ducts within insulation.
3. Dampers in branch ducts shall fit against sheet metal walls, bottom and top of duct, and be securely fastened.
4. Where concealed ceiling damper regulators are installed, provide a cover plate.

D. Install grilles, registers, and diffusers.

3.2 AIR TURNS

A. Permanently installed, consisting of curved metal blades or vanes arranged to permit air to make abrupt turn without appreciable turbulence, in elbows of supply and above ground return ductwork.

B. Air turns shall be quiet and free from vibration when system is in operation.

END OF SECTION 23 30 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 70 00 - AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Air Conditioning System, in general, shall be for the entire building providing cooling and dehumidification in summer and heating in winter. A constant amount of fresh air shall be taken into the system and all air shall be filtered.

B. The General Contractor (Prime Contractor) who has the contracts with the Owner shall be responsible for installing the mechanical systems using qualified subcontractors and/or employees. Any incorrect or improper work shall be corrected by the General Contractor.

C. The General Contractor shall be the sole source responsible party to furnish and install the mechanical system. General Contractor shall be properly licensed to perform this work.

1.2 STANDARDS

A. All air conditioning equipment shall comply with the requirements of applicable ARI standards and shall be tested, rated, labeled, and listed accordingly.

1.3 SPACE REQUIREMENTS

A. General Contractor and Mechanical Contractor shall refer to architectural, structural and electrical drawings and install all equipment, piping, etc. to meet building and space requirements. No equipment shall be bid on or submitted for approval if it will not fit into the space provided or coordinate with other trades involved on the project.

1.4 COMPRESSOR WARRANTIES

A. On all packaged and/or split system DX equipment 5 tons and below, the manufacturer shall provide a full 10 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

B. On all packaged and/or split system DX equipment 6 tons and larger, the manufacturer shall provide a full 5 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

C. The manufacturer shall warranty all parts, labor and refrigerant systems on the entire unit for the warranty period. In addition, annually, the manufacturer's service technicians

shall make a warranty check inspection of the unit with report to the Owner. This warranty shall not include any equipment maintenance; all equipment maintenance is the responsibility of the Owner. The manufacturer shall have full access to the units during the construction period.

D. If a longer warranty period is required elsewhere in these specs, the longer warranty period shall apply.

PART 2 - MATERIALS

2.1 PIPING

A. All piping shall be of materials as hereinbefore specified.

2.2 PACKAGED OUTSIDE AIR UNIT (100% OUTSIDE AIR)

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

1. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
2. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
3. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
4. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
5. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.
6. Unit shall be approved for use in and outside High Velocity Hurricane Zones (HVHZ) by the Florida Building Code (FL# 15031), when using the required steel rooftop curb and attachment methods. Maximum allowable lateral wind pressure is +100psf/-100psf. Maximum allowable uplift is +50psf/-50psf. Positive and negative required design pressures calculated for use with this system shall be determined by others on a job specific basis, in accordance with the governing code. Site specific pressures shall be less than or equal to the listed positive or negative allowable lateral wind design pressure and allowable uplift values for the product.

B. Manufacturer shall provide a limited "parts only" warranty for a period of 24 months from the date of equipment startup or 30 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for Installation, Operation, and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and filters.

C. Products shall be provided by the following manufacturers:

1. AAON, Addison or approved Equal
2. Substitute equipment may be considered for approval that includes at a minimum:
   a. R-410A refrigerant
   b. Variable capacity compressor with 10-100% capacity control
   c. Direct drive supply fans
   d. Double wall cabinet construction
   e. Insulation with a minimum R-value of 13
   f. Stainless steel drain pans
   g. Hinged access doors with lockable handles
   h. All other provisions of the specifications must be satisfactorily addressed

D. General Description

1. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, gas heaters, and unit controls.
2. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.
3. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
4. Unit components shall be labeled, including refrigeration system components and electrical and controls components.
5. Estimated sound power levels (dB) shall be shown on the unit ratings sheet.
6. Installation, Operation, and Maintenance manual shall be supplied within the unit.
7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

E. Construction

1. All cabinet walls, access doors, and roof shall be fabricated of double wall, impact resistant, rigid polyurethane foam panels.
2. Unit insulation shall have a minimum thermal resistance R-value of 13. Foam insulation shall have a minimum density of 2 pounds/cubic foot and shall be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.
3. Unit construction shall be double wall with G90 galvanized steel on both sides and a thermal break. Double wall construction with a thermal break prevents moisture accumulation on the insulation, provides a cleanable interior, prevents heat transfer through the panel, and prevents exterior condensation on the panel.
4. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel

deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width. Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

5. Roof of the air tunnel shall be sloped to provide complete drainage. Cabinet shall have rain break overhangs above access doors.
6. Access to filters, dampers, cooling coils, reheat coil, heaters, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges shall be included on the doors.
7. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
8. Units with cooling coils shall include double sloped 304 stainless steel drain pans.
9. Unit shall be provided with base discharge and return air openings. All openings through the base pan of the unit shall have upturned flanges of at least 1/2 inch in height around the opening.
10. Unit shall include lifting lugs on the top of the unit.
11. Unit base pan shall be provided with 1/2 inch thick foam insulation.

F. Electrical

1. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.
2. Unit shall be provided with a factory installed and factory wired 115V, 13 amp GFI outlet disconnect switch in the unit control panel.

G. Supply Fans

1. Unit shall include direct drive, unhoused, backward curved, plenum supply fans.
2. Blowers and motors shall be dynamically balance and mounted on rubber isolators.
3. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
4. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

H. Cooling Coils

1. Evaporator Coils
   a. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled.
   b. Coils shall have interlaced circuitry and shall be 6 row high capacity.
   c. Coils shall be hydrogen or helium leak tested.
   d. Coils shall be furnished with factory installed expansion valves.

I. Refrigeration System

1. Unit shall be factory charged with R-410A refrigerant.
2. Compressors shall be scroll type with thermal overload protection and carry a 10 year non-prorated warranty, from the date of original equipment shipment from the factory.
3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors shall be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.
4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
5. Each refrigeration circuit shall be equipped with expansion valve type refrigerant flow control.
6. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides and a factory installed replaceable core liquid line filter driers.
7. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
8. Lead refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
9. Each refrigeration circuit shall be equipped with a liquid line sight glass.
10. Each refrigeration circuit shall be equipped with suction and discharge compressor isolation valves.

J. Condensers

1. Air-Cooled Condenser
   a. Condenser fans shall be a vertical discharge, axial flow, direct drive fans.
   b. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.
   c. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
   d. Coils shall be hydrogen or helium leak tested.
   e. Condenser fans shall be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow shall continuously modulate based on head pressure and cooling operation shall be allowed down to 35°F with adjustable compressor lockout.

K. Gas Heating

1. Stainless steel heat exchanger furnace shall carry a 25 year non-prorated warranty, from the date of original equipment shipment from the factory.
2. Gas furnace shall consist of stainless steel heat exchangers with multiple concavities, an induced draft blower and an electronic pressure switch to lockout the gas valve until the combustion chamber is purged and combustion airflow is established.
3. Furnace shall include a gas ignition system consisting of an electronic igniter to a

pilot system, which will be continuous when the heater is operating, but will shut off the pilot when heating is not required.

4. Unit shall include a single gas connection and have gas supply piping entrances in the unit base for through-the-curb gas piping and in the outside cabinet wall for across the roof gas piping.
5. Natural gas furnace shall be equipped with modulating gas valves, adjustable speed combustion blowers, stainless steel tubular heat exchangers, and electronic controller. Combustion blowers and gas valves shall be capable of modulation. Electronic controller includes a factory wired, field installed supply air temperature sensor. Sensor shall be field installed in the supply air ductwork. Supply air temperature setpoint shall be adjustable on the electronic controller within the controls compartment.

L. Filters

1. Unit shall include 2 inch thick, pleated panel filters with an ASHRAE efficiency of 30% and MERV rating of 8, upstream of the cooling coil.
2. Unit shall include 1 inch aluminum mesh pre filters upstream of the outside air opening.

M. Outside Air/Economizer

1. Unit shall include 100% motor operated outside air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge and end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return, 2 position actuator. Unit shall include outside air opening bird screen and outside air hood.

N. Controls

1. Factory Installed and Factory Provided Controller
   a. Unit controller shall be capable of controlling all features and options of the unit. Controller shall be factory installed in the unit controls compartment and factory tested. Controller shall be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.
   b. Controller shall have an onboard clock and calendar functions that allow for occupancy scheduling.
   c. Controller shall include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.
   d. Makeup Air Controller
      1) Unit shall modulate cooling with constant airflow to meet ventilation outside air loads. Cooling capacity shall modulate based on supply air temperature.
      2) With modulating hot gas reheat, unit shall modulate cooling and hot gas reheat as efficiently as possible, to meet outside air humidity loads and prevent supply air temperature swings and overcooling of the space.

3) Unit shall modulate heating with constant airflow to meet ventilation outside air loads. Heating capacity shall modulate based on supply air temperature.

e. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling shall be accomplished with connection to interface module with LCD screen and input keypad, interface module with touch screen, or with connection to PC with free configuration software. Controller shall be capable of connection with other factory installed and factory provided unit controllers with individual unit configuration, setpoint adjustment, sensor status viewing, and occupancy scheduling available from a single unit. Connection between unit controllers shall be with a modular cable. Controller shall be capable of communicating and integrating with a LonWorks or BACnet network.

O. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.

P. Installation, Operation, and Maintenance manual shall be supplied with the unit. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install air conditioning systems in accordance with Section 23 05 00.

B. Mount equipment complete with piping system, roof curbs and air distribution system, and provide for power connection.

C. Complete structural, mechanical, and electrical connections in accordance with manufacturer's installation instructions.

3.2 TESTING

A. Refrigerant lines shall be tested under 200 psi carbon dioxide pressure for 5 hours using soap suds at joints to test for leaks. Evacuate system and charge with refrigerant.

B. All line testing shall be witnessed by the Test and Balance Agency (TAB). TAB Agency shall record results and include in final TAB report.

END OF SECTION 23 70 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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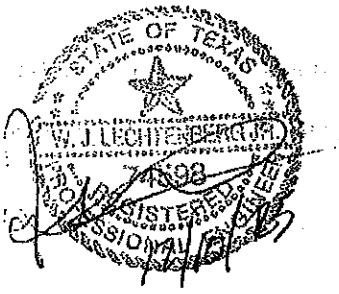

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 , Type XHHW-2 and Type SO.

C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

F. Branch Circuits Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

H. Flexible Connections to Lighting Fixtures: Type MC cable with maximum length of six feet.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. ILSCO.
4. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Pad-Mounted Transformers and Switches: Install two ground rods around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for taps to equipment grounding terminals.

3.4 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

3.5 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION 260526

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
2. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Mechanical-Expansion Anchors: Insert-wedge-type, **[zinc-coated] [stainless]** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.2 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. GRC: Comply with ANSI C80.1 and UL 6.

C. EMT: Comply with ANSI C80.3 and UL 797.

D. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

E. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Fittings for EMT:

a. Material: die cast.
b. Type: compression.

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

F. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Continuous HDPE: Comply with UL 651B.

D. Fittings for RNC: Comply with NEMA TC 3; match to conduit type and material.

E. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5.

C. Tele-Power Poles:

1. Material: Aluminum with clear anodized finish.
2. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials (top and bottom), and other fittings shall match and mate with tele-power pole as required for complete system. This project uses both sides for power raceways.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Metal Floor Boxes:

1. Material: Cast metal.
2. Type: Fully adjustable.
3. Shape: Square.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

K. Gangable boxes are prohibited.

L. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

M. Cabinets:

1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC or RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried or concrete encased.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Damp or Wet Locations: GRC.
7. Boxes and Enclosures: NEMA 250, Type 1.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use compression, cast-metal fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Raceways Shall not be Embedded in Slabs:

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

K. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

M. Surface Raceways:

1. Install surface raceway with a minimum 2-Inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

N. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.

O. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

P. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC in damp or wet locations not subject to severe physical damage.

Q. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

R. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.

S. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

T. Locate boxes so that cover or plate will not span different building finishes.

U. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

V. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

W. Set metal floor boxes level and flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit.
2. Install backfill as specified in Section 312000 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
4. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Warning labels and signs.
3. Equipment identification labels.
4. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.3 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.4 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.5 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

F. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
   1. Power.

B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

   1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

      a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
      b. Colors for 208/120-V Circuits:

         1) Phase A: Black.
         2) Phase B: Red.
         3) Phase C: Blue.

      c. Colors for 480/277-V Circuits:

         1) Phase A: Brown.
         2) Phase B: Orange.
         3) Phase C: Yellow.

      d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

C. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

   a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
   b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
   c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
   d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Distribution, dry-type transformers rated 600 V and less, with capacities up to 1500 kVA.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Source quality-control reports.

B. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company.
2. Square D; by Schneider Electric.

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Transformers Rated 15 kVA and Larger: Comply with NEMA TP 1 energy-efficiency levels as verified by testing according to NEMA TP 2.

1. Coil Material: Copper.

D. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated.

2.3 DISTRIBUTION TRANSFORMERS

A. Comply with NFPA 70, and list and label as complying with UL 1561.

B. Cores: One leg per phase.

C. Enclosure: Ventilated.

1. NEMA 250, Type 3R: Core and coil shall be encapsulated within resin compound utilizing a vacuum pressure impregnation process to seal out moisture and air.

D. Transformer Enclosure Finish: Comply with NEMA 250.

1. Finish Color: NSF/ANSI 49 gray.

E. Taps for Transformers 3 kVA and Smaller: One 5 percent tap above normal full capacity.

F. Taps for Transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.

G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

H. Insulation Class, Smaller than 30 kVA: 185 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

I. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

2.4 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical Systems."

2.5 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from adjacent wall surface.

D. Construct concrete bases according to Section 033000 "Cast-in-Place Concrete" and anchor floor-mounted transformers according to manufacturer's written instructions and requirements in Section 260529 "Hangers and Supports for Electrical Systems."

1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

E. Secure transformer to concrete base according to manufacturer's written instructions.

F. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.

G. Remove shipping bolts, blocking, and wedges.

3.2 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS for dry-type, air-cooled, low-voltage transformers. Certify compliance with test parameters.

B. Remove and replace units that do not pass tests or inspections and retest as specified above.

C. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.

1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

3.4 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.

C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 262200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

C. Field quality-control reports.

D. Panelboard schedules for installation in panelboards.

E. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

FORD FIELDS CONCESSION STAND
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PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

a. Indoor Dry and Clean Locations: NEMA 250, Type 1 or Type 12. See drawings.
b. Outdoor Locations: NEMA 250, Type 3R.

2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
3. Directory Card: Inside panelboard door, mounted in transparent card holder.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus Configured Terminators: Mechanical type.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, power and feeder distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

D. Mains: Circuit breaker, as indicated on plans.

E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs as indicated on plans.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

a. Standard frame sizes, trip ratings, and number of poles.
b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
f. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
g. Handle Lock Device: Loose attachment, for holding circuit-breaker handle in on position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.

B. Mount top of trim 90 inches above finished floor unless otherwise indicated.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262416

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.5 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Single Pole:

1) Cooper; AH1221.
2) Hubbell; HBL1221.
3) Leviton; 1221-2.
4) Pass & Seymour; CSB20AC1.

b. Two Pole:

1) Cooper; AH1222.
2) Hubbell; HBL1222.
3) Leviton; 1222-2.
4) Pass & Seymour; CSB20AC2.

c. Three Way:

1) Cooper; AH1223.
2) Hubbell; HBL1223.
3) Leviton; 1223-2.
4) Pass & Seymour; CSB20AC3.

d. Four Way:

1) Cooper; AH1224.
2) Hubbell; HBL1224.
3) Leviton; 1224-2.
4) Pass & Seymour; CSB20AC4.

C. Pilot-Light Switches, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "on."

2.6 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. Fluorescent Lamp and LED Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 5 percent of full brightness.

2.7 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with in-use, lockable cover.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect on a room by room basis unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:

a. Control circuits.
b. Enclosed switches.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Bussmann; a division of Cooper Industries.
2. Edison; a brand of Cooper Bussmann; a division of Cooper Industries.
3. Littelfuse, Inc.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
3. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Fuse rating shall be in accordance with equipment nameplate.

3.2 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Molded-case circuit breakers (MCCBs).
4. Enclosures.

1.2 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Lugs: Suitable for number, size, and conductor material.

2.2 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Lugs: Suitable for number, size, and conductor material.

2.3 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

D. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Suitable for number, size, trip ratings, and conductor material.
3. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
4. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.

2.4 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

B. Install fuses in fusible devices. Verify exact fuse rating with equipment nameplate.

C. Comply with NECA 1.

3.2 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262913 - ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following enclosed controllers rated 600 V and less:

1. Full-voltage manual.
2. Full-voltage magnetic.

1.2 DEFINITIONS

A. CPT: Control power transformer.

B. MCCB: Molded-case circuit breaker.

C. MCP: Motor circuit protector.

D. N.C.: Normally closed.

E. N.O.: Normally open.

F. OCPD: Overcurrent protective device.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed controller.

B. Shop Drawings: For each enclosed controller. Include dimensioned plans, elevations, sections, details, and required clearances and service spaces around controller enclosures.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FULL-VOLTAGE CONTROLLERS

A. General Requirements for Full-Voltage Controllers: Comply with NEMA ICS 2, general purpose, Class A.

B. Motor-Starting Switches: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off or on.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Nonreversing.
3. Surface mounting.
4. Pilot light.

C. Fractional Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Two speed.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

D. Integral Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters and sensors in each phase, matched to nameplate full-load current of actual protected motor and having appropriate adjustment for duty cycle; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

E. Magnetic Controllers: Full voltage, across the line, electrically held.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Contactor Coils: Pressure-encapsulated type.

    a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.

4. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
5. Control Circuits: 120-V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices. (100VA extra minimum.)

6. Solid-State Overload Relay:

    a. Switch or dial selectable for motor running overload protection.
    b. Sensors in each phase.
    c. Class 10/20 selectable tripping characteristic selected to protect motor against voltage and current unbalance and single phasing.

7. External overload reset push button.

F. Combination Magnetic Controller: Factory-assembled combination of magnetic controller, OCPD, and disconnecting means.

G. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

4. MCP Disconnecting Means:

   a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents, instantaneous-only circuit breaker with front-mounted, field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
   b. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
   c. Auxiliary contacts "a" arranged to activate with MCP handle.

2.2 ENCLOSURES

A. Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.

1. Dry and Clean Indoor Locations: Type 1.
2. Outdoor Locations: Type 3R.

2.3 ACCESSORIES

A. Push Buttons, Pilot Lights, and Selector Switches: NEMA ICS 5; heavy-duty type; factory installed in controller enclosure cover unless otherwise indicated. (Start-Stop, HOA, Red Pilot Light)

B. Control Relays: Auxiliary and adjustable time-delay relays.

C. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays: Solid-state sensing circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage, overvoltage, and time-delay settings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Wall-Mounted Controllers: Install enclosed controllers on walls with tops at uniform height, and with disconnect operating handles not higher than 79 inches above finished floor, unless otherwise indicated, and by bolting units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks complying with Section 260529 "Hangers and Supports for Electrical Systems."

B. Install fuses in each fusible-switch enclosed controller.

C. Install fuses in control circuits if not factory installed. Comply with requirements in Section 262813 "Fuses."

D. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been installed.

E. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

3.3 CONTROL WIRING INSTALLATION

A. Install wiring between enclosed controllers and remote devices and facility's central control system. Comply with requirements in Section 260523 "Control-Voltage Electrical Power Cables."

B. Bundle, train, and support wiring in enclosures.

C. Connect selector switches and other automatic-control selection devices where applicable.

1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switch is in manual-control position.
2. Connect selector switches with enclosed-controller circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed controller, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Inspect controllers, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
2. Test insulation resistance for each enclosed-controller element, component, connecting motor supply, feeder, and control circuits.
3. Test continuity of each circuit.
4. Verify that voltages at controller locations are within plus or minus 10 percent of motor nameplate rated voltages. If outside this range for any motor, notify Engineer before starting the motor(s).
5. Test each motor for proper phase rotation.
6. Perform each electrical test and visual and mechanical inspection stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed controllers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Set field-adjustable switches and overload-relay pickup and trip ranges.

B. Adjust the trip settings of MCPs and thermal-magnetic circuit breakers with adjustable instantaneous trip elements. Initially adjust to six times the motor nameplate full-load ampere ratings and attempt to start motors several times, allowing for motor cooldown between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed eight times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Engineer before increasing settings.

3.6 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain enclosed controllers.

END OF SECTION 262913

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 264313 - SURGE PROTECTION FOR LOW-VOLTAGE POWER CIRCUITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For manufacturer's special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

A. SPDs: Comply with UL 1449, Type 2.

1. Include LED indicator lights for power and protection status.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.

B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:

1. Line to Neutral: 700 V for 208Y/120 V.
2. Line to Ground: 700 V for 208Y/120 V.
3. Neutral to Ground: 700 V for 208Y/120 V.
4. Line to Line: 1200 V for 208Y/120 V

D. SCCR: Equal or exceed 100 kA.

E. Inominal Rating: 20 kA.

2.3 ENCLOSURES

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.

1. Compare equipment nameplate data for compliance with Drawings and Specifications.
2. Inspect anchorage, alignment, grounding, and clearances.
3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.3 DEMONSTRATION

A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 264313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

1.2 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, arranged by designation.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires and lamps. See Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of luminaire.

B. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Recessed Fixtures: Comply with NEMA LE 4.

C. CRI of minimum 80. CCT of 4100 K.

D. Rated lamp life of 50,000 hours.

E. Lamps dimmable from 100 percent to 0 percent of maximum light output.

F. Internal driver.

G. Nominal Operating Voltage: 120 V ac or 277 V ac. See Drawings.

1. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

H. Housings:

1. Extruded-aluminum housing and heat sink.
2. White, painted finish.

2.2 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging

B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools.

Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers, and Globes:

1. Clear, UV-stabilized acrylic.
2. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear per plan, powder-coat finish.

2.3 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.4 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports: Sized and rated for luminaire weight.

E. Flush-Mounted Luminaire Support: Secured to outlet box.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

G. Ceiling-Mounted Luminaire Support:

1. Ceiling mount with two 5/32-inch diameter aircraft cable supports adjustable to 120 inches in length.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

J. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 265119

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Addressable interface device.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Locate detectors according to manufacturer's written recommendations.

12. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

a. Trained and certified by manufacturer in fire-alarm system design.
b. NICET-certified, fire-alarm technician; Level III minimum.
c. Licensed or certified by authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

C. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment.
d. Riser diagram.
e. Record copy of site-specific software.
f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

g. Manufacturer's required maintenance related to system warranty requirements.
h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Fire-extinguishing system operation.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
5. Record events in the system memory.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, or remote annunciator.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 FIRE-ALARM CONTROL UNIT

A. The Fire Alarm Control Unit is an existing system and this project shall provide the additional components to expand system to include the new facility..

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38.

1. Dual-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
    c. Multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

2. Store an internal identifying code for control panel use to identify the module type.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

C. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

D. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

E. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

G. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

2. Exposed pathways conductors shall be red.

B. Pathways shall be installed in EMT.

C. Exposed EMT junction boxes shall be painted red enamel.

3.3 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Smoke dampers in air ducts of designated HVAC duct systems.
2. Magnetically held-open doors.
3. Electronically locked doors and access gates.
4. Alarm-initiating connection to elevator recall system and components.
5. Supervisory connections at valve supervisory switches.
6. Supervisory connections at elevator shunt-trip breaker.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

3.5 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect and authorities having jurisdiction.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter.
b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.7 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 310000 - GEO-TECHNICAL INVESTIGATION REPORTS

GENERAL

A. The report reproduced on the following pages is an exact copy of the original Subsurface Investigation Report for the Ford Park Multi-Sports Facility, Beaumont, Texas, prepared by Science Engineering, Inc.

B. Procedures and precautions recommended in the following Subsurface Investigation Report and attachments are to be strictly followed by the contractor. Where the technical sections of these specifications differ from the recommendations of the Subsurface Investigation Report, the more stringent requirement shall govern.

C. The Contractor is responsible for examining the site and determining the nature of the materials to be excavated.

D. Contractor shall be responsible for paying for all failed tests. Geo-Technical inspection service will bill all failed tests directly to the Contractor. Evidence of payment shall be a requirement for substantial completion.

SUBSURFACE SOILS INVESTIGATION REPORT FOLLOWS IN ITS ENTIRETY AND COMPLETES SECTION 310000.

SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

GEOTECHNICAL INVESTIGATION

FOR

FORD PARK MULTI-SPORTS FACILITY

IN

BEAUMONT, TEXAS

REPORT NUMBER 14260

REPORTED TO:

AMERICAN BUILDERS
9405 COLLEGE STREET
BEAUMONT, TEXAS 77707

NOVEMBER 2014

PREPARED BY:
SCIENCE ENGINEERING, LTD.

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

GEOTECHNICAL INVESTIGATION
Multi-Sports Facility
Beaumont, Texas

INTRODUCTION

The study reported herein is a preliminary investigation of subsurface conditions for the new Ford Park Multi-Sports Facility in Beaumont, Texas.

AUTHORIZATION

This investigation was authorized by Mr. Don King, P.E. by e-mail dated November 5, 2014.

SUBSURFACE EXPLORATION

The subsurface exploration at the site was accomplished by means of two (2) undisturbed sample core borings drilled to depths of approximately twenty (20) feet below existing ground surface. Approximate locations of the borings are shown on the attached boring plan.

SUBSURFACE INVESTIGATION

The subsurface investigation consisted of drilling three-inch nominal diameter core borings. Undisturbed samples of the cohesive soils were obtained from the borings by means of thin-wall, seamless steel Shelby tube samplers, in accordance with the ASTM D-1587 method. The shear strength of the cohesive soil samples was estimated by hand pentrometer in the field.

All undisturbed samples were extracted mechanically from the core barrels in the field, classified, wrapped in aluminum foil, and sealed in airtight plastic bags to prevent moisture loss and disturbance. The samples were transported to our laboratory for testing and further study.

LABORATORY INVESTIGATIONS

All samples from borings were examined and classified in the laboratory by a soil engineer, according to procedures outlined in ASTM D-2488. Laboratory tests were performed on selected soil samples in order to evaluate the engineering properties of the soil in accordance with the indicated standard procedures.

LABORATORY TESTS	STANDARD TESTS
Atterberg Limits (L.L., P. L., P.I.)	ASTM D-4318
Soil Moisture Content	ASTM D-2216
Unconfined Compressive Strength	ASTM D-2266
Soils Classification	ASTM D-2487

Undrained shear strength of selective cohesive soils was determined by unconfined compression tests. Water content and dry unit weight of the foundation soils were determined as routine parts of the unconfined compression tests. Atterberg limits tests were performed on appropriate cohesive samples. The results of these tests are shown on the attached boring logs.

SUBSURFACE CONDITIONS

Specific types and depths of subsurface strata encountered on the site are shown on the attached boring logs. Review of the boring logs indicates that generalized stratography is approximately as follows:

Stratum No.	Average Depth, feet	Description of Strata
I	0.00 - 6.00	Dark Gray CLAY (CH)
II	6.00 - 17.00	Tan and Gray CLAY (CH) with ferrous nodules and slickensides
III	17.00 - 20.00	Tan and Gray SANDY CLAY (CL)

The near surface soils are "CH" type soils when classified by the unified soils classification system. This type soil normally exhibits high swell potential during seasonal moisture variations.

Hydrostatic water was not encountered at the time of drilling.

CONSTRUCTION VARIATIONS

The information contained in this report summarizes conditions found on the date that the borings was drilled. The depth to the static water table may be expected to vary with the environmental variations, such as frequency and magnitude of precipitation and the time of year that construction begins.

DESIGN ANALYSIS AND RECOMMENDATIONS

Information available to this office indicates that the proposed construction at the site will consist of a new multi-sports facility.

DRILLED FOOTINGS (UNDERREAMS)

From analysis of the borings logs and laboratory tests results, it is recommended that the structural loads be transmitted to the foundation soils by the use of drilled and underreamed type footings. Footings should extend to a depth of nine feet (9') below existing ground surface to be located in Tan and Gray Clay. Utilizing a minimum factor of safety of three for dead load, or a minimum factor of two for total load, the allowable bearing capacity of the foundation soils for circular type footings is given as follows. 2,500 Pounds per square foot (PSF) for dead load, plus long term live loads and 3,700 PSF for total load. Whichever is critical should be used. The allowable loads given can be increased by thirty percent (30%) for wind or temporary lateral loading.

Due to the presence of slickensides at the recommended depth, we suggest that the bell to shaft ratio for the footings be limited to one to two (1:2).

There is potential for upward movement of the plastic clays in contact with the sides of the piers; the pier shafts should be well reinforced throughout their length resist tensional force.

STRUCTURE FOUNDATION

Each footing excavation should be inspected by the project's Engineer, Architect or Owner's representative prior to placing concrete to insure that (a) the footing has been constructed at the correct depth and the correct formation established by previously mentioned criteria, (b) the footing is concentric with the pier shaft or column, and (c) excessive cuttings, build-up or any soft-compressible material(s) have been removed from the bottom of the excavation.

Placement of concrete should be accomplished as soon as possible to prevent changes in the state of stress and the caving of the foundation soils. No footings should be poured without the prior approval of the projects' Engineer, Architect or Owner's representative.

FOUNDATION SETTLEMENT

A detailed settlement analysis was not within the scope of this study. It is anticipated that the footings designed, using the recommended allowable bearing pressures, will experience small settlements that will be well within the tolerable limit for the proposed structure.

FLOOR SLABS AND GRADE BEAMS

Review of the Atterberg Limits determinations indicates that the surface soils are "CH" type soils, with high plasticity, which may exhibit expansion during seasonal wetting and drying cycles. We believe that conventional "slab-on-fill" construction may be used for the interior portion of the structures built at the site. Select fill, a minimum of thirty-six-inch (36") thickness should be used to bring the structure to grade.

Prior to placement of select fill, strip site sufficiently to remove all topsoil, existing vegetation and roots larger than ½" in diameter to an approximate depth of twelve (12) inches. Then scarify the subgrade, add moisture, if necessary, and recompact to 95% of the maximum dry density as determined by ASTM D-698 (Standard Proctor). The moisture content at the time of compaction of subgrade soils should be within +1 to +3% of the proctor optimum value.

Select fill should then be placed, under laboratory control, in no greater than eight-inch (8") loose layers, and compacted to a minimum of 95% of the maximum dry unit weight, as obtained in the laboratory by means ASTM D-698 procedure. Moisture content of ±2% optimum should be maintained during placement of the select fill material. A vapor barrier consisting of six (6) mil Polyethylene shall be placed between the select fill and concrete slab.

The material used as select fill should consist of a non-active sandy clay or clayey sand type substance, having a Liquid Limit of 36 or less and Plasticity Index (P.I.) varying from 10 to 20.

SITE PREPARATION

In order to remedy construction problems, which may develop if attempts are made to work the surface materials following prolonged periods of rainfall which are common to this area, it is recommended that prior to starting any work at the site that proper construction drainage is to be provided to maintain a relatively dry construction site. (Use a minimum slope of 5% within 10 feet of the foundation).

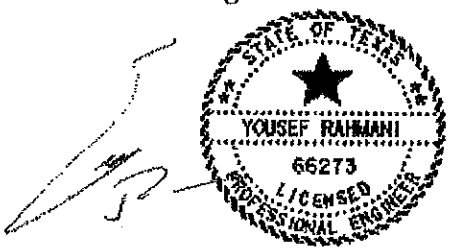
LIMITATIONS

The conclusions and recommendations given in this report are based on the analysis of the data collected for this project. Additive conclusions or recommendations made from this data by others are their responsibility.

Our study is based on the data obtained from soil borings made at the locations shown on borings plan. The nature and extent of variations between borings may become evident during construction. We should be requested to observe exposed conditions. After making these observations, and noting the engineering significance of variations, we will advise you of any changes in recommendations believed appropriate.

We appreciate this opportunity to provide our services to this project. Please let us know if you require additional information. Thank you.

Respectfully submitted for the firm,
TBPE Registration No. 4060



Yousef Rahmani, P.E.
President

Encl.: Boring Plan
Boring Logs 1 and 2
Geotechnical Chart/Symbols

Copies: 2 - Client
1- Fittz & Shipman, Inc.
1- SEL File 14260

YR/nb

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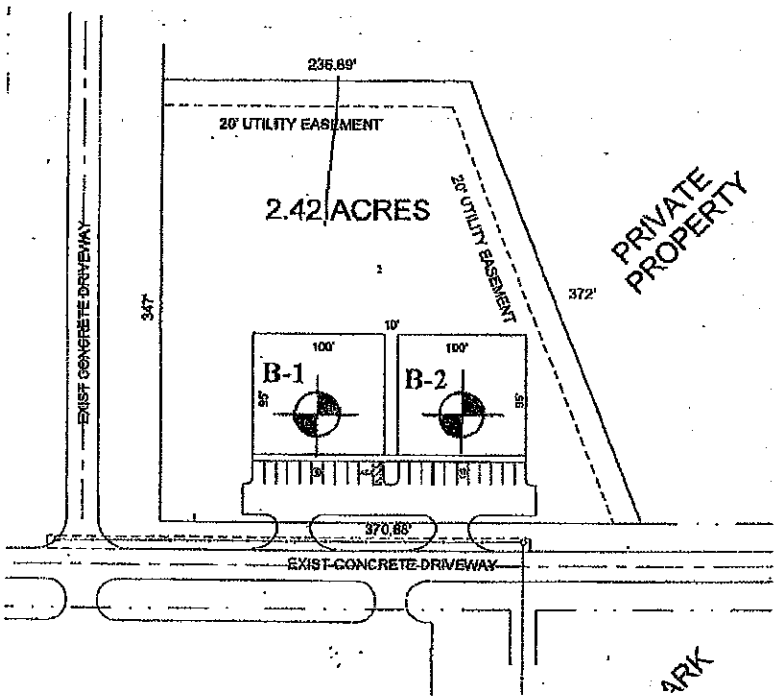
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

Report Number 14260



FORD PARK MULTI-SPORTS FACILTIY
BEAUMONT, TEXAS

BORING PLAN

NOVEMBER 2014

NOT TO SCALE

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Boring Number: B-1
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY								
							71	26	45		0.75	
											0.25	
5				CH	33	80	91	32	59		0.25	0.30
				Gray and Tan CLAY with ferrous nodules								
											0.25	
				tan and gray with slickensides	36	89	90	31	59		0.75	0.90
10												
					38	78	109	36	73		0.75	0.43
					42	81	112	40	72		0.75	0.51
15				CH								
				Gray SANDY CLAY								
				CL	22	99	39	19	20		0.50	0.30
20				Bottom at 20 feet								

1. Water was not encountered during drilling.
2. Bore hole dry upon completion.

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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Boring Number: B-2
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY							0.50	
					34	85	100	33	67		0.25	0.37
5				CH							0.25	
				Tan and Gray CLAY with ferrous nodules and slickensides	32	91	87	26	61		0.35	0.40
					29	88					0.65	0.60
10												
					39	78	108	34	74		0.75	0.50
15				CH								
				Tan and Gray SANDY CLAY								
				CL	22	107					1.00	0.85
20				Bottom at 20 feet								

1. Water was not encountered during drilling.
2. Bore hole dry upon completion.

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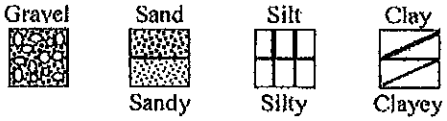
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

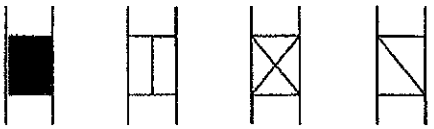
KEY TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPE



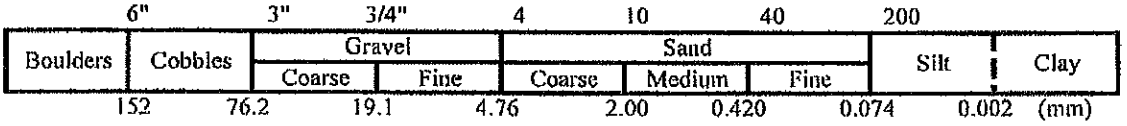
Predominant type shown heavy

SAMPLE TYPE

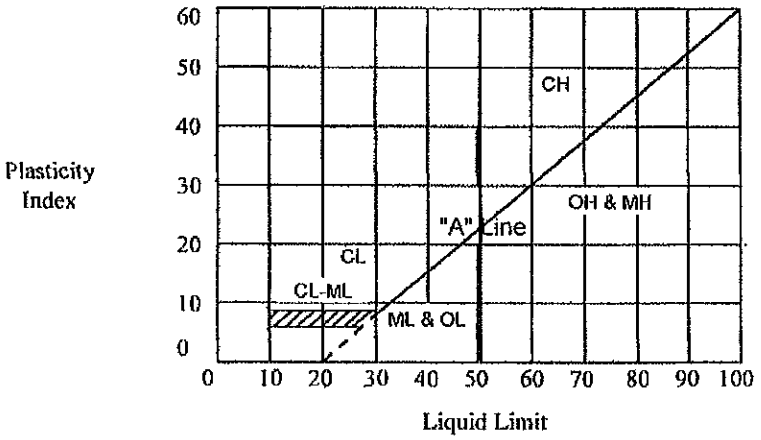


SOIL GRAIN SIZE

U.S. Standard Sieve



PLASTICITY CHART



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance, blows per foot	Consistency	Cohesion TSF	Plasticity Index	Degree of Plasticity
0 - 2	Very Soft	0 - 0.125	0 - 5	None
2 - 4	Soft	0.125 - 0.25	5 - 10	Low
4 - 8	Firm	0.25 - 0.5	10 - 20	Moderate
8 - 15	Stiff	0.5 - 1.0	20 - 40	Plastic
15 -30	Very Stiff	1.0 - 2.0	> 40	Highly Plastic
> 30	Hard	> 2.0		

RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance, blows per foot	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Removal of underground utilities is included in Division 22 and Division 26 Sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
2. Use only hand methods for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks, pavements.
5. Excavating and backfilling for utility trenches.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of [washed]crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." during earthwork operations.

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit or as indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete".

D. Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).
3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

FORD FIELDS CONCESSION STAND
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SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Soil treatment with termiticide.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include the EPA-Registered Label.

B. Product certificates.

C. Soil Treatment Application Report: Include the following:

1. Date and time of application.
2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Five years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Termiticides:

a. Aventis Environmental Science USA LP; Termidor.
b. Bayer Corporation; Premise 75.
c. Dow AgroSciences LLC; Dursban TC.
d. FMC Corporation, Agricultural Products Group; Prevail FT.
e. Syngenta; Demon TC.

2.2 SOIL TREATMENT

A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

B. Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

3.2 APPLYING SOIL TREATMENT

A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

1. Slabs-on-Grade: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

D. Post warning signs in areas of application.

E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

FORD FIELDS CONCESSION STAND
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SECTION 316329 - DRILLED CONCRETE PIERS AND SHAFTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes dry-installed drilled piers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For concrete reinforcement.

D. Welding certificates.

E. Material certificates & test reports.

1.3 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.4, "Structural Welding Code - Reinforcing Steel."

B. Drilled-Pier Standard: Comply with ACI 336.1 unless modified in this Section.

1.4 PROJECT CONDITIONS

A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for drilled piers.
2. The geotechnical report is included in Section 310000 – Geotechnical Investigation elsewhere in the Project Manual.

B. Survey Work: Engage a qualified land surveyor or professional engineer to perform surveys, layouts, and measurements for drilled piers. Before excavating, lay out each drilled pier to lines and levels required. Record actual measurements of each drilled

pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.

1. Record and maintain information pertinent to each drilled pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I. Supplement with the following:

a. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33, graded, 1-inch nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94 and potable.

D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
3. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
4. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.3 CONCRETE MIXTURES AND MIXING

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 limits as if concrete were exposed to deicing chemicals.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Proportion normal-weight concrete mixture as follows:

1. Compressive Strength (28 Days): 3000 psi.
2. Air Content: Do not air entrain concrete.

E. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Classified Excavation: Excavation is classified as standard excavation, special excavation, and obstruction removal and includes excavation to bearing elevations as follows:

1. Standard excavation includes excavation accomplished with conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work.
2. Special excavation includes excavation that requires special equipment or procedures above or below indicated depth of drilled piers where drilled-pier excavation equipment used in standard excavation, operating at maximum power, torque, and downthrust, cannot advance the shaft.
3. Obstructions: Payment for removing unanticipated boulders, concrete, masonry, or other subsurface obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.

B. Excavate shafts for drilled piers to indicated elevations. Remove loose material from bottom of excavation.

C. Notify and allow testing and inspecting agency to test and inspect bottom of excavation. If unsuitable bearing stratum is encountered, make adjustments to drilled piers as determined by Architect.

1. Do not excavate shafts deeper than elevations indicated unless approved by Architect.
2. Payment for additional authorized excavation will be according to Contract provisions for changes in the Work.

D. Temporary Casings: Install watertight steel casings of sufficient length and thickness to prevent water seepage into shaft; to withstand compressive, displacement, and withdrawal stresses; and to maintain stability of shaft walls.

1. Remove temporary casings, maintained in plumb position, during concrete placement and before initial set of concrete.

E. Bells: Excavate bells for drilled piers to shape, base thickness, and slope angle indicated. Excavate bottom of bells to level plane and remove loose material before placing concrete.

F. Tolerances: Construct drilled piers to remain within ACI 336.1 tolerances.

3.2 INSTALLATION

A. Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Place concrete in continuous operation and without segregation immediately after inspection and approval of shaft by Owner's independent testing and inspecting agency.

C. Place concrete to fall vertically down the center of drilled pier without striking sides of shaft or steel reinforcement. Vibrate top 60 inches of concrete.

D. Coordinate withdrawal of temporary casings with concrete placement to maintain at least a 60-inch head of concrete above bottom of casing. Vibrate top 60 inches of concrete after withdrawal of temporary casing.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Drilled piers.
2. Excavation.
3. Concrete.
4. Steel reinforcement welding.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Drilled-Pier Tests and Inspections: For each drilled pier, before concrete placement.

1. Soil Testing: Bottom elevations, bearing capacities, and lengths of drilled piers indicated have been estimated from available soil data. Actual elevations and drilled-pier lengths and bearing capacities will be determined by testing and inspecting agency. Final evaluations and approval of data will be determined by Architect.

D. Concrete Tests and Inspections: ACI 301.

END OF SECTION 316329

FORD FIELDS CONCESSION STAND
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SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Driveways and roadways.
2. Walkways.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:]

a. Fly Ash: ASTM C 618, Class C or F.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded, from a single source coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).
4. Air Content: 4-1/2 percent plus or minus 1.5 percent.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. (0.60 kg/cu. m).

C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on pavement surface according to manufacturer's written instructions.

1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch (6 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/4 inch (6 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

B. wheel stop.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type and color of joint sealant required.

C. Product certificates & test reports.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

A. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

1. Products:

a. Sonneborn, Div. of ChemRex, Inc.; Sonomeric SL-1.

2.4 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 321373

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:
   1. Chain-Link Fences: Industrial
   2. Gates: Motor operated, horizontal slide (two required)

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate framework shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

   1. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified and on the following:

      a. Wind Loads: 120 MPH.
      b. Fence Height: to match existing.
      c. Material Group: IA, ASTM F 1043, Schedule 40 steel pipe.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

   1. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

C. Product Certificates: For each type of chain-link fence and gate, from manufacturer.

D. Product Test Reports: For framing strength according to ASTM F 1043.

E. Operation and maintenance data.

1.4 QUALITY INSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70. Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. UL Standard: Provide gate operators that comply with UL 325.

C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators serving as a required means of access.

1.5 WARRANTY

F. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: to match existing w/ inserts.
2. Steel Wire Fabric: 0.148 inch (3.76 mm)

a. Mesh Size: 2 inches (50 mm).

b. Zinc-Coated Fabric: ASTM A 392, Type II

3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

1. Fence Height: to match existing.

2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

   a. Line Post: 2.25 by 1.70 inches..
   b. End, Corner and Pull Post: 2.375 inches in diameter.

3. Horizontal Framework Members: Top and bottom rails complying with ASTM F 1043.

4. Horizontal-Slide Gate Post: According to ASTM F 1184.
5. Brace Rails: Comply with ASTM F 1043.
6. Metallic Coating for Steel Framing:

   a. Type B zinc with organic overcoat.

2.3 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- (4.5-mm-) diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:

1. Type III, Zn-5-Al-MM alloy with minimum coating weight matching chain-link fabric coating weight

2.4 INDUSTRIAL HORIZONTAL-SLIDE GATES

A. General: Comply with ASTM F 1184 for single slide gated types (two required)
   1. Classification: Type II Cantilever Slide, Class 1 with external roller assemblies.
   2. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1184 for materials and protective coatings.
   3. Metal Pipe and Tubing Aluminum. Comply with ASTM F 699 for materials and protective coatings.

B. Frames and Bracing: Fabricate members from round, aluminum tubing with outside dimension and weight according to ASTM F 1184 and the following:
   1. Gate Fabric Height: As indicated.
   2. Gate Opening Width: As indicated.
   3. Frame Members:
      a) Tubular Aluminum: 2 inches rectangular.

   4. Bracing Members:
      a.) Tubular Aluminum: 2 inches rectangular.

C. Frame Corner Construction:
   1. Welded frame with panels assembled with bolted or riveted corner

Fitting and 5/16" diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame as indicated as required to attach barbed wire assemblies.
E. Overhead Track Assembly: Manufacture's standard track, with overhead framing supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.
F. Roller Guards: As required per ASTM F 1184 for Type II, Class 2 gates.
G. Hardware: Latches permitting operation from both sides of gate, locking devices, hangers, roller assemblies and stops fabricated from mill-finished Grade 319 aluminum-alloy casting with stainless-steel fastners.

2.4 FITTINGS

A. General: Comply with ASTM F 626.

B. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.

a. Polymer coating over metallic coating.

2. Aluminum: Mill finish.

2.5 BARBED WIRE

A. Steel Barbed Wire: Comply with ASTM A 121, for two-strand barbed wire, 0.099-inch- (2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, four-point round barbs spaced not more than 5 inches (127 mm) o.c.

1. Zinc Coating: Type Z, Class 3.

2.6 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at

Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

2.7 GATE OPERATORS

A. General: Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
   1. Provide HySecurity, Model 222 E-ST (02827 HYS), Extra Duty Slide Gate Operator with Smart Touch Controller.

B. Comply with NFPA 70.

C. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG-1 and the following:

   1. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
   2. Horsepower: 1 HP.
   3. Phase: One.

D. Gate Operators: Concrete base/pad mounted and as follows:

   1. Hydraulic Slide Gate Operators:

      a. Duty: Heavy-duty, commercial/industrial.

E. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure and with space for additional optional equipment. Provide station remote-control device(s).

F. Vehicle Detector: Exit Gate Only, (east gate). Presence system including automatic closing timer with adjustable time delay before closing and timer cut-off switch; designed to open and close gate.

G. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.

H. Accessories:

   1. Warning Module: Audio/Visual, ADA-compliant, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.

2. Battery Backup System: Battery-powered drive and access control system, independent of primary drive system.
3. Intercom System:
4. Instructional, Safety, and Warning Labels and Signs: According to UL 325.

I. Tie Wires: Attach wire per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothinh.

J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

K. Barbed Wire: Uniformly spaced, angled toward security side of fence. Pull wire taut and install securely to extension arms and secure to end post or terminal arms.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

D. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

E. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we

(Here insert full name and address or legal title of Contractor)

GADV, Inc. dba L&L General Contractors

as Principal, hereinafter called the Principal, and

(Here insert full name and address or legal title of Surety)

Developers Surety and Indemnity Company

a corporation duly organized under the laws of the State of **Iowa**
as Surety, hereinafter called the Surety, are held and firmly bound unto

(Here insert full name and address or legal title of Owner)

Jefferson County, TX

as Obligee, hereinafter called Obligee, in the sum of

Five percent of the amount bid Dollars (**$ 5%**).

For the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

(Here insert full name, address, and description of project)

Ford Fields Concession Stand, Bid No. IFB 16-002/JW

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this **16th** day of **February** , 20 **16** .

(Witness)

GADV, Inc. dba L&L General Contractors
(Principal) (Seal)

SECRETARY
(Title)

(Witness)

Developers Surety and Indemnity Company
(Surety) (Seal)

Tim Kirk (Title) **Attorney in Fact**

G. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment.

H. Line Posts: Space line posts uniformly at 10 feet o.c.

I. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing.

J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage unless otherwise indicated.

K. Barbed Wire: Install barbed wire uniformly spaced, angled toward security side of fence. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.

L. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

M. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 323113

POWER OF ATTORNEY FOR
DEVELOPERS SURETY AND INDEMNITY COMPANY
PO Box 19725, IRVINE, CA 92623 (949) 263-3300

KNOW ALL BY THESE PRESENTS that except as expressly limited, DEVELOPERS SURETY AND INDEMNITY COMPANY, does hereby make, constitute and appoint:

Tim Kirk

as its true and lawful Attorney(s)-in-Fact, to make, execute, deliver and acknowledge, for and on behalf of said corporation, as surety, bonds, undertakings and contracts of suretyship giving and granting unto said Attorney(s)-in-Fact full power and authority to do and to perform every act necessary, requisite or proper to be done in connection therewith as each of said corporation could do, but reserving to each of said corporation full power of substitution and revocation, and all of the acts of said Attorney(s)-in-Fact, pursuant to these presents, are hereby ratified and confirmed.

This Power of Attorney is granted and is signed by facsimile under and by authority of the following resolution adopted by the Board of Directors of DEVELOPERS SURETY AND INDEMNITY COMPANY, effective as of January 1st, 2008.

RESOLVED, that a combination of any two of the Chairman of the Board, the President, any Executive Vice-President, Senior Vice-President or Vice-President of the corporation be, and that each of them hereby is, authorized to execute this Power of Attorney, qualifying the attorney(s) named in the Power of Attorney to execute, on behalf of the corporation, bonds, undertakings and contracts of suretyship; and that the Secretary or any Assistant Secretary of the corporation be, and each of them hereby is, authorized to attest the execution of any such Power of Attorney;

RESOLVED, FURTHER, that the signatures of such officers may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures shall be valid and binding upon the corporation when so affixed and in the future with respect to any bond, undertaking or contract of suretyship to which it is attached.

IN WITNESS WHEREOF, DEVELOPERS SURETY AND INDEMNITY COMPANY has caused these presents to be signed by its officers and attested by its Secretary or Assistant Secretary this November 21, 2013.

By: Daniel Young
Daniel Young, Senior Vice-President

By: Mark J. Lansdon
Mark J. Lansdon, Vice-President

DEVELOPERS SURETY AND INDEMNITY COMPANY CORPORATE OCT. 10 1936 IOWA

State of California
County of Orange

On November 21, 2013 (Date) before me, Antonio Alvarado, Notary Public (Here Insert Name and Title of the Officer)

personally appeared Daniel Young and Mark J. Lansdon (Name(s) of Signer(s))

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Antonio Alvarado
Antonio Alvarado, Notary Public

ANTONIO ALVARADO
COMM. # 2033556
NOTARY PUBLIC CALIFORNIA
ORANGE COUNTY
My comm. expires Aug. 9, 2017

Place Notary Seal Above

CERTIFICATE

The undersigned, as Secretary or Assistant Secretary of DEVELOPERS SURETY AND INDEMNITY COMPANY does hereby certify that the foregoing Power of Attorney remains in full force and has not been revoked and, furthermore, that the provisions of the resolution of the Board of Directors of said corporation set forth in the Power of Attorney are in force as of the date of this Certificate.

This Certificate is executed in the City of Irvine, California, this 16th day of February, 2016

By: Cassie J. Berrisford
Cassie J. Berrisford, Assistant Secretary

ID-1438(Rev.11/13)

L&L GENERAL CONTRACTORS

L&L General Contractors
11988 FM 365 W
Beaumont, TX 77705

Project Name: Ford Fields Concession Stand

Bid Location: Jefferson County Purchasing

Bid Time: 2-16-2016 at 11:00AM

RECEIVED 10:56 AM FEB 16 2016

CONSTRUCTION MANUAL

Ford Fields

FORD FIELDS

CONCESSION STAND

5115 IH-10 South, Beaumont, Texas

PROJECT #15036

The LaBiche
ARCHITECTURAL GROUP, INC.

7999 Gladys Ave., Suite 101
Beaumont, Texas 77706
409-860-0197

REGISTERED ARCHITECT
JOHN H. LaBICHE
11592
STATE OF TEXAS

1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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REGISTERED ARCHITECT
JOHN H. LaBICHE
11592
STATE OF TEXAS
1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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REGISTERED ARCHITECT STATE OF TEXAS
JOHN H. LaBICHE
11592

1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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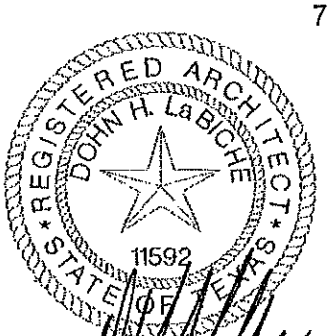

1/22/16

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1001 Pearl Street, 3rd Floor, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

January 19, 2016

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for IFB 16-002/JW, Ford Fields Concession Stand. **Construction Documents for this project may be obtained from the office of The LaBiche Architectural Group, Inc. by calling 409-860-0197 for access to the online drawings and specifications.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Commissioners' Courtroom at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Ford Fields Concession Stand**
BID NO:	**IFB 16-002/JW**
DUE DATE/TIME:	**11:00 AM CDT, Tuesday, February 16, 2016**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1001 Pearl Street, 3rd Floor** **Beaumont, Texas 77701**

There will be a pre-bid conference and walk-through at 10:00 AM CDT on Tuesday, February 2, 2016 at the Ford Park Ball Fields, 5115 IH10 South, Beaumont, Texas 77705.

Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these requirements should be directed to Jamey West, Assistant Purchasing Agent, at 409-835-8593.

Jefferson County encourages Disadvantaged Business Enterprises to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provisions of services. Individuals requiring special accommodations are requested to contact our office at 409-835-8593 to make arrangements no later than seven (7) calendar days prior to the submittal deadline. Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.

Deborah Clark

Deborah L. Clark
Purchasing Agent
Jefferson County, Texas
Publish: Beaumont Enterprise & Port Arthur News – January 20th & January 27th, 2016

IFB 16-002/JW
Ford Fields Concession Stand
Bids due: 11:00 AM CDT, February 16, 2016

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BIDDER IS RESPONSIBLE FOR RETURNING ALL REQUIRED PAGES (MARKED WITH AN "X" ABOVE) WITH THE BID. ADDITIONALLY, BIDDER MUST MONITOR THE PURCHASING WEB SITE (HTTP://WWW.CO.JEFFERSON.TX.US/PURCHASING/MAIN.HTM) TO SEE IF ADDENDA OR ADDITIONAL INSTRUCTIONS HAVE BEEN POSTED. FAILURE TO RETURN ALL REQUIRED FORMS COULD RESULT IN A BID BEING DECLARED AS NON-RESPONSIVE.

Instructions to Bidders

1. Bid Submission

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, TX 77701

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

All bids shall be tightly sealed in an opaque envelope and plainly marked with the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

2. Courthouse Security

Bidders are advised that all visitors to the Courthouse must pass through Security. **Bidders planning to hand deliver bids must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal.** Mondays and Tuesdays are particularly heavy days. Bidders are strongly urged to plan accordingly.

3. Preparation of Bids

The bid shall be legibly printed in ink or typed.

If a unit price or extension already entered is to be altered, it shall be crossed out and initialed in ink by the bidder.

The bid shall be legally signed and shall include the complete address of the bidder.

Jefferson County is exempt from Federal and State Sales Taxes, and such taxes shall not be included in bid prices.

4. Signatures

All bids, notifications, claims, and statements must be signed by an individual authorized to bind the bidder. The individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

5. County Holidays – 2016:

January 1	Friday	New Year's Day
January 18	Monday	Martin Luther King, Jr. Day
February 15	Monday	President's Day
March 25	Friday	Good Friday
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24 & 25	Thursday & Friday	Thanksgiving
December 26-27	Monday & Tuesday	Christmas

6. Rejection or Withdrawal

Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive any informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date.

7. Emergency/Declared Disaster Requirements

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s). Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

8. Award

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected. Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial nonconformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

9. Contract

A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by mutually agreed terms and conditions in the contract documents.

10. Waiver of Subrogation

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

11. Fiscal Funding

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

12. Bid Results

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page (http://co.jefferson.tx.us/ purchasing/main.htm) as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

13. Changes and Addenda to Bid Documents

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

14. Specifications

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

15. Delivery

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

16. Interpretation of Bid and/or Contract Documents

All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

17. Currency

Prices calculated by the bidder shall be stated in U.S. dollars.

18. Pricing

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

19. Notice to Proceed/Purchase Order

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

20. Certification

By signing the offer section of the Offer and Acceptance page, bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.

- The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.

21. Definitions

"County" – Jefferson County, Texas.

"Contractor" – The bidder whose proposal is accepted by Jefferson County.

22. Minority-Women Business Enterprise Participation

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

General Conditions of Bidding and Terms of Contract

By execution of this document, the vendor accepts all general and special conditions of the contract as outlined below and in the specifications and plans.

1. Bidding

1.1 Bids. All bids must be submitted on the bid form furnished in this package.

1.2 Authorized Signatures. The bid must be executed personally by the vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the vendor shall accompany the bid to become a valid bid.

1.3 Late Bids. Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.4 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 Withdrawal of Bids after Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.6 Bid Amounts. Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.7 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.8 Alternates. The Invitation for Bid and/or specifications may expressly allow bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.9 Descriptions. Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.10 Bid Alterations. Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.11 Tax Exempt Status. Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.12 Quantities. Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.13 Bid Award. Award of contract shall be made to the most responsible, responsive bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended. Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.14 Silence of Specifications for Complete Units. All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.15 Addenda. Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.16 General Bid Bond/Surety Requirements. Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.17 General Insurance Requirements. Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 Responsiveness. A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 Responsible Standing of Bidder. To be considered for award, bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.20 Proprietary Data. Bidder may, by written request, indicate as confidential any portion(s) of a bid that contain proprietary information, including manufacturing and/or design processes exclusive to the vendor. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.

1.21 Public Bid Opening. Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. Performance

2.1 Design, Strength, and Quality. Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be

regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 Age and Manufacture. All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 Delivery Location. All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 Delivery Charges. All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 Installation Charges. All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 Operating Instructions and Training. Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 Compliance with Federal, State, County, and Local Laws. Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA. The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 Samples, Demonstrations and Testing. At Jefferson County's request and direction, bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the bidder/vendor.

2.13 Acceptability. All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 Maintenance. Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on

the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warrantles and should be priced accordingly.

2.15 Material Safety Data Sheets. Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 Evaluation. Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. Purchase Orders and Payment

3.1 Purchase Orders. A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 Invoices. All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful bidder(s) is required to pay subcontractors within ten (10) days after the successful bidder receives payment from the County.

3.4 Funding. Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. Contract

4.1 Contract Definition. The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful bidder and Jefferson County.

4.2 Change Order. No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 Price Re-determination. A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The bidder's past experience of honor-

ing contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 Termination. Jefferson County reserves the right to terminate the contract for default if the bidder breached any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the bidder in default.

4.5 Conflict of Interest. Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 Injuries or Damages Resulting from Negligence. Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 Interest by Public Officials. No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 Warranty. The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 Uniform Commercial Code. The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 Venue. This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 Sale, Assignment, or Transfer of Contract. The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 Silence of Specifications. The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Special Requirements/Instructions

The following requirements and instructions supersede General Requirements where applicable.

1. Bid Requirement

Each bidder shall insure that all parts of the bid are **completed and returned.** The Table of Contents indicates specifically which pages need to be returned; these pages shall constitute the vendor's bid.

Vendor shall use an opaque envelope, clearly indicating on the outside the **Bid Number, Bid Description, and marked "SEALED BID".** Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB. All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court. **Bidders** shall submit (1) one original, and (2) two copies of the bid.

2. Vendor Registration: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov

Bid Respondents are highly encouraged to check their firm's SAM (System for Award Management) status prior to Bid Submission; as it is a requirement for vendors doing business with Jefferson County to be registered.

3. Awarded Vendor(s): Submission of FORM 1295 (Texas Ethics Commission)

As of January 1, 2016, per House Bill 1295, the Texas Ethics Commission (TEC) requires **all awarded vendors** to complete a Certificate of Interested Parties (FORM 1295) at time of notification of award. **Awarded Vendors** must visit the TEC website link below, enter the required information on Form 1295, and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

At the time of award, the Jefferson County Purchasing Department will submit a request to the Awarded Vendor to both:

1. Submit FORM 1295 online via the Texas Ethics Commission website link below.

2. Submit a printed copy of FORM 1295, signed by an Authorized Agent of the Awarded Vendor and notarized to the Jefferson County Purchasing Department.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at:https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4. Multiple Vendor Award

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. Delivery

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. Payment

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to: Jefferson County Auditing Department, Attention: Accounts Payable, 1149 Pearl Street, 7th floor, Beaumont, TX 77701.

7. Usage Reports

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. Insurance

The contractor (including any and all subcontractors as defined in Section 7.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

Minimum Insurance Requirements

Public Liability	$1,000,000.00
Excess Liability	$1,000,000.00
Property Insurance (policy below that is applicable to this project):	
Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)	
Builder's Risk Policy: Structural Coverage for Construction Projects	
Installation Floater Policy: Improvements/Alterations to Existing Structure	
Workers' Compensation	Statutory Coverage (see attached)

9. Workers' Compensation Insurance

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 6 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

Minimum Specifications

The following requirements and specifications supersede General Requirements where applicable. Contact Dohn H. LaBiche, FAIA (e-mail: dlabiche@labiche.com; phone: 409-860-0197), regarding any questions or comments. Please reference bid number **IFB 16-002/JW**.

Scope

FURNISH ALL MATERIALS AND LABOR FOR THE CONSTRUCTION OF A NEW CONCESSION STAND TO BE LOCATED AT FORD FIELDS.

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): #1, #2, #3, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

N & T Construction Co., Inc
Company Name

1376 Laurel Ave.
Address

Beaumont TX 77701
City State Zip

Signature of Person Authorized to Sign

Charlie Gabbia
Printed Name

C.O.O.
Title

For clarification of this offer, contact:

Charlie Gabbia
Name

409-813-8592 / 409-813-8597
Phone Fax

cjabbia@nandtconstruction.com
E-mail

Bidder Shall Return Completed Form with Offer.

Bid Form

We propose to furnish all labor, material and equipment, and to perform all work necessary to construct the **Ford Fields Concession Stand** including Mechanical, Plumbing and Electrical Work, in accordance with drawings and specifications prepared by The LaBiche Architectural Group, Inc., for the following sum:

BASE BID : four hundred fifty thousand

Dollars $ 450,000

Materials $ 250,000

Labor $ 200,000

We have examined the site of the Work and the nature and kind of work to be performed and have informed ourselves of all local conditions and other things that might affect the cost or difficulty of performing the Work, and we represent and warrant that we have experience in the use of materials and methods of performance specified, and that we can and will do the Work and construct the improvements with the specified materials as contemplated and indicated by the Drawings and Specifications.

Upon receipt of notice of acceptance of our bid, we agree to execute the Contract within 10 (ten) days after such notice, deliver Performance and Payment Bonds for the faithful performance of the Work, to begin work on or before the date of commencement of the Work established in the Notice to Proceed, and to complete the Work in 180 calendar days.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project on or before the date of completion shown on the "Notice to Proceed". Bidder further agrees to pay as liquidated damages, the sum of **$300.00** for each consecutive calendar day thereafter.

Acknowledgment of Addenda (if any):

Addendum 1	✓	Date Received	2/8/16
Addendum 2	✓	Date Received	2/11/16
Addendum 3	✓	Date Received	2/15/16

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: Jefferson County

Address: 1149 Pearl St. 5th Floor Bmt TX 77701

Contact Person and Title: Mike Fuselier

Phone: 835-8584 Fax: 835-8718

Contract Period: 2|2015 - 5|2016 Scope of Work: Courthouse Upgrades

REFERENCE TWO

Government/Company Name: City of Beaumont

Address: 801 Main St. Beaumont, TX 77701

Contact Person and Title: Keith Folsom

Phone: 980-833 Fax: 880-3110

Contract Period: 6|2014 - 4|2015 Scope of Work: Fire Station #11

REFERENCE THREE

Government/Company Name: City of Port Arthur

Address: 444 4th street, Port Arthur, TX 77640

Contact Person and Title: Clifton Williams

Phone: 409 983-8160 Fax: 409 983 8291

Contract Period: 10|8|12 Scope of Work: Port Arthur Pavilion

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☑ **No** ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

N & T Construction Co Inc
Bidder (Entity Name)

Signature

1376 Laurel Ave
Street & Mailing Address

CHARLIE JABBIA
Print Name

Beaumont TX 77701
City, State & Zip

2/16/16
Date Signed

409 813 8592
Telephone Number

409 813 8597
Fax Number

cjabbia@nandtconstruction.com
E-mail Address

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

	OFFICE USE ONLY
This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session. This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a). By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code. A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.	Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

N/A

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

N/A

Name of Officer

This section (Item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

Signature of vendor doing business with the governmental entity

2/16/16

Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 Name of Local Government Officer

N/A

2 Office Held

N/A

3 Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code

4 Description of the nature and extent of employment or other business relationship with vendor named in item 3

5 List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 AFFIDAVIT

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20_____, to certify which, witness my hand and seal of office.

_____ Signature of officer administering oath

_____ Printed name of officer administering oath

_____ Title of officer administering oath

Adopted 8/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☑ Yes ☐ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☑ Yes ☐ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☑ Yes ☐ No 3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☑ Yes ☐ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?

☑ Yes ☐ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☑ Yes ☐ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid.
If necessary, please use a separate sheet to answer the above questions.

Charlie Gabbia
Printed Name of Authorized Representative

Signature

C.O.O.
Title

2/16/16
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: N&T Construction Co, Inc HUB: ☑ Yes ☐ No

Address: 1376 Laurel Ave Beaumont TX 77701
Street City State Zip

Phone (with area code): 409-813-8592 Fax (with area code): 409-813-8597

Project Title & No.: FORD FIELDS CONCESSION STAND, PROJECT # 15036

Prime Contract Amount: $ TBD

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Charlie Gabbia		2/16/16
Printed Name of Contractor Representative	Signature of Representative	Date
N&T Construction Co Inc.		2/16/16
Printed Name of HUB	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Prime Contractor: N&T Construction Co, Inc. HUB: ☑ Yes ☐ No

HUB Status (Gender & Ethnicity): WBE

Address: 1376 Laurel Ave Beaumont TX 77701
Street City State Zip

Phone (with area code): 409 813 8592 Fax (with area code): 409 813 8592

Project Title & No.: FORD FIELDS CONCESSION IFB/RFP No.: #15036

Total Contract: $ TBD Total HUB Subcontract(s): $ TBD

Construction HUB Goals: 12.8% MBE:: 100 % % 12.6% WBE: 100 % %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American.
Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: N&T CONSTRUCTION CO., INC.

HUB Status (Gender & Ethnicity): WBE

Certifying Agency: ☑ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: ELAINE JABBIA Title: PRESIDENT

Phone (with area code): 409-813-8592 Fax (with area code): 409-813-8597

Proposed Subcontract Amount: $ 450,000 Percentage of Prime Contract: 100 %

Description of Subcontract Work to be Performed: General Contract

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Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $_____ Percentage of Prime Contract: _____%

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $_____ Percentage of Prime Contract: _____%

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required.** I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): Charlie Jabbia

Title: C.O.O

Signature: _____

Date: 2/16/2016

E-mail address: cjabbia@nandtconstruction.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Charlie Jabbia

Title: C.O.O.

Date: 2/16/2016

E-mail address: cjabbia@nandtconstruction.com

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☑ I certify that N+T Construction [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	1-76-0292289-4
Company Name submitting bid/proposal:	N+T Construction
Mailing address:	P.O. Box 269 · Beaumont, TX 77704
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	N/A

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
N/A	

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared Charlie Gabbia (name), who after being by me duly sworn, did depose and say:

"I, Charlie Gabbia (name) am a duly authorized officer of/agent for N+T Construction (name of firm) and have been duly authorized to execute the foregoing on behalf of the said N+T Construction (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: N+T Construction, 1376 Laurel Ave Beaumont TX 77701

Fax: 409 813 8597 Telephone# 409 813 8597

by: Charlie Gabbia (print name) Title: C.O.O.

Signature: [signature]

SUBSCRIBED AND SWORN to before me by the above-named [signature] on this the 16 day of February, 2016.

PATRICIA ELAINE JABBIA
My Commission Expires
April 17, 2019

Patricia Elaine Jabbia
Notary Public in and for the State of Texas

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The project is located at 5115 IH-10 South, in Beaumont, Texas.

B. The Work of this Contract consists of the furnishing of all labor, materials, services, equipment and appliances as indicated in the Drawings and Specifications.

1. **Base Bid:** Construct a new concession stand on the grounds of Ford Park Fields.

C. The Drawings and Specifications do not necessarily indicate or describe all Work required for completion of the Project. Contractor shall provide and install all incidentals reasonably inferable from the Contract Documents that are required for a complete Project.

D. These documents describe the essential elements sufficiently to determine the scope of the Project.

E. Provide all items required for complete operating systems including items not necessarily shown in these documents, but that can be reasonably inferred as being required for the complete operating system.

F. The Drawings and Specifications indicate the basic quality of materials and quality of construction required for the entire project.

G. Site Inspection: Offers' can access the site at any day and time. Access to the Sub Courthouse requires contacting County Maintenance Supervisor Mark Bernard at (409) 466-1790.

H. Inquiries Concerning Proposal and Contract Documents: Prior to submitting a proposal, technical questions concerning the proposal documents shall be directed to:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
dlabiche@labiche.com
Tel: 409/860-0197
Fax: 409/860-0198

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 CONTRACT

A. The Contract will be executed as a lump-sum agreement on the forms provided.

B. Employ subcontractors for the disconnection, re-connection and installation of all mechanical and electrical Work in conjunction with all Work required, or implied, to be performed by licensed mechanics of these disciplines:
   1. Subcontractors of Contractor shall furnish to Contractor bonds covering faithful performance of subcontract Work and payment of all obligations there under, when Contractor is required to furnish such bonds to the Owner.
   2. Subcontractors of Contractor shall purchase and maintain liability insurance as will protect him from claims, for not less than limits of liability which Contractor is required to provide to Owner.
   3. The Contractor shall include in Contract Amount costs of supervision, coordination and monitoring Work of his selected Subcontractors.

1.04 CONTRACTOR'S USE OF PREMISES

A. Contractor shall be responsible for monitoring the use of premises by Contractor's employees and Subcontractors.

B. Access routes for delivery of materials and equipment shall be as indicated by Owner. Do not use access routes other than those indicated without written permission of the Owner.

C. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site. Store materials and products only in those areas indicated for staging.

D. Protect existing lawns, sidewalks, pavements, curbs and utilities subject to damage by Work under this Contract. Repair or replace any existing Work damaged by the Contractor.

E. Parking areas for Contractor's personnel shall be on the project site to the extent it does not interfere with on-going contract Work and in areas designated by the Owner.

1.05 WORK ON PROPERTY

A. Obtain and pay all fees required applicable governing authorities, prior to commencing Work on this Project.

B. Post all notices and warning signs required by applicable governing authorities.

C. Perform Work on this Project in accordance with local codes and ordinance and utility company requirements.

1.06 WORK SEQUENCE AND CLAIMS FOR ADDITIONAL TIME

A. Construct Work in phases to accommodate Owner's occupancy requirements. During the construction period, coordinate construction schedule and operation with the Architect.

B. Claims for additional time as a result of adverse weather conditions will be considered only for weather conditions which are abnormal and if such weather conditions had an adverse effect on the scheduled construction: Rain Day claims for day(s) when Contractor is normally not on site are not legitimate. The Contractor shall document rain delays on a regular basis and submit an itemized listing to the Owner at each payment application meeting. Only requests for extra time, which prevents Work on critical activities for fifty percent (50%) or more of a scheduled workday will be considered. If no request is submitted for a given month, it will be assumed that no time was lost and the contract time shall not be adjusted.

C. No extension of time shall be deemed as waiver by the Owner of its right to terminate the contract for abandonment or delay by the Contractor. Once the Work has begun the contractor shall properly man the project in a continuous manner and proceed with all diligence to complete the project within the contract time. The Contractor must Work continuously and will not be allowed to stop activity on any weekday unless due to adverse weather of to reason pre-approved in writing by the Owner.

1.07 OWNER OCCUPANCY

A. The Owner may occupy all portions of the building and conduct normal operations during the Work. Owner occupancy shall be during the course of the normal Work day and not include evenings. Owner activities may occur on weekends. The Contractor shall fully clean the site and remove all debris and materials from the grounds on days when scheduled Owner's activities will conflict with the Work.

B. Cooperate with the Owner and schedule the Work to minimize conflicts, and to facilitate Owner's normal operations.

C. All electrical, HVAC units and controls shall remain in operation during times the building is occupied.

1.08 OWNER'S OPERATIONS

A. The Contractor shall conduct its Work in a manner to provide minimal interruption of the school campus during all construction Work. The Work shall be done at such times and in such manner and locations as to cause a minimum of inconvenience for the students, instructors, and staff. Limit operations to specific Work areas. A system of barricades, fences and enclosures shall be used by the Contractor to avoid conflict between construction and operations of the facility.

1.09 HAZARDOUS MATERIALS

A. If, during the progress of the Work, Contractor uncovers work which he believes contains asbestos or other hazardous materials, he shall immediately cease operations in the area of such discovery and notify the both the Architect and the Owner's Representative in writing.

B. Owner will arrange with the Abatement Contractor to perform necessary testing, barricades, enclosures, filtering, and ventilation in areas containing hazardous materials; decontamination, or removal and disposal of hazardous materials in accordance with requirements of authorities having jurisdiction.

C. Owner's Abatement Consultant will notify Owner's Representative and Architect in writing when it is safe to resume construction operations in the areas in question.

D. Contractor shall identify potential lead containing material hazards at the Site and oversee appropriate protective measures, including protection of persons, establishing

END OF SECTION 01010

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010300 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 REFERENCES

A. References to known standard specifications shall mean and shall refer to the latest edition of such specifications adopted and published at date of invitation to submit proposals.

B. Reference to technical society, organization or body is made in these Specifications in accordance with the following abbreviations:

AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
ANAAMM	National Association Architectural Metals Manufacturers
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
FS	Federal Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NFPA	National Fire Protection Association
NRCA	National Roofing Contractors Association
UL	Underwriters' Laboratories, Inc.

1.02 CONDITIONS

A. "General Conditions" apply with equal force to the General Contractor, Subcontractors, Work, extra Work, and the like that may be specified herein or performed in or about the building or site under this Contract.

B. For convenience of reference and to facilitate letting of subcontracts, these Specifications are separated into sections. Such separation shall not operate to make Owner an arbitrator to establish subcontract limits between subcontractors.

C. Execute Work as per Contract Documents. Make no changes therefore without having first received written permission. Where detailed information is lacking before proceeding with Work, refer matter to Architect for clarification.

D. All Work shall be executed by mechanics skilled in their respective trades. Mechanics whose Work is unsatisfactory to the Owner and/or Architect, or who are considered by the Owner to be careless, incompetent, unskilled, or otherwise objectionable, are to be dismissed from Work upon notice from the Owner.

E. The Owner will provide temporary water and electrical power required for the Work at no cost to the Contractor. The Contractor shall make necessary connections to existing fireplugs and/or tap the existing water service, and to power transformer or

other power sources at each building or site as required for performance of his Work. Coordinate all connections with the Owner's Maintenance Department.

F. Contractor shall be responsible for furnishing storage trailers, temporary security fencing, temporary fire protection, telephones, etc., as required to carry out construction operations.

G. Construction related access to the site, shall be limited to areas permitted by the Owner and/or as shown on the Drawings. It shall be the responsibility of the Contractor to prevent damage to the existing paving, to repair all damage, and to recognize and respect all traffic safety requirements and signage. Any loss or damage to the Owner's property caused by the Contractor or his workmen shall be repaired or replaced at no cost to the Owner. Restore the grounds to original condition at the completion of the Project. Remove all fences, barricades, etc. Replace all vegetation damaged by construction operations, including grass, shrubs, and trees, to the satisfaction of the Owner.

H. Work hours in general are between 7:00 am and 6:00 pm, Monday through Friday, unless an exception is granted by the Owner and Architect, or as otherwise defined by various Section of these Specifications.

I. The Contractor shall remove trash and rubbish from the Owner's premises at the end of each Workday. This shall mean that these materials shall be cleaned from the grounds and shall not be left in areas or locations other that containers specified for this purpose. Burning of combustibles will not be permitted.

1.03 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.04 PROJECT SUPERINTENDENT

A. In addition to other duties imposed by these Specifications the Project Superintendent shall meet the following requirements:

B. Show prior to the start of Work references from Owners of a minimum of five (5) previously completed jobs of similar size, complexity and construction cost.

C. Show proficiency prior to the start of the Work that the Superintendent is fluent in the English language, or if not, provide a competent and approved interpreter for such purposes. The purpose of this clause is to assure adequate communications with all parties involved in the Work.

D. The Project Superintendent shall be present at the project site at all times that any Work of this contract is underway. In the case that the Project Superintendent must be away from the project site the Contractor shall first file written documentation of the absence with the Architect at least 48-hours in advance of the new replacement. The replacement, or acting Project Superintendent, shall meet the minimum requirements defined above and elsewhere in the Specifications for the Project Superintendent. The only exception to this shall be when the Contractor, an officer of the company with

a majority share of ownership, shall be permitted to act as the Project Superintendent. A majority owner of the contracting company may act as the Project Superintendent for the entirety of the project.

E. No Work shall be performed and no subcontractor(s) shall be permitted to Work at any time when the Project Superintendent is not present.

1.05 INSURANCE CLAIMS FOR PROPERTY DAMAGES

A. In the event that any damage is incurred to the Owner's or employees property due to any act of the Contractor, the Contractor shall make payment of the claim through its own resources or via its insurance carrier within thirty (30) days of the claim occurrence.

1.06 ADDITIONAL INSPECTIONS BY ARCHITECT

A. In the event that the Contractor exceeds the completion date for whatever reason he/she shall be responsible for reimbursing the Owner through authorized change order for all costs of the Architect's staff and expenses to carry on inspection duties at the rate performed during the project before the completion date.

B. The rate of reimbursement shall be as follows:

Construction Observer	$ 65.00 per hour
Architect / Roofing Consultant	$135.00 per hour
Re-Inspection Following Substantial or Final Completion	$135.00 per hour
Mileage	$ 0.45 per mile
Other Expenses	Cost plus 10%

END OF SECTION 010300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010410 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Coordinate Work with that of other contractors and trades and on-going Work by Owner under administration of the Architect.

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 VISIT TO SITE

A. Prior to submitting his quotation for Work under this project, the Contractor shall visit the site to examine all conditions related to his Work, and to acquaint himself with these conditions. FIELD MEASUREMENTS ARE REQUIRED FOR THIS PROJECT.

B. The Contractor shall verify that existing facilities, utilities and/or conditions are adequate and if equipment, utilities, facilities or conditions are such that other items and services, in addition to those specified, are required to achieve operational systems as described herein, the Contractor shall advise the Architect of the scope and costs of necessary additional Work or services at the time of proposal submittal.

1.04 CONSTRUCTION MOBILIZATION

A. The Contractor shall attend the scheduled pre-construction conference as directed by the Architect and Owner for the purpose of project coordination.

B. Cooperate with the Owner and Architect in location of mobilization areas on site for access, traffic, and parking facilities. During construction coordinate use of site and facilities through the Architect and Owner.

C. Comply with the Architect's procedures for intra-project communications: Submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Architect for use of temporary facilities.

E. Coordinate field and layout Work under instructions of the Architect.

1.05 SUBMITTALS TO THE ARCHITECT

A. All submittals for this project will be required to be submitted at the same time and shall be in accordance with requirements of Section 010300. The Contractor shall provide submittals covering all materials specified in the Specifications. Any changes from the existing Work or sheet metal profiles shown in the Drawings will be forwarded in the

form of shop drawings to the Architect by facsimile prior to beginning fabrication or installation. Update and provide revised schedules at each pay application meeting.

B. Deliver submittals to the Architect for transmittal to all required parties. The office of the Architect is located as follows:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
Tel: 409/860-0197
Fax: 409/860-0198

C. Submit written requests for interpretation of Contract Documents and obtain instructions through the Architect.

1.06 COORDINATION DRAWINGS

A. Provide information required by the Architect for preparation of coordination drawings.

B. Review Drawings carefully prior to submission of all submittals to the Architect.

1.07 CLOSEOUT PROCEDURES

Submit in accordance with Section 017000.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 010410

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010450 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of Work.

B. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other Work, and subsequent fitting and patching required for restoration of surfaces to their original condition.
   1. "Cutting and patching" is performed for coordination of the Work, to uncover Work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 SUBMITTALS

A. Submit written request in advance of cutting or alteration, which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather-exposed or moisture-resistant element.
   3. Efficiency, maintenance, or safety of any operational equipment.
   4. Visual qualities of sight-exposed elements.
   5. Work of Owner or separate contractor.

B. Include in request:
   1. Identification of Project.
   2. Location and description of affected Work.
   3. Necessity for cutting or alteration.
   4. Description of proposed Work, and products to be used.
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the Work.
      c. Products proposed to be used.
      d. Extent of re-finishing.
      e. Cost proposal when applicable.
      f. Alternatives to cutting and patching.
   5. Effect on Work of Owner or separate contractor, if any
   6. Written permission of affected separate contractor, if any.
   7. Date and time Work will be executed.

1.04 QUALITY ASSURANCE

Requirements for Structural Work: Do not cut or alter any structural Work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated, or as directed by the Owner, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Those required for original installation.

C. No substitutions of materials will be accepted after proposals are submitted.

PART 3 - EXECUTION

3.01 GENERAL

A. Execute cutting, fitting and patching including excavation and fill, to complete Work and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

3.02 INSPECTION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the Work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the Work.

B. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

C. After uncovering, inspect conditions affecting performance of Work.

D. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

A. Provide supports to assure structural integrity of surroundings, devices and methods to protect other portions of Work from damage.

B. Provide protection from elements for areas, which may be exposed by uncovering Work; maintain excavations and openings free of water.

C. Prevent debris from entering facility; do not permit product contamination.

3.04 PERFORMANCE

A. Employ skilled workers to perform cutting and patching Work. Except as otherwise indicated or as approved by the Architect, proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut the Work using methods that are least likely to damage Work to be retained or adjoining Work. Where possible review proposed procedures with the original installer and comply with its recommendations.

C. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine, such as a carborundum saw, or core drill, to ensure a neat hole. Cut holes and slots neatly to size required with a minimum disturbance of adjacent Work. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces. Temporarily cover unused openings.

D. Patch with seams, which are durable and as invisible as possible. Comply with specified tolerances for the Work. Where feasible, inspect and test patched areas to demonstrate integrity of Work. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining Work in a manner which will eliminate evidence of patching and re-finishing.

E. Where removal of walls or partitions extends from one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall covering; replace with new materials.

F. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface of wall or ceiling containing patch, after patched area has received prime and base coat. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

G. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through roof, wall, floor or other surfaces.

H. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire rated material, full thickness of the construction element.

I. Do not leave facility open to contamination or rain; close off at end of each Work day.

J. Thoroughly clean areas and spaces where Work is performed or used as access to Work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied.

END OF SECTION 010450

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 011200 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedural requirements

B. Rehabilitation and renovations of existing spaces and materials.

C. Installation of products removed in Sections as specified.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials shall be as specified in individual Sections

B. Match existing products and Work for patching and extending Work.

C. Determine type and quality of existing products by inspection and any necessary testing, and workmanship by use of existing as a standard. Presence of a product, finish or type of Work requires that patching, extending or matching shall be performed as necessary to make Work complete and consistent with the Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move or remove items as necessary for access to alteration and renovation Work; replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, rusted metals, and deteriorated masonry and concrete: replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new Work and new finishes.

E. Close openings in exterior surfaces to protect existing Work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.03 INSTALLATION

A. Coordinate Work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.

B. Designated areas, rooms and spaces and finishes shall be complete in all respects, including operational mechanical and electrical systems.

C. Remove, cut and patch Work in a manner to minimize damage and to provide means to minimize products and finishes to specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent new finishes.

E. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full operational condition.

F. Install products as specified in individual sections.

3.04 TRANSITIONS

A. Where new Work abuts or aligns with existing make a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to the Architect for completion.

3.05 ADJUSTMENTS

Fit Work at penetrations of surfaces as specified in Section 01045.

3.06 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored or showing other imperfections.

B. Repair substrate prior to patching finish.

3.07 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersection or natural termination point.

3.08 CLEANING

In addition to cleaning specified in Section 01500, clean Owner-occupied areas of Work as required.

END OF SECTION 011200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Section:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Requested substitution will not adversely affect Contractor's construction schedule.
    c. Requested substitution has received necessary approvals of authorities having jurisdiction.
    d. Requested substitution is compatible with other portions of the Work.
    e. Requested substitution has been coordinated with other portions of the Work.
    f. Requested substitution provides specified warranty.
    g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    b. Requested substitution does not require extensive revisions to the Contract Documents.
    c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    d. Requested substitution will not adversely affect Contractor's construction schedule.
    e. Requested substitution has received necessary approvals of authorities having jurisdiction.
    f. Requested substitution is compatible with other portions of the Work.
    g. Requested substitution has been coordinated with other portions of the Work.
    h. Requested substitution provides specified warranty.
    i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

FORD FIELDS CONCESSION STAND
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SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has

changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to Architect by the 23rd of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

    1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
    2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Initial progress report.
11. Report of preconstruction conference.
12. Certificates of insurance and insurance policies.

I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

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SECTION 013000 - SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures
B. Construction Progress Schedule
C. Shop Drawings
D. Product Data
E. Samples
F. Manufacturer's Instructions
G. Manufacturer's Certificates
H. Schedule of Required Submittals
I. Request for Substitution Form

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

1.03 PROCEDURES - BEFORE PROPOSAL OPENING

No substitute systems or materials will be considered prior to proposal opening.

1.04 PROCEDURES - AFTER PROPOSAL OPENING

A. Deliver submittals to: The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706

B. All submittals required for the project shall be submitted at the same time.

C. Transmit each item under form acceptable to the Architect in this document. Identify Project, Contractor, Subcontractor and major suppliers. Identify pertinent drawing sheet and detail number, and specification section number as appropriate. Identify any and all deviations from Contract Documents. Provide 3-inch x 5-inch space each for Contractor and Architect review stamps. Provide certification stamp on all submittal sets.

D. Submit Submittal Schedule at the same time as all other submittals.

E. All submittals including shop drawings, product data and samples for this project will be submitted at the same time to the Architect and within ten (10) days after receipt of the Notice to Proceed.

F. After Architect's review of submittal, revise and re-submit as required, identifying changes made since previous submittal.

G. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to

promptly report any inability to comply with provisions.

H. Bind sets of submittals in labeled three-ring binders identified on the outside with the project title, date, Contractor's, Architect's and Owner's names, and including a table of contents corresponding to the Specification format, with all contents correlated.

1.05 CONSTRUCTION PROGRESS SCHEDULES

A. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first Workday of each week.

B. Show submittal dates required for Shop Drawings product data and samples and product delivery dates including those, if any, identified to be furnished by the Owner.

1.06 SHOP DRAWINGS

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all shop drawings on opaque reproductions.

B. Present in a clear and thorough manner. Title each Drawing with Project Name and the same information indicated for 1.04.H above. Identify each element of Drawings by reference to sheet number and detail of the Contract Documents.

C. Identify field dimensions. Show relation to adjacent or critical features or Work or products.

1.07 PRODUCT DATA

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all product data.

B. Submit only pages that are pertinent. Mark each copy of standard printed data with yellow hi-liter to identify pertinent products, reference to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

C. Modify manufacturer standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete or cross-out information not applicable.

D. Any deviation from the Contract Documents must be clearly identified when submitted. Any items not identified will be deemed to be the items exactly as specified in the Contract Documents.

1.08 MANUFACTURER'S INSTRUCTIONS

When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

1.09 SAMPLES

A. Submit full range of manufacturer's standard colors, textures, and patterns for Owner's selection. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all samples unless otherwise indicated by these Specifications.

B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing Work.

C. Include identification on each sample, giving full information.

D. Submit the number specified in respective Specification Section: Two (2) will be retained by the Architect. Reviewed samples that may be used in the Work are indicated in the Specification Section.

1.10 FIELD SAMPLES

Provide field samples of finishes at the project site as required by individual Specification Sections. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.11 CONTRACTOR REVIEW

A. Review submittals prior to transmittal. Determine and verify field measurements, field construction criteria, manufacturer's catalog numbers and conformance of submittal with requirements of Contract Documents.

B. Coordinate submittals with requirements of Work and of Contract Documents.

C. Apply Contractor's stamp on each section of Shop Drawings and Product Data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.

D. The Contractor is encouraged not to fabricate products or begin Work which requires submittals until return of reviewed submittal with Architect's review stamp. Fabrication of items and beginning of Work when submittals have not been reviewed will be at the Contractor's risk.

1.12 SUBMITTAL REQUIREMENTS

A. Transmit submittals in such sequence to avoid delay in the Work or Work of other contracts.

B. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

C. Submit under Architect approved transmittal letter. Identify Project by title and number. Identify Work and product by Specification Section and Article Number.

1.13 RE-SUBMITTAL REQUIREMENTS

A. Make re-submittals under procedures specified for initial submittals. Identify changes made since previous submittal.

B. Re-submittals beyond the initial and a second will be reviewed by the Architect and/or his consultants at the Contractor's expense.

1.14 ARCHITECT AND OWNER REVIEW

A. The Architect and Owner and/or other authorized representative will review all submittals. Submittals will be returned to the Contractor with the Architect's review stamp affixed, and/or with the indication of any changes, which may need to be made, shown thereon, or with disapproval.

B. The Architect's review of any such Submittal shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, nor shall it relieve him from responsibility for errors of any sort in the Submittal, nor shall it in any way diminish the Contractor's obligation to conduct the Work in accordance with the Contract Documents.

C. Approval of samples shall be for design and appearance only, and such approval shall not relieve Contractor from any obligation as provided in the Contract Documents.

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REQUEST FOR SUBSTITUTION
(Attach Additional Sheets As Necessary)

From: _____
_____
To: _____
_____

Date of Request: _____
Project: Project Name
Location: Project Location
Architect's Project No.: 09015

References: Specification Section: _____ Part: _____ Paragraph: _____ Subparagraph: _____
Specified Product Name: _____ Model No.: _____
Drawing Sheet(s): _____ De tail(s): _____

Description of Proposed Substitution:
Substitute Product Name: _____ Model No.: _____
Manufacturer: _____ Address: _____ Phone: _____
Installer: _____ Address: _____ Phone: _____
Reason for not providing specified item: _____
_____
Differences between proposed substitution and specified product: _____
_____
_____
☐ Point-by-point comparative data attached (Required for analysis and review by Architect)

Substitution Product History: ☐ New Product ☐ 2 to 5 Years Old ☐ 5 to 10 Years Old ☐ More than 10 Years Old
Similar Installations of Proposed Product:
Project: _____ Architect: _____ Phone: _____
Project Address: _____ Owner: _____ Phone: _____
_____ Date Product Installed: _____

Effect of Proposed Substitution:
Acceptance of proposed substitute will require the following change in Contract Sum and Contract Time:
☐ No Change In Contract Sum ☐ No Change in Contract Time
☐ Increase Contract Sum By $ _____ ☐ Increase Contract Time By _____ Calendar Days
☐ Decrease Contract Sum By $ _____ ☐ Decrease Contract Time By _____ Calendar Days.
Effect of proposed request for substitution on (Attach additional sheets if necessary):
a. Change in Construction Progress Schedule: ☐ No Effect ☐ _____
_____
b. Changes required in details and construction of related work: ☐ No Change ☐ Yes, Explain: _____
_____
c. Change in warranty requirements: ☐ No Change ☐ _____

Representations by Contractor: (1) Substitute item is equivalent or superior to that specified in quality and durability, design, appearance, function, finish, performance, is of size and weight that will permit installation in spaces provided, and that will allow adequate service access; (2) Substitute item is compatible with other portions of the Work; (3) Substitute item has been coordinated with other portions of the Work; (4) Substitute item has received necessary approvals from authorities having jurisdiction; (5) Substitute item is consistent with the Contract Documents and will produce the intended results; (6) Substitute item provides specified warranty; and (7) If requested substitution involves more than one contractor, or subcontractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors, or subcontractors involved.

_____ _____
(Signature) (Typed or Printed Name and Title) (Date)

END OF SECTION 013000

FORD FIELDS CONCESSION STAND
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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Project meetings.
3. Requests for Interpretation (RFIs).

B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque copies of each submittal. Architect will return four copies.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. LEED requirements.
    l. Preparation of Record Documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Owner's occupancy requirements.
    p. Responsibility for temporary facilities and controls.
    q. Construction waste management and recycling.
    r. Parking availability.
    s. Office, work, and storage areas.
    t. Equipment deliveries and priorities.
    u. First aid.
    v. Security.
    w. Progress cleaning.
    x. Working hours.

3. Minutes: Record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at monthly intervals in conjunction with the review of the month's payment request. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) RFIs.
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Hard-Copy RFIs:

1. Identify each page of attachments with the RFI number and sequential page number.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

FORD FIELDS CONCESSION STAND
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SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Daily construction reports.
4. Field condition reports.

B. See Division 01 Section "Payment Procedures" for submitting the Schedule of Values.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

C. Daily Construction Reports: Submit three copies at monthly intervals.

D. Field Condition Reports: Submit three copies at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than seven days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

6. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

FORD FIELDS CONCESSION STAND
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SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.

C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.

D. See Division 01 Section "Closeout Procedures" for submitting warranties.

E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810 or approved Contractor Transmittal Form.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked approved on Architect's Submittal review form attached at the end of this section.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating approval taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Approval by the Architect and Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Wiring diagrams showing factory-installed wiring.
    f. Printed performance curves.
    g. Operational range diagrams.
    h. Compliance with specified referenced standards.
    i. Testing by recognized testing agency.

4. Number of Copies: Submit seven copies of Product Data, unless otherwise indicated. Architect will return five copies. Mark up and retain two returned copies as Project Record Documents.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.
    h. Schedules.
    i. Notation of coordination requirements.
    j. Notation of dimensions established by field measurement.
    k. Relationship to adjoining construction clearly indicated.
    l. Seal and signature of professional engineer if specified.
    m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque (bond) copies of each submittal. Architect will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

    1. Number of Copies: Submit seven copies of product schedule or list, unless otherwise indicated. Architect will return five copies.

F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. See sample of Architect's Shop Drawing Review Sheet at the end of this section.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

Submittals not required by the Contract Documents may not be reviewed and may be discarded.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

The LaBiche
ARCHITECTURAL GROUP, INC.

Dohn H. LaBiche, FAIA - Principal
Greg Wall, AIA - Principal

7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
(409) 860-0197 • Fax (409) 860-0198

SHOP DRAWING REVIEW

Project Name: XX

Project Number: XX

Submittal For: **XX**

	No Exception		Exceptions Noted		Rejected
	Revise & Resubmit		Submit Specified Item		

NOTE:
Our checking is only to determine general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is solely responsible for confirming and correlating dimensions at the job site; for information which pertains to fabrication processes or construction techniques, and for coordinating the work of all trades. Our checking of shop drawings and submittals shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents nor for errors or emissions in the shop drawings and submittals.

By: Dohn H. LaBiche, FAIA Date:

Remarks:

END OF SECTION 013300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those

operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.6 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which situations tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

B. Special Tests and Inspections: Conducted by a qualified testing agency required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers

AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)

AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute

CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FIBA	Federation Internationale de Basketball (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FM Approvals	FM Approvals
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Now GSI)

GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.
IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)

LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association

NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections

RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.

TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association (Now WCSC)
WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BOCA	BOCA International, Inc. (See ICC)

IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials (See ICC)
ICBO ES	ICBO Evaluation Service, Inc. (See ICC-ES)
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
SBCCI	Southern Building Code Congress International, Inc. (See ICC)
UBC	Uniform Building Code (See ICC)

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)

NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PBS	Public Building Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA)
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)
FS	Federal Specification
FTMS	Federal Test Method Standard (See FS)
MIL	(See MILSPEC)
MIL-STD	(See MILSPEC)
MILSPEC	Military Specification and Standards
UFAS	Uniform Federal Accessibility Standards

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation
CCR	California Code of Regulations
CPUC	California Public Utilities Commission
TFS	Texas Forest Service Forest Resource Development

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

FORD FIELDS CONCESSION STAND
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SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. See Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.

C. See Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.2 DEFINITIONS

A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: type written letter on company stationary.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
j. Cost information, including a proposal of change, if any, in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Acceptance: Change Order.

b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

B. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

C. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will consider requests for substitution if received within 7days of the Bid date. Requests received after that time may be considered or rejected at discretion of Architect. In no case will substitutions submitted more than 30 days after the Notice to Proceed be reviewed.

B. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. See Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 SUBMITTALS

A. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work,

investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

FORD FIELDS CONCESSION STAND
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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. See Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

C. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

D. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

E. See Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.

F. See Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Emergency manuals.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. See Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

   a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

   a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
   b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, water leak, power failure, water outage, equipment failure and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.

4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

FORD FIELDS CONCESSION STAND
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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

C. See Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit two set(s) of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set of corrected Record Transparencies and two set(s) of marked-up Record Prints. Architect will initial and date each transparency and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.
b. Final Submittal: Submit two set(s) of marked-up Record Prints, and the following:

1) Record Transparencies: One (1) set.
2) Copies printed from Record Transparencies: Two (2). Print each Drawing, whether or not changes and additional information were recorded.
3) Scanned PDF document record set.

B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit two copies of each Product Data submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

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PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

FORD FIELDS CONCESSION STAND
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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For steel reinforcement. Material test reports and certificates.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete".

2. ACI 318, "Building Code Requirements for Reinforced Concrete".
3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
4. CRSI, "Manual of Standard Practice".

C. Preinstallation Conference: Conduct conference with Architect and Testing Laboratory representative at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.

    a. Fly Ash: ASTM C 618.

B. Normal-Weight Aggregates: ASTM C 33, graded, 1-inch (25-mm) nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm) nominal maximum aggregate size.

D. Water: ASTM C 94/C 94M and potable.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

G. Synthetic Fiber: Polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 5 inches maximum.
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after

initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. Testing Services: Tests shall be performed according to ACI 301.

2. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

3. Slump: ASTM C 143, one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

4. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 degrees F (4 deg. C) and below; when 80 degrees F (27 deg. C) and above, and one test for each set of compressive-strength specimens.

6. Compression Test Specimen: ASTM C 31, one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

7. Compressive-Strength Tests: ASTM C 39, one set for each day's pour exceeding 5 cubic yards plus additional sets for 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

B. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

D. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test results falls below specified compressive strength by more than 500 psi.

E. Test Results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for each of the 7-day tests and 28-day tests.

F. Additional Tests: The testing agency will make additional tests of in-place concrete, as directed by Architect, when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed by Architect.

END OF SECTION 033000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood blocking, cants, and nailers.
   2. Wood furring and grounds.
   3. Wood sleepers.
   4. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

   1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
   2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

   1. Wood-preservative-treated wood.
   2. Fire-retardant-treated wood.
   3. Engineered wood products.
   4. Power-driven fasteners.
   5. Powder-actuated fasteners.
   6. Expansion anchors.
   7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an

agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:
1. Plywood backing panels.

2.3 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exterior, AC in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plastic Wall Panel Backing Panels: Interior grade CD in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Do not splice structural members between supports unless otherwise indicated.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

FORD FIELDS CONCESSION STAND
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SECTION 066400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes plastic sheet paneling.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For plastic paneling and trim accessories.

1.3 QUALITY ASSURANCE

A. Testing Agency: Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. Glass-Fiber-Reinforced Plastic Paneling: Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D 5319.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Crane Composites, Inc.
b. Glasteel.
c. Marlite.
d. Newcourt, Inc.
e. Nudo Products, Inc.
f. Parkland Plastics, Inc.

2. Nominal Thickness: Not less than 0.12 inch.
3. Surface Finish: As selected by Architect from manufacturer's full range.
4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Adhesive: As recommended by plastic paneling manufacturer and with a VOC content of 50g/L or less.

C. Sealant: Mildew-resistant, single-component, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 079200 "Joint Sealants."

1. Sealant shall have a VOC content of 250 g/L or less.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that could impair adhesive bond, including oil, grease, dirt, and dust.

B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

C. Lay out paneling before installing. Locate panel joints so that trimmed panels at corners are not less than 12 inches (300 mm) wide.

3.2 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing panels, and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 066400

FORD FIELDS CONCESSION STAND
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SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers four samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

D. Product test reports.

E. Preconstruction compatibility and adhesion test reports.

F. Preconstruction field-adhesion test reports.

G. Field-adhesion test reports.

H. Warranties.

1.4 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Minimum Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. BASF Building Systems.
   b. Dow Corning Corporation.
   c. GE Advanced Materials - Silicones.
   d. May National Associates, Inc.
   e. Pecora Corporation.
   f. Polymeric Systems, Inc.
   g. Schnee-Morehead, Inc.
   h. Sika Corporation; Construction Products Division.
   i. Tremco Incorporated.

2. Type: Single component (S).
3. Grade: Nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. BASF Building Systems.
   b. Bostik, Inc.
   c. Lymtal, International, Inc.
   d. May National Associates, Inc.
   e. Pacific Polymers International, Inc.
   f. Pecora Corporation.
   g. Polymeric Systems, Inc.
   h. Schnee-Morehead, Inc.
   i. Sika Corporation; Construction Products Division.
   j. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Traffic (T).

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Bostik, Inc.
    c. May National Associates, Inc.
    d. Pecora Corporation.
    e. Schnee-Morehead, Inc.
    f. Tremco Incorporated.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Pecora Corporation.
    b. USG Corporation.

2.6 JOINT SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

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PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Tile control and expansion joints.
   c. Joints between different materials listed above.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surface.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints between metal panels.
   c. Joints between different materials listed above.
   d. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
   e. Control and expansion joints in ceilings and other overhead surfaces.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation joints in cast-in-place concrete slabs.

b. Control and expansion joints in tile flooring.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings.
c. Tile control and expansion joints.
d. Vertical joints on exposed surfaces of interior unit masonry, concrete, walls and partitions.
e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.

2. Joint Sealant: Latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints.

2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 079200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard hollow metal doors and frames to be supplied by metal building manufacturer.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required.

E. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.3 QUALITY ASSURANCE

A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Metal Building manufacturer's standard.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS, Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, CS, Type B.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I.

H. Glazing: Division 08 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Comply with ANSI/SDI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
   a. Thermal-Rated (Insulated) Doors: R-value of not less than 12.3 deg F x h x sq. ft./Btu (2.166 K x sq. m/W) when tested according to ASTM C 1363.
3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.
5. Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Comply with ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

   a. Width: 1-3/4 inches (44.5 mm).

   b. Fabricate of metallic-coated sheet.

C. Hardware Reinforcement: ANSI/SDI A250.6.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.

C. Interior Frames: Fabricated from cold-rolled steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
4. Frames for Level 1 Steel Doors: 0.042-inch- (1.0-mm-) thick steel sheet.
5. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
6. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
7. Frames for Borrowed Lights: 0.053-inch- (1.3-mm-) thick steel sheet.

D. Hardware Reinforcement: ANSI/SDI A250.6.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, same material as door face sheet.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, same material as frames.

D. Terminated Stops: Where indicated, terminate stops 6 inches (152 mm) above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

2.8 FABRICATION

A. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.

B. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow Metal Frames: Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) high.
        2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
        3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
        5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

    b. Compression Type: Not less than two anchors in each jamb.
    c. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers.

    a. Single-Door Frames: Three door silencers.
    b. Double-Door Frames: Two door silencers.

D. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 electrical Sections.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: ANSI/SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

   a. At fire-protection-rated openings, install frames according to NFPA 80.
   b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
   c. Install frames with removable glazing stops located on secure side of opening.
   d. Install door silencers in frames before grouting.
   e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
   f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
   g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

   a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. In-Place Concrete: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
4. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

B. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:

1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
2. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. Sound Transmission Characteristics: For STC-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
2. Protective Coating: manufacturer's standard corrosion-resistant zinc coating, unless otherwise indicated.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

   a. Type: Post installed, chemical anchor or Post installed, expansion anchor.

2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.

D. Flat Hangers: Steel sheet, 1 by 3/16 inch (25.4 by 4.76 mm) by length indicated.

E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38 mm).

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges, 3/4 inch (19.1 mm) deep.
2. Steel Studs: ASTM C 645.

   a. Minimum Base-Metal Thickness: 0.0312 inch (0.79 mm).
   b. Depth: 1-5/8 inches (41.3 mm).

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.

   a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).

4. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.

   a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

   a. Armstrong World Industries, Inc.; Drywall Grid Systems.
   b. Chicago Metallic Corporation; Drywall Furring System.

c. USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: As indicated on Drawings.

B. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
b. Products: Subject to compliance with requirements, provide one of the following:

1) Steel Network Inc. (The); VertiClip SLD Series.
2) Superior Metal Trim; Superior Flex Track System (SFT).

C. Firestop Track: As specified in Division 07 Section "Fire-Resistive Joint Systems."

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.027 inch (0.7 mm).

E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38.1 mm).
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: As indicated on Drawings.
2. Depth: 1-1/2 inches (38.1 mm).

G. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

H. Cold-Rolled Furring Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: As indicated on Drawings.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch (0.79 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

I. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare-metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.

2.4 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.2 INSTALLING SUSPENSION SYSTEMS

A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

B. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Do not attach hangers to steel roof deck.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

C. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb, unless otherwise indicated.

b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (12.7-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

C. Direct Furring:

1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

D. Z-Furring Members:

1. Erect insulation (specified in Division 07 Section "Thermal Insulation") vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

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SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Drawn to scale and coordinating acoustical panel ceiling installation with hanger attachment to building structure and ceiling mounted items:

C. Samples: For each exposed finish.

D. Product test reports.

E. Research/evaluation reports.

F. Maintenance data.

1.3 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Anchors in Concrete: Expansion or Bonded anchors fabricated from corrosion-resistant materials, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or

ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

1. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; "Clean Room VL", unperforated square lay-in.

B. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:

1. Type and Form: Type IV, Form 2, Pattern E, Fire Class A. Wet-formed mineral fiber, vinyl-faced membrane.

C. Color: White.

D. NRC: Not less than 0.50- 0.60, Type E-400 mounting per ASTM E 795.

E. Edge/Joint Detail: Square.

F. Thickness: 5/8 inch (15 mm).

G. Modular Size: 24 by 24 inches (610 by 610 mm).

2.3 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; Prelude Plus XL, AL7200 Series, Non-rated.

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PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders.

C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counters playing, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
2. Do not attach hangers to steel deck tabs.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

END OF SECTION 095113

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SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE

A. Roppe Corporation.

B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Style and Location:
   a. Style C, Butt to: Provide in areas indicated.

C. Thickness: 0.125 inch (3.2 mm).

D. Height: 6 inches.

E. Lengths: Cut lengths 48 inches (1219 mm) long or coils in manufacturer's standard length.

F. Outside Corners: Job formed or preformed.

G. Inside Corners: Job formed or preformed.

H. Colors: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Miter or cope corners to minimize open joints.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

FORD FIELDS CONCESSION STAND
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SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on exterior substrates.

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Galvanized metal.
6. Aluminum (not anodized or otherwise coated)

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles for the paint category indicated.

B. Acceptable Manufacturers:
1. ICI
2. Pittsburgh Paint
3. Sherwin Williams

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As indicated in Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:

1. SW: Loxon Block Surfacer.

2.4 PRIMERS/SEALERS

A. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams, Loxon Exterior Concrete and Masonry Primer, #A24W8300.

2.5 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive for all Metal: [MPI #79]

1. Sherwin Williams, Water Based Rust Inhibited Primer, Pro Industrial Pro-Cryl Universal Metal Primer.

2.6 WOOD PRIMERS

A. Primer, Latex for Exterior Plywood:

1. Sherwin Williams, Exterior Latex Wood Primer, B42W8041

B. Primer, Oil for Exterior Wood:[MPI #7]
1. ICI: #2110-1200.
2. Pittburgh: Speedhide exterior oil based primer.
3. SW: A-100 Exterior oil wood primer, Y24W8020.

2.7 WATER-BASED PAINTS

A. Latex, Exterior Flat (Gloss Level 1):[MPI #10.]

1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

B. Latex, Exterior Semi-Gloss (Gloss Level 5):[MPI #11]
1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

C. Light Industrial Coating, Exterior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #163.]

1. Sherwin Williams, DTM Acrylic

2.8 SOLVENT-BASED PAINTS

A. Alkyd, Exterior Gloss (Gloss Level 6) for metal handrails, doors and bollards:[MPI #9.]

1. Sherwin Williams, Pro Industrial Urethane Alkyd, #B54W151.

2.9 ALUMINUM PAINT

A. Aluminum Paint, 100% Acrylic D.T.M.: [MPI#1]
1. ICI: Devflex 4208 Series.
2. Pittsburgh: 90-Line Finish.
3. SW: Bondplex Waterbased Acrylic Aluminum, B71S200.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Portland Cement Plaster: 12 percent.
5. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Latex, exterior, matching topcoat.
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior gloss (Gloss Level 6)[, MPI #119].

B. Concrete Substrates, Traffic Surfaces:

1. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
d. Additive: Manufacturer's standard additive to increase skid resistance of painted surface.

2. Solvent-Based Clear Sealer System:

a. Prime Coat: Sealer, solvent based, for concrete floors[, MPI #104].
b. Intermediate Coat: Sealer, solvent based, for concrete floors[, MPI #104].
c. Topcoat: Sealer, solvent based, for concrete floors[, MPI #104].

C. CMU Substrates:

1. Latex over Alkali-Resistant Primer System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, exterior, matching topcoat.
c. Topcoat: Latex, exterior semi-gloss (Gloss Level 5)[, MPI #11].

D. Steel Substrates:

1. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

2. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive for metal[, MPI #79].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

E. Galvanized-Metal Substrates:

1. Latex System:

2. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, galvanized, water based[, MPI #79].
b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
c. Topcoat: Light industrial coating, exterior, water based, semi-gloss (Gloss Level 5)[, MPI #163].

END OF SECTION 099113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Cast iron.
6. Galvanized metal.
7. Aluminum (not anodized or otherwise coated).
8. Wood.
9. Gypsum board

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and in each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide product by one of the following:

1. Sherwin Williams
2. Pittsburgh Paint
3. ICI

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Colors: As indicated on Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:[MPI #4.]

1. Sherwin Williams Pro Mar Block Filler, B25W25.

2.4 PRIMERS/SEALERS

A. Primer Sealer, Latex, Interior:[MPI #50.]

1. Sherwin Williams Pro Mar 200 Latex Primer.

B. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams Loxon Concrete & Masonry Primer, A24W8300.

C. Primer Sealer, Interior, Institutional Low Odor/VOC:[MPI #149.]

1. Sherwin Williams Pro Mar 200 Zero VOC Primer, B28W2600.

D. Primer, Latex, for Interior Wood:[MPI #39.]

1. Sherwin Williams Multi Purpose Latex Primer, B31W8020.

E. Primer Sealer, Alkyd, Interior:[MPI #45.]

1. Sherwin Williams Pro Block Alkyd Primer, B79W8810.

F. Primer, Bonding, Water Based:[MPI #17.]

1. Sherwin Williams Adhesion Primer, B51W8050.

2.5 METAL PRIMERS

A. Primer, Rust-Inhibitive, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

B. Primer, Alkyd, Anti-Corrosive, for Metal:[MPI #79.]

1. Sherwin Williams Kem Kromik Primer, B50NZ2.

C. Primer, Galvanized, Water Based:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

D. Primer, Quick Dry, for Aluminum:[MPI #107.]

1. Sherwin Williams Pro Industrial Pro-Cryl Universal Primer, B66W310.

2.6 WATER-BASED PAINTS

A. Latex, Interior, Institutional Low Odor/VOC, Flat (Gloss Level 1):[MPI #143.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Flat, B30W2600.

B. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 2):[MPI #144.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Low Sheen, B24W2600.

C. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3):[MPI #145.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Eg-Shel, B20W2600.

D. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5):[MPI #147.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Semi-Gloss, B31W2600.

E. Latex, Interior, High Performance Architectural, (Gloss Level 2):[MPI #138.]

1. Sherwin Williams Pro Mar 200 Zero VOC Latex Gloss, B21W2251.

F. Latex, Interior, High Performance Architectural, Semi-Gloss (Gloss Level 5):[MPI #141.]

1. Sherwin Williams Pro Industrial Zero VOC Semi-Gloss, B66W600 Series.

G. Light Industrial Coating, Interior, Water Based (Gloss Level 3):[MPI #151.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Eg-Shel, K45.

H. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #153.]

1. Sherwin Williams Pro Industrial Pre-Catalyzed Epoxy Semi-Gloss, K46.

I. Light Industrial Coating, Interior, Water Based, Gloss (Gloss Level 6):[MPI #154.]

1. Sherwin Williams Pro Industrial Zero VOC Gloss, B66W600 Series.

2.7 DRY FOG/FALL COATINGS

A. Dry Fall, Latex, Flat:[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

B. Dry Fall, Water Based, for Galvanized Steel, Flat (Gloss Level 1):[MPI #118.]

1. Sherwin Williams Waterborne Acrylic Dryfall, B42.

2.8 FLOOR COATINGS

A. Floor Epoxy (Water Based), Gloss (Gloss Level 6):[MPI #212.]

1. Sherwin Williams Armor Seal 8100 Water Based Epoxy.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.

2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Nontraffic Surfaces:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Latex Aggregate System:

a. Prime Coat: Textured coating, latex, flat[, MPI #42].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].

b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

B. Concrete Substrates, Traffic Surfaces:

1. Water Based Epoxy Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6).
b. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6).
c. Embed in top coat: non-sip floor addative.

C. Clay-Masonry Substrates:

1. Latex System:

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].

h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex Aggregate System:

a. Prime Coat: Primer for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
b. Intermediate Coat: Intermediate coat for textured coating, latex, flat[, as recommended in writing by topcoat manufacturer].
c. Topcoat: Textured coating, latex, flat[, MPI #42].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, alkali resistant, water based[, MPI #3].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
   b. Intermediate Coat: Alkyd, interior, matching topcoat.
   c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
   d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
   e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
   f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

D. CMU Substrates:

1. Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, matching topcoat.
   c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
   d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
   e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
   f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
   g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
   h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

   a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
   b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

    a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
    b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
    d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
    e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

    a. Block Filler: Block filler, latex, interior/exterior[, MPI #4].
    b. Sealer Coat: Primer sealer, latex, interior[, MPI #50].
    c. Intermediate Coat: Alkyd, interior, matching topcoat.
    d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
    e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
    f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
    g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

E. Steel Substrates:

1. Latex over Alkyd Primer System:

    a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
    b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
    c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
    d. Prime Coat: Shop primer specified in Section where substrate is specified.
    e. Intermediate Coat: Latex, interior, matching topcoat.
    f. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
    g. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
    h. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
    i. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
    j. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
    k. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

    a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
    b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
    c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
    d. Prime Coat: Shop primer specified in Section where substrate is specified.
    e. Topcoat: Dry fall, latex, flat[, MPI #118].
    f. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
   c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
   d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
   e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
   f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.
   e. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
   f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
   g. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
   h. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
   i. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating System:

   a. Prime Coat: Primer, rust-inhibitive, water based[MPI #107].
   b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
   c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
   d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
   e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Alkyd System:

   a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
   b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
   c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
   d. Prime Coat: Shop primer specified in Section where substrate is specified.

e. Intermediate Coat: Alkyd, interior, matching topcoat.
f. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
g. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
h. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
i. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

7. Quick-Drying Enamel System:

a. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
b. Intermediate Coat: Alkyd, quick dry, matching topcoat.
c. Topcoat: Alkyd, quick dry, semi-gloss (Gloss Level 5)[, MPI #81].
d. Topcoat: Alkyd, quick dry, gloss (Gloss Level 7)[, MPI #96].

8. Alkyd Dry-Fall System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Topcoat: Dry fall, alkyd, flat[, MPI #55].

9. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Intermediate Coat: Aluminum paint[, MPI #1].
f. Topcoat: Aluminum paint[, MPI #1].

F. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

a. Prime Coat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

b. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating Over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Aluminum Paint System:

a. Prime Coat: Primer, galvanized metal, as recommended in writing by topcoat manufacturer for use on galvanized-metal substrates with topcoat indicated.
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

G. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].

e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

6. Aluminum Paint System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

H. Wood Substrates: Including wood trim, architectural woodwork, doors, windows, wood-based panel products, glued-laminated construction, exposed joists and exposed beams.

1. Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].

b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[. MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

I. Wood Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].
c. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].

2. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].

J. Fiberglass and Plastic Substrates:

1. Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, matching topcoat.
    d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
    e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
    f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
    g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
    h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
    i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
    d. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
    e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
    f. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
    g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
    d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
    e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
    f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
    g. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    d. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].

e. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
f. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, bonding, water based[, MPI #17].
b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

K. Gypsum Board & Plaster Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].

d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

L. Spray-Textured Ceiling Substrates:

1. Latex (Flat) System: Spray applied.

a. Prime Coat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

2. Latex System: Spray applied.

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

c. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
d. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
e. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
f. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
g. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

4. Alkyd (Flat) System:

a. Prime Coat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
b. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

M. Cotton or Canvas and ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

4. Aluminum Paint System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

END OF SECTION 099123

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Operation and maintenance data.

C. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Failure of hydrostatic test according to NFPA 10.
   b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
h. Larsen's Manufacturing Company.
i. Moon-American.
j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
k. Potter Roemer LLC.
l. Pyro-Chem; Tyco Safety Products.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type : UL-rated 2-A:10:B:C 10-lb. nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Larsen's Manufacturing Company.
h. Potter Roemer LLC.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: In cabinets.

C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal roof panels.
3. Metal wall panels.
4. Thermal insulation.
5. Doors and frames.
6. Accessories.

1.2 SUBMITTALS

A. Product Data: For each type of metal building system component.

B. Shop Drawings: For metal building system components. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

E. Welding certificates.

F. Metal Building System Certificates: For each type of metal building system, from manufacturer.

1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

a. Name and location of Project.
b. Order number.
c. Name of manufacturer.
d. Name of Contractor.
e. Building dimensions including width, length, height, and roof slope.
f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
g. Governing building code and year of edition.
h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category

or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).

i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.

j. Building-Use Category: Indicate category of building use and its effect on load importance factors.

k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

G. Material test reports.

H. Source quality-control reports.

I. Field quality-control reports.

J. Maintenance data.

K. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

D. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.

E. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

1.4 WARRANTY

A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:

1. A&S Building Systems, Inc.; Division of NCI Building Systems, L.P.
2. Alliance Steel, Inc.
3. American Buildings Company; Division of Magnatrax Corp.
4. American Steel Building Co., Inc.
5. BC Steel Buildings, Inc.
6. Behlen Mfg. Co.
7. Bigbee Steel Buildings, Inc.
8. Butler Manufacturing Company; a BlueScope Steel company.
9. CBC Steel Buildings; Division of Magnatrax Corp.
10. Ceco Building Systems; Division of NCI Building Systems, L.P.
11. Chief Buildings; Division of Chief Industries, Inc.
12. Elite Structures, Inc.
13. Garco Building Systems; Division of NCI Building Systems, L.P.
14. Gulf States Manufacturers, Inc.; Division of Magnatrax Corp.
15. Inland Buildings; Subsidiary of Behlen Mfg. Co.
16. Kirby Building Systems; Division of Magnatrax Corp.
17. Mesco Building Solutions; Division of NCI Building Systems, L.P.
18. Metallic Building Company; Division of NCI Building Systems, L.P.
19. Metco Metal Supply.
20. Mid-West Steel Building Company; Division of NCI Building Systems, L.P.
21. Mueller, Inc.
22. Nucor Building Systems.

23. Oakland Metal Buildings, Inc.
24. Olympia Steel Building Systems.
25. Package Industries, Inc.
26. Pinnacle Structures, Inc.
27. Robertson Building Systems; an NCI company.
28. Ruffin Building Systems, Inc.
29. Schulte Building Systems, LLP.
30. Spirco Manufacturing.
31. Star Building Systems; an NCI company.
32. Tyler Building Systems, L.P.
33. USA, Inc.
34. VP Buildings; a United Dominion company.
35. Vulcan Steel Structures, Inc.
36. Whirlwind Building Systems.

2.2 METAL BUILDING SYSTEM PERFORMANCE

A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Metal building systems shall be designed according to procedures in MBMA's "Metal Building Systems Manual."

1. Design Loads: As indicated on Drawings.
2. Design Loads: As required by [MBMA's "Metal Building Systems Manual."] [ASCE/SEI 7.] <Insert applicable code requirement.>
3. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:

    a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
    b. Girts: Horizontal deflection of 1/240 of the span.
    c. Metal Roof Panels: Vertical deflection of 1/240 of the span.
    d. Metal Wall Panels: Horizontal deflection of 1/240 of the span.
    e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.

4. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:

    a. Lateral Drift: Maximum of 1/400 of the building height.

5. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.

C. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of

connections, and other detrimental effects. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of roof area when tested according to ASTM E 1680 at negative test-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

E. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of wall area when tested according to ASTM E 283 at static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 2.86 lbf/sq. ft. (137 Pa).

G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 2.86 lbf/sq. ft. (137 Pa).

H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for Class 90.

2.3 STRUCTURAL-STEEL FRAMING

A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.
2. Frame Configuration: One-directional sloped.
3. Exterior Column Type: Uniform depth.
4. Rafter Type: Tapered.

B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly.

C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating.

D. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide zinc-plated or hot-dip galvanized bolts for structural-framing components that are galvanized.

E. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

2.4 METAL ROOF PANELS

A. Tapered-Rib-Profile, Lap-Seam Metal Roof Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Galalume.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches.

2.5 METAL WALL PANELS

A. Tapered-Rib-Profile, Exposed-Fastener Metal Wall Panels, Panel Type "A": Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Kynar 500.
   b. Color: As selected by Architect from manufacturer's full range.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches (32 mm).

B. Corrigated Profile, Exposed-Fastener Metal Wall Panels Panel Type "B": Designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

   a. Exterior Finish: Kynar 500.
   b. Color: As selected by Architect from manufacturer's full range.

2. Corrugated Spacing: 2 ¾" o.c.
3. Panel Coverage: 29 ½".
4. Panel Height: 7/8".

2.6 THERMAL INSULATION

A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.

2.7 DOORS AND FRAMES

A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.

1. Hardware:

a. Provide hardware for each door leaf, as follows:

1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
2) Lockset: BHMA A156.2. Heavy-duty Key-in-lever cylindrical type. Cylinders shall match owners existing keyway.
3) Exit Device: BHMA A156.3. Touch- or push-bar type.
4) Threshold: BHMA A156.21. Extruded aluminum. ADA compliant.
5) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
6) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
7) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.
8) Double Doors: Provide head and sill bolts on enactive leaf. Provide heavy-duty floor mounted stops/hold open devices on both leafs of exterior doors.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.

C. Overhead Coiling type Door: Mueller W300 Windlock Roll Up Door (RUD) are approved equal.

1. Quantity: Three (3).

2. Size: 4'-6" height x 12'-0" width.

3. Operation: Manual.

4. Security: Manual locking mechanism.

2.8 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.

D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.

E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch-(2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

G. Roof Curbs: Fabricated from minimum 0.052-inch (1.32-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal roof panels; capable of withstanding loads of size and height indicated.

H. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

D. Secondary Framing: Shop fabricate framing components to size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.

   a. Joint Type: Snug tightened or pretensioned.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Locate canopy framing as indicated.
4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Steel Joists: Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Standard Specifications and Load Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
4. Bolt joists to supporting steel framework using carbon-steel bolts unless high-strength structural bolts are required by the manufacturer.

5. Comply with RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
6. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.2 METAL PANEL INSTALLATION, GENERAL

A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.3 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge[and hip] caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.

1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

3.5 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

B. Blanket Roof Insulation: Comply with the following installation method:

1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.

C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.

1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.

3.6 DOOR AND FRAME INSTALLATION

A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.

B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8.

C. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing."

D. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

1. Install surface-mounted items after finishes have been completed on substrates involved.
2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in Division 07 Section "Joint Sealants."

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide

concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Tests and Inspections:

1. High-Strength, Field-Bolted Connections: Connections shall be[tested and] inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:

   a. Liquid Penetrant Inspection: ASTM E 165.
   b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
   c. Ultrasonic Inspection: ASTM E 164.
   d. Radiographic Inspection: ASTM E 94.

D. Product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 133419

CERTIFICATION OF RESPONSIBILITY FOR

DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	NATURAL GAS PIPING/DISTRIBUTION

Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 00 - GENERAL PROVISIONS FOR PLUMBING

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	GAS DISTRIBUTION

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Plumbing subcontractor shall be the sole source responsible party to furnish and install the plumbing system. Plumbing contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 22 of these specifications, it is intended to mean the Plumbing Contractor as appropriate. These are sub contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 22 – Plumbing) under the contract with the owner. The General Contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete plumbing portion of this contract, as called for herein and on accompanying drawings. Parts of the plumbing division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items covered in the Plumbing Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Mechanical and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all plumbing systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections, meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than 7 days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Plumbing Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect. After initial surfacing has been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The plumbing piping shall be run at proper slopes and without conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire plumbing work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all plumbing work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. National Electric Code
2. National Fire Protection Association
3. American Society of Mechanical Engineers
4. Underwriters's Laboratories
5. American Gas Association
6. Energy Code for Commercial and High Rise Residential Buildings
7. International Energy Conservation Code
8. International Building Code
9. International Plumbing Code

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift pipes or to change the shape of and these changes shall be made as required. All such changes shall be referred to the Architect/Engineer for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Plumbing Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect/Engineer is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, highest quality and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between plumbing and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the sprinkler system with the structure, ceilings, lights, ductwork, etc. In some cases, due to space limitations, it may be necessary to reroute piping to meet the conditions of the project. Any rerouting required shall be part of this project and done without any additional cost to the Owner. **DO NOT MAKE PIPING WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of sewer lines with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams or concrete beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per the instructions and details of structural engineer.

F. All piping shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table. and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.

4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the Owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

I. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

J. All submittals shall be submitted prepaid and in ample time for review before installation.

K. Six (6) copies of each submittal shall be submitted to the Architect.

L. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted.**

M. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

N. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

O. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 UTILITIES

A. Connect all utilities at the points indicated on the drawings and extend such utilities to the building and to equipment or facilities requiring same.

B. Contractor shall pay all service and connection charges required by utility companies and/or site conditions (offsets, conflict boxes, etc.).

C. Contractor shall include all costs required by utility companies to extend utilities to the site. It is the responsibility of the contractor to obtain these fees from the utility companies and include those costs in the bid.

1.13 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done per the Federal, State or Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.14 EXCAVATION AND BACK FILL

A. Trench and excavation work shall include excavating, preparing of trenches, and backfilling as specified. Contractor shall install caution tape 12 inches above all piping, conduit, etc., as backfilling processes.

B. Trench and excavation work shall not include pavement breaking, cutting of holes through foundation walls and floors, removal of obstructions, relaying and/or repairing of floors, and repaving, which work shall be the responsibility of the General Contractor.

C. Contractor shall do all necessary trenching, excavation and backfilling for the proper installation of his work. Care shall be taken not to excavate below depth required, that trench beds are well rounded and that ground under pipe line is firm and secure before any pipe is laid. Trenches shall be excavated where bells of pipe occur in order to insure a pipe resting on the entire length of the bottom of the trench.

D. Unless otherwise noted, minimum cover over underground lines shall be 2-1/2 feet, except under streets and parking lots where minimum cover shall be 3 feet.

E. The width of the trench shall be sufficient to permit thorough compaction of the backfill under and around the pipe but not exceeding the external diameter of the pipe by more than 12 inches. Excavation for pipes shall be by hand and/or machine and as specified herein and shall confirm to the lines and elevations indicated on the plans.

F. The pipe shall be placed on a uniformly firm and compacted bed of sand, carefully shaped to support the pipe at the desired grade and so that any reaction will be distributed as nearly uniform as possible over a horizontal width of not less than six-tenths (6/10) of the outside diameter and all possibility of concentration of the reaction at or near the vertical diameter eliminated. The bed shall be shaped as to fit the lower part of the pipe exterior for at least 10 percent of its overall height.

G. The pipe shall be placed on a firm foundation. Any muck or other objectionable material found during excavation and preparation of the bed shall be removed and replaced with suitable bed material directed by the Architect.

H. All trenches and excavation shall be backfilled in a reasonable time after the pipes are installed unless otherwise directed by the Architect. Special care shall be taken in placing the backfill and extra care shall be used to obtain compaction under and along sides to the top of the pipe.

I. The backfill shall be placed in loose layers not exceeding 6 inches in depth under and around the pipe and not exceeding 8 inches over the pipe. Each layer shall be compacted to the compaction requirements as specified by the Architect.

J. Compaction shall be by hand and pneumatic tampers and the successive layers shall be added and compacted until the trench is completely filled and brought to elevation as directed. Back-filling shall be done in such a manner as to avoid injurious top or side pressures on the pipe.

K. Improper backfilling and compacting shall be cause to have the trench opened to expose the pipe for inspection then properly backfilled and compacted with fill material.

L. Where trenching is for piping, the bottom of the trench shall have minimum 95 percent compaction and shall be bedded with a minimum 12 inches compacted sand, crushed stone or shell on undisturbed soil (minimum 95 percent compaction).

1.15 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.16 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.17 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.18 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.19 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.20 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guideline. (Chlorination, chemical treatment, etc.)

1.21 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.22 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major plumbing equipment (water heaters, pumps, starters, mixing valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to

Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.23 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction.

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes.

1.24 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, etc., and leave entire installation in good working order.

1.25 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of his contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color samples). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.26 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.27 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.28 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all plumbing systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.29 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques.

B. Contractor shall use factory start-up personnel to train the Owner's maintenance personnel.

1.30 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspections.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.31 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.32 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
   c. Contractor, name of responsible principal, address and telephone number.
   d. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
   e. Provide owner with contact information for warranties which extend beyond one year.

1.33 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.34 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.35 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 22 05 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 03 - BASIC MATERIALS AND METHODS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 SANITARY SEWER WASTE AND VENT LINES

A. All sanitary sewer waste and vent lines above and below building slab shall be constructed of service weight bell and spigot cast iron pipe and fittings. Where space requirements do not allow the use of the above materials, government type DWV copper pipe shall be used. All cast iron pipes shall comply with Commercial Standards CS 188-59 coated with tar inside and out and marked with manufacturer's identification and proper weight classification. Joints shall be made with neoprene gaskets.

B. At contractor's option, all sanitary sewer waste and vent lines **excluding grease waste piping** may be Schedule 40 PVC plastic lines and fittings with solvent weld joints (solid core allowed only; foam or cell core not acceptable). Grease waste piping shall remain cast iron.

C. Sanitary sewer lines exterior of building (5 feet from building) **excluding grease waste piping** shall be constructed of ABS or PVC Schedule 40 type "DWV" plastic pipe and fittings (solid core allowed only; foam or cell core not acceptable). Do not mix PVC and ABS materials. Grease waste piping shall remain cast iron.

D. At contractor's option, sanitary sewer vent lines above grade may be constructed of "no hub" service weight cast iron pipe with neoprene/stainless steel clamp couplings.

2.2 DOMESTIC WATER PIPE/WATER HEATER RELIEF PIPE/EQUIPMENT DRAIN PIPE/TRAP PRIMER

A. All domestic cold water lines/hot water lines within building, water heater relief lines and equipment drain piping shall be government type "L" hard copper water tube of standard weight and thickness, unless indicated otherwise. Use 95-5 "lead free" solder on all piping above slab. Use Silfos 1000 degrees Fahrenheit solder on all piping beneath slabs. "Press-Fit" or "Pro-Press" piping is not acceptable.

B. Site water piping (beyond 5 feet of building footprint) shall be Schedule 40 PVC pipe and fittings solvent weld joints (solid core allowed only; foam or cell core not acceptable).

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for domestic water lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe unless other material is approved by the Structural Engineer. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers for cast iron pipes shall be 5 feet; for other than soil, use 10 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported piping or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures.

B. Valves and unions shall be as follows:

COPPER PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 1320	115	Crane 461	M-2882
Globe Valve	Crane 1310	1590T	Crane 359	F-2981
Unions	Crane 633		Crane Std. Gal.	
Check Valve	Crane 1303	1509	Crane 373	2974M

IRON PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 440	148	Crane 461	F2882-M
Globe Valve	Crane 7	590	Crane 359	F
Unions	Crane 633			
Check Valve	Crane 1303	1509	Crane 373	2974M

C. The following valves are considered equal to Crane Company:

CRANE	POWELL	NIBCO	HAMMOND	STOCKHAM	MV
7	150	T-235-Y	1B413T	B-22	590T
359	301	F-718-Y	1R126	G514	F2981
373	559	F918B	1R1124	G931	M2974
440	500	T113	1B640	B114	148
461	1787	F619	1R1138	G612	M-2882
1303	1825	S413(BWY)	1B943	B309	1509
1310	1823	S211(YW)	424	B14	1502
1320	1822	S113	1B647	B112	115

D. All valves, unions, etc., where pipe is chrome plated shall have similar finish. All exposed supplies to plumbing fixtures shall be chrome plated.

E. Ball valves shall be as manufactured by Milwaukee Valve (MV), Watts, Stockham, Powell, NIBCO, Neles-Jamesbury or Hammond.

	2" and Smaller	2-1/2 to 4"	Over 4"
Watts	Series B-6800	Series G-4000	Series G-4000
Neles-Jamesbury	Series 4000	Full Port Series	Full Port Series
Milwaukee Valve	BA-300	F-20CS	F-20CS

F. All valves over 2 inches shall be flanged type and full port type. All valves 2 inches and smaller shall be screw type, sweat type or flanged type as appropriate for type of pipe.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Plumbing Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Plumbing Contractor. The Electrical Contractor shall do all power wiring required for the installation of all equipment including equipment interlocking power wiring, etc. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Plumbing Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

D. Plumbing contractor shall provide and install transformers and low voltage wiring (below 120-1-60) from transformer to equipment. Electrical contractor shall provide and install power wiring to transformers.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall or ceiling where located.

B. Access panels located in rated walls, floors, ceilings, shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 SANITARY SEWER PIPE

A. Pipe ends shall be square cut. Ends of pipes shall be reamed and shall be wiped clean to remove cuttings. Before installation, pipe shall be stood on end and tapped sharply to remove cuttings and other foreign materials from interior. Pipe shall be thoroughly cleaned inside and outside. Bending or springing of pipe shall not be permitted.

B. Various service pipes, valves, fittings, etc., running parallel with each other and near together shall be in line with each other and shall be kept at a sufficient distance from

each other and other work to permit no less than 1/2 inch between finished coverings on different services.

C. Each contractor shall furnish all foundations, structural or pipe supports indicated, called for specifically or that may be required to support his particular equipment and material unless hangers are definitely indicated as being furnished by others. Sewer waste and vent lines shall be supported every 4 feet.

D. Perforated strap hangers shall not be allowed for any part of the hangers.

E. Drainage and vent pipes: Horizontal soil and waste pipes 3 inches and smaller shall have a grade of 1/4 inch per foot and line 4 inches and larger shall have a grade of 1/8 inch per foot unless otherwise specified. The main vertical soil and waste vent shall be extended full size through the wall. Cast-iron pipe inside the building shall be extended 6 inches above the floor.

F. Fittings: Changes in pipe size on soil, waste, and drain lines shall be made with reducing fittings of recessed reducers. All changes in direction shall be made by the appropriate use of 45 degree wyes, long or short sweep 1/4 bends, 1/6, 1/8, or 1/16 bends, or by a combination of those or equivalent fitting, except that single and double sanitary tees may be used in drainage lines only where the direction of flow is from horizontal to vertical. Short sweeps not less than 3 inches in diameter may be used where the change in direction of flow is either from horizontal to vertical or from vertical to horizontal.

G. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.

4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

H. Make connections to equipment and branch mains with unions.

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Install each fixture with trap, easily removable for servicing and cleaning. Each trap shall be placed as near the fixture as possible, and no fixture shall be double trapped. At completion thoroughly clean plumbing fixtures and equipment.

K. Fixture connections: Connections between earthenware fixtures and flanges on soil pipes shall be made absolutely gas tight and water tight with a closet-setting compound or gasket. Bolts shall be not less than 1/4 inch in diameter and shall be equipped with chromium-plated nuts and washers.

L. Test sanitary drainage, condensate drains and vent systems with water or air in accordance with requirements of the State Sanitary Code, International Plumbing Code and all applicable local codes. Water test may be applied to entire drainage systems or sections of systems. All openings shall be tightly closed in section to be tested except at highest opening. All portions of systems shall be subject to a minimum of 10 feet head of water. Water must have been in the system two hours prior to inspection. Air test in accordance with the Plumbing Code may be used at contractor's option.

M. Sanitary sewer or storm drain pipe penetrating concrete slabs shall be wrapped with foam insulation tape.

3.2 DOMESTIC WATER PIPE

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.

5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide non-conducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Domestic cold water lines penetrating concrete slabs shall be wrapped with vinyl flexible tube. Domestic hot or return water piping penetrating concrete slabs shall be insulated at all penetrations through slab (refer to insulation specifications).

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Hydrostatically test entire domestic water system to 200 psig or 2-1/2 times normal working pressure.

K. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

L. Sealing or flashing the building envelope due to penetrations in building shall be the responsibility of the general contractor.

M. Water service to fixtures or groups of fixtures shall have 12 inch long air chambers at the same diameter as header or service pipe on both hot and cold water lines. Air chamber shall be installed close to fixture. Provide and install shock arrestors on sterilizer water supplies or supplies with quick closing valves such as flush valves, dishwashers, tempering valves, etc. Location and size of shock arrestor shall be as per manufacturer's instructions.

END OF SECTION 22 05 03

FORD FIELDS CONCESSION STAND
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SECTION 22 05 93 - SYSTEM TESTING AND BALANCING FOR PLUMBING

PART 1 - GENERAL

1.1 SCOPE

A. Includes But Not Limited To -

1. Witnessing of all plumbing system testing required of Plumbing Subcontractor.
2. Test and Balance agency shall be present for factory start-up of equipment when factory start-up is required.

B. Related Work Specified Elsewhere -

1. The plumbing subcontractor shall address all issues as recommended by Air Balance and Testing Agency at no additional cost to Owner.

1.2 QUALITY ASSURANCE

A. Testing Agency -

1. **General Contractor shall procure services of an independent AABC or NEBB Air Balance and Testing Agency which specializes in balancing and testing of heating, ventilating, and cooling systems. These services shall not be provided by the installing Plumbing Contractor on the project but shall be direct subcontractor of the general contractor. This shall be the same contractor providing Air Balance and Testing services as indicated in Division 23.**
2. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Technician employed by Agency.
3. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
4. If requested, conduct tests in presence of Engineer.
5. Agency shall be approved in writing by Engineer. Plumbing Contractor shall not be permitted to do this work. Submit qualifications for review.

B. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of balancing test report.**

1.3 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

PART 2 - EXECUTION

2.1 Begin balance and testing upon completion of plumbing systems including installation of all specialties and devices.

A. General Contractor shall put systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance Manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

2.2 STANDARDS

A. Perform testing and balancing in complete accordance with the Associated Air Balance Council Standards for Field Measurement and Instructions, Form P1266, Volume I. Record test data on AABC standard forms or facsimile thereof.

2.3 TESTING PROCEDURE

A. Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when piping installation begins.**

B. The following minimum information shall be included in the finished report:

1. Plumbing:
The Test and Balance Contractor shall observe witness and record all plumbing tests required by these specs. The Plumbing Contractor shall contact the Test and Balance Contractor when testing is done. FAILURE TO DO SO WILL REQUIRE TESTING OF THE ENTIRE SYSTEM.

END OF SECTION 22 05 93

FORD FIELDS CONCESSION STAND
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SECTION 22 07 00 – PLUMBING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 DOMESTIC WATER PIPING

A. Cover cold water lines above ceilings and in exterior walls with 1 inch thick and all hot water lines with 1-1/2 inch thick closed cell rubber type insulation. At contractor's option, fiberglass insulation with white universal jacket may be used. All flanges, valves and fittings shall be insulated with closed cell rubber type molded fittings insulation, fabricated mitered segments of pipe insulation or closed cell rubber type insulation equivalent in thickness to insulation of adjoining pipe.

B. All water lines exposed in mechanical rooms shall be covered with 0.020 color coded PVC jacket with solvent welded seams and joints.

C. All water lines outside of building exposed to the weather shall have 1 inch thick closed cell rubber type insulation covered with 0.016 smooth aluminum jacket and elbows.

D. All water lines below building slab shall be insulated with 1 inch thick closed cell insulation with two (2) coats of mastic.

2.2 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, shall be insulated with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.3 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.4 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 22 07 00

FORD FIELDS CONCESSION STAND
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SECTION 22 10 00 - PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish all labor and materials as hereinbefore specified, indicated or reasonably implied for the complete installation of the following systems:

1. Cold Water
2. Hot Water System
3. Sanitary Drainage System

PART 2 - MATERIALS

2.1 FLOOR DRAINS

A. All floor drains shall be constructed of cast iron and shall be complete with clamping devices as required.

B. Floor drains (Marked "FD"): shall be bottom outlet with duracoated cast iron body with clamping collar and 6 inch diameter nickel bronze strainer adjustable vertically to floor level, with square perforations and vandal proof screws. Refer to fixture schedule for specific types.

2.2 CLEANOUTS

A. Cleanouts shall be provided where shown on plans, at each change of direction of the building drain greater than 45 degrees and at or near the foot of each vertical waste or soil stack. Location of all cleanouts shall be same size as piping up to 4 inches. Larger pipes shall have 4 inch cleanouts unless noted otherwise. Every cleanout shall be installed so that the cleanout opens in the direction of flow of the drainage line or at right angles thereto. Floor cleanouts shall be adjustable type, double drainage flange, clamping collar (above ground installations), 2 pound lead flashing, nickel bronze cover. Top of cleanout shall be level with top of finished floor so there is a continuous surface. Floor cleanouts shall be Jay R. Smith, Josam or Wade. Wall cleanouts shall be nickel bronze access frame and cover Zurn, Jay R. Smith, Josam or Wade. Outside cleanouts shall be installed with cover, set flush with finished grade, or as detailed on plans.

2.3 FLASHING

A. Flash around all pipes passing through roof in connection with this contract with sheet lead, not less than 2-1/2 pound to the square foot, built 6 inches into the waterproofing, running 10 inches up the pipe and turned over into the pipe cavity. Flashing around roof

drains shall be not less than 2-1/2 pound lead extending at least 12 inches from the drain rim into membrane waterproofing. Fasten flashing to drain clamp device making watertight durable joint.

2.4 EQUIPMENT FURNISHED BY OWNER AND/OR BY OTHER TRADES

A. This equipment and other miscellaneous equipment shall be furnished and set in place under other sections of these Specifications and/or by the Owner, unless specified otherwise.

B. Plumbing Contractor shall provide necessary rough-in required for the equipment and shall completely connect all plumbing services for this equipment providing cut-off valves and unions for each plumbing supply service to each piece of equipment. It is the obligation of the Plumbing Contractor to obtain correct rough-in dimension plans for this equipment as well as the equipment furnished under this contractor.

C. The various Equipment Contractors shall provide access holes for service lines that enter his equipment. This work to be performed on the job site, as necessary. Plumbing Contractor shall furnish and install escutcheons, locknut type, at these locations.

2.5 PLUMBING FIXTURES

A. Plumbing Contractor shall furnish and install all plumbing fixtures shown on accompanying drawings. Refer to both plumbing and architectural drawings and provide all fixtures shown on either. Fixtures shall be complete with all necessary brass and accessories required for a complete installation including traps, escutcheons, angle supplies, basin cocks, etc. All fixtures shall be new and must be delivered to the building properly crated in perfect condition.

B. All brass must be of the best quality, lightweight goods will not be accepted. All brass pipe shall be seamless brass tubing and nipples shall be extra heavy. All fittings and trim shall be chromium plated heavy brass unless otherwise specified. "P" traps shall be cast brass with cleanouts. All exposed piping shall be chromium plated. Provide cutoff valves at each fixture in both hot and cold water piping.

C. For the purpose of establishing type and class of fixtures required, the scheduled plate numbers have been taken from the indicated catalog. Approved equals shall be as follows: Fixtures: Kohler, Briggs, American Standard, Crane, Eljer, Elkay, Dayton, Just or Universal Rundle. Flush Valves: Sloan, Zurn. Faucets: Elkay, Just, Chicago, Kohler, American Standard, Delta Commercial, Zurn, Speakman. Water Heaters: A.O. Smith, Ruud/Rheem, State, Bradford White. Drains: Wade, J.R. Smith, Zurn, Josam. Hose Bibbs: Josam, Woodford, J.R. Smith, Wade, Zurn.

D. All vitreous china plumbing fixtures shall be manufactured in the United States, Canada or Mexico.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Prior to all work of this section, carefully inspect the installed work of adjacent trades and verify that all such work is complete to the point where fixture installation may properly commence.
2. Verify that all hangers and fixture supports are properly installed to receive plumbing fixtures.

3.2 PLUMBING FIXTURE

A. Each plumbing fixture shall be fitted with all necessary and proper fittings, trimmings and operating devices, and shall be in perfect operating condition.

B. Refer to architectural drawings for any other information that may be necessary or required in connection with plumbing installation.

C. Before setting any fixtures, obtain the exact mounting height, as desired, from the Architect.

D. Wall mounted water closets, urinals, and lavatories shall have a floor anchored carrier to fit in available wall space (coordinate requirements in drawings).

END OF SECTION 22 10 00

FORD FIELDS CONCESSION STAND
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SECTION 22 11 00 - WATER SUPPLY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Install water supply piping as indicated on plans.

PART 2 - MATERIALS

2.1 PIPING

A. All water supply piping shall be of materials hereinbefore specified.

B. All water lines shall be disinfected in accordance with the State Sanitary Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water lines run underground shall have a minimum of 24 inches cover to finished grade.

B. Make up complete water supply system. Connect to all fixtures and outlets requiring water.

C. At each fixture or group of fixtures furnish and install a 12 inch high air chamber of same size as branch feed line except at fixtures with quick closing valves such as flush valves, dishwashers, etc., in which cases provide "Shock Arrester" properly sized for each unit.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 11 00

FORD FIELDS CONCESSION STAND
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SECTION 22 13 00 - WASTE WATER DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Extend sanitary sewer lines to the location as shown on the plans.

PART 2 - MATERIALS

2.1 PIPING

A. The system of sewage and drainage shall be of materials as hereinbefore specified except where space requirements necessitate the use of Type "DWV" copper.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All work shall be in strict conformity with the International Plumbing Code and in accordance with all local codes. Piping shall be routed as shown on plans or in acceptable manner to meet building conditions. Venting shall be as shown on plumbing riser diagrams.

B. Connections between traps and cast iron pipes are to be made with heavy brass ferrules.

C. Provide reducers, increasers, special flanges, and fittings where required between piping work and fixtures in order to connect and complete work and render it ready for use. Make any offsets required to avoid construction.

D. All lines 3 inches and smaller shall be sloped 1/4 inch per foot, lines 4 inches shall be sloped 1/8 inch per foot, lines 6 inches shall be sloped 1/16 inch per foot and all lines 8 inches and larger shall be sloped 0.4 percent. Piping shall be laid so slope is continuous.

E. All vents shall extend 10 inches above roof and terminate in an appropriate flashing collar. No vents shall penetrate roof within 48 inches of an exterior wall. Offset in ceiling as required. All back vents shall be taken off as near trap as possible.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 13 00

FORD FIELDS CONCESSION STAND
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SECTION 22 16 00 – NATURAL GAS PIPING/DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Fuel gas systems, including piping, equipment and all necessary accessories as designated in this section. Fuel gas piping to equipment shall be routed as shown on plans.

1.2 RELATED WORK

A. FIRESTOPPING: Penetrations in rated enclosures.

B. PAINTING: Preparation and finish painting and identification of piping systems.

C. COMMON WORK RESULTS FOR PLUMBING.

D. GENERAL DUTY VALVES FOR PLUMBING PIPING

1.3 SUBMITTALS

A. Submit SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.

B. Manufacturer's Literature and Data:

1. Pipe & Fittings.
2. Valves.
3. Strainers.
4. All items listed in Part 2 - Products.

C. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Use the edition listed or most recent edition adopted by Local, State or Federal agencies having jurisdiction.

B. Federal Specifications (Fed. Spec.):
A-A-59617 ..... Unions, Brass or Bronze Threaded, Pipe Connections and Solder-Joint Tube Connections

C. American National Standards Institute (ANSI):
American Society of Mechanical Engineers (ASME): (Copyrighted Society)

A13.1-(2007)	Scheme for Identification of Piping Systems
B16.3-(2006)	Malleable Iron Threaded Fittings: Classes 150 and 300 ANSI/ASME
B16.9-2007	Factory-Made Wrought Steel Buttwelding Fittings ANSI/ASME
B16.11-2009	Forged Steel Fittings, Socket-Welding and Threaded ANSI/ASME
B16.15-2006	Cast Copper Alloy Threaded Fittings: Classes 125 and 250 ANSI/ASME
B31.8-2010	Gas Transmission and Distribution Piping Systems ANSI/ASME

D. American Society for Testing and Materials (ASTM):

A47-99(2009)	Standard Specification for Ferritic Malleable Iron Castings
A53-10	Standard Specification for Pipe, Steel, Black And Hot-Dipped, Zinc- coated Welded and Seamless
A183-09	Standard Specification for Carbon Steel Track Bolts and Nuts
A536-09	Standard Specification for Ductile Iron Castings
A733-03(2009)e1	Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples
B687-99(2005)e1	Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

E. National Fire Protection Association (NFPA):

54-2009	National Fuel Gas Code

F. International Code Council

IPC 2009	International Plumbing Code
IFGC 2009	International Fuel Gas Code

G. International Association of Plumbing and Mechanical Officials (IAPMO):
Uniform Plumbing Code – 2009

IS6-06	Installation Standard

H. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):

SP-72-2010	Ball Valves with Flanged or Butt-Welding For General Service
SP-110-2010	Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

1.5 SYSTEM PRESSURE

A. Natural gas systems, unless otherwise noted are designed and materials and equipment selected to prevent failure under gas pressure at downstream side of pressure regulator.

PART 2 - MATERIALS

2.1 FUEL GAS SERVICE CONNECTIONS TO BUILDING (UNDERGROUND AND/OR EXPOSED TO WEATHER)

A. From inside face of exterior wall (outside of building), use coated piping as herein before and/or herein after specified.

B. Pipe: Black Steel, ASTM A53, Schedule 40. Shop-applied pipe coating shall be one of the following types:

1. Coal Tar Enamel Coating: Exterior of pipe and fittings shall be cleaned, primed with Type B primer and coated with hot-applied coal tar enamel with bonded layer of felt wrap in accordance with AWWA C203. **Asbestos felt shall not be used**; felt material shall be fibrous glass mat as specified in Appendix Section A2.1 of AWWA C203.
2. Adhesive-thermoplastic Resin Coating: Fed. Spec. L-C-530, Type I
3. Thermosetting Epoxy Coating: Fed. Spec. L-C-530, Type II
4. Field-applied plastic tape material used on pipe joints and for repairing damaged areas of shop-applied coatings, Fed. Spec. L-T-1512, Type I, 10 mils nominal thickness for pipe joints, and Type II, 20 mils nominal thickness for coating repairs.

C. Holiday Inspections: Procedure for holiday inspection: Holiday Inspection shall be conducted on all coatings to determine the presence and number of discontinuities in those coatings referenced in 2.6/B - 1, 2, 3, and 4 using a Tinker & Rasor model AP/W Holiday Detector. Holiday inspection shall be performed in a manner spelled out in the Tinker & Rasor operating instructions and at a voltage level recommended by the coating manufacturer or applicable NACE International Standard such as RPO 274-93 or RPO 490-90 in the case thermosetting epoxy coating. Holiday Detectors shall be calibrated and supplied with a certificate of calibration from the factory. A calibration of the Holiday Detector shall be performed once every 6 months to verify output voltages are true and correct.

D. Fittings:

1. Butt weld fittings, wrought steel, ANSI B16.9.
2. Socket weld and threaded fittings forged steel, ANSI B16.11.
3. Grooved End: Ductile iron (ASTM A536, Grade 65-45-12), malleable iron (ASTM A47, Grade 32510), or steel (ASTM A53, Type F or Type E or S, Grade B).

E. Joints: Welded, ANSI B31.8.

2.2. FUEL GAS PIPING

A. Pipe: Black steel, ASTM A53, Schedule 40.

B. Nipples: Steel, ASTM A733, Schedule 40.

C. Fittings:

1. Sizes 2 inches under ANSI B 16.3 threaded malleable iron.
2. Over 2 inches and up to 4 inches ANSI B16.11 socket welded.
3. Over 4 inches ANSI 16.9 butt welded.

D. Joints: Provide welded or threaded joints.

2.3 EXPOSED FUEL GAS PIPING

A. Finished Room: Use full iron pipe size chrome plated brass piping for exposed fuel gas piping connecting fixtures, casework, cabinets, equipment and reagent racks when not concealed by apron including those furnished by the Government or specified in other sections.

1. Pipe: Fed. Spec. WW-P-351, standard weight
2. Fittings: ANSI B16.15 cast bronze threaded fittings with chrome finish, (125 and 250).
3. Nipples: ASTM B 687, Chromium-plated.
4. Unions: 2 inches and smaller Mss SP-72, SP-110, Brass or Bronze threaded with chrome finish. Unions 2-1/2 inches and larger shall be flange type with approved gaskets.
5. Valves: Mss SP-72, SP-110, Brass or bronze with chrome finish.

B. Unfinished Rooms, Mechanical Rooms and Kitchens: Chrome-plated brass piping is not required. Paint piping systems as specified in Section PAINTING.

2.4 VALVES

A. Ball Valve: Bronze body, rated for 1025 kPA at 185°C (150 psi at 365°F), 1725 kPa at 121°C (250 psi at 250°F), reinforced TFE seat, stem seal and thrust washer; end entry, threaded ends, UL-listed for natural or LP gas shut off service when used on those services.

B. Gas Vent Cocks: Type 701: Bronze body, tee handle, rated for 205 kPa at 38°C (30 psi at 100°F), ground plug, rated for tight shut-off on fuel gas service.

2.5. WATERPROOFING

A. Provide at points where pipes pass through membrane waterproofed floors or walls in contact with earth.

B. Floors: Provide cast iron stack sleeve with flashing device and a underdeck clamp. After stack is passed through sleeve, provide a waterproofed caulked joint at top hub.

C. Walls: See detail shown on drawings.

2.6 STRAINERS

A. Provide on high pressure side of pressure reducing valves, on inlet side of indicating and control instruments and equipment subject to sediment damage and where shown on drawings. Strainer element shall be removable without disconnection of piping.

B. Gas Lines: "Y" type with removable mesh lined brass strainer sleeve.

C. Body: Smaller than 3 inches, brass or bronze; 3 inches and larger, cast iron or semi-steel.

2.7 DIELECTRIC FITTINGS

A. Provide dielectric couplings or unions between ferrous and non-ferrous pipe.

2.8 GAS EQUIPMENT CONNECTORS

A. Flexible connectors with teflon core, interlocked galvanized steel protective casing, AGA certified design.

2.9 REGULATORS

A. Provide all pressure regulators for the project. Contractor shall be responsible for providing regulators properly selected for pressure, flow, and location. All regulators shall be field adjustable. All regulators shall be vented type. Regulators installed inside buildings shall have vent piping extended to the exterior of the building.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with the International Fuel Gas Code and the following:

1. Install branch piping for fuel gas and connect to all fixtures, valves, cocks, outlets, casework, cabinets and equipment, including those furnished by the Government or specified in other sections.
2. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe, shall be reamed to full size after cutting.
3. All pipe runs shall be laid out to avoid interference with other work.
4. Install valves with stem in horizontal position whenever possible. All valves shall be easily accessible.
5. Install union and shut-off valve on pressure piping at connections to equipment.
6. Pipe Hangers, Supports and Accessories:
   a. All piping shall be supported per the International Fuel Gas Code, Chapter No. 4.
   b. Shop Painting and Plating: Hangers, supports, rods, inserts and accessories used for Pipe supports shall be shop coated with zinc Chromate primer paint. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.
   c. Floor, Wall and Ceiling Plates, Supports, Hangers:
      1) Solid or split unplated cast iron, chrome plated in finished areas.
      2) All plates shall be provided with set screws.
      3) Pipe Hangers: Height adjustable clevis type.
      4) Adjustable Floor Rests and Base Flanges: Steel.
      5) Concrete Inserts: "Universal" or continuous slotted type.
      6) Hanger Rods: Mild, low carbon steel, fully threaded or Threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.
      7) Riser Clamps: Malleable iron or steel.
      8) Rollers: Cast iron.
      9) Self-drilling type expansion shields shall be "Phillips" type, with case hardened steel expander plugs.
      10) Miscellaneous Materials: As specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories.
7. Install cast chrome plated escutcheon with set screw at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.
8. Penetrations:
   a. Fire Stopping: Where pipes pass through fire partitions, fire walls, smoke partitions, or floors, install a fire stop that provides an effective barrier against the spread of fire, smoke and gases. Completely fill and seal clearances between piping and openings with the fire stopping materials.
   b. Waterproofing: At floor penetrations, completely seal clearances around the pipe and make watertight with appropriate sealant.

B. Piping shall conform to the following:

1. Fuel Gas:
   a. Entire fuel gas piping installation shall be in accordance with requirements of NFPA 54.
   b. Provide fuel gas piping with plugged drip pockets at low points.

3.2. CLEANING OF SYSTEM AFTER INSTALLATION

A. Clean all piping systems to remove all dirt, coatings and debris.

3.3 TESTING

A. General: Test system either in its entirety or in sections after system is installed and cleaned.

B. Test shall be made in accordance with Section 406 of the International Fuel Gas Code. The system shall be tested at a minimum of 1.5 times maximum working pressure, but not less than 30 psig (20 kPa) gage).

END OF SECTION 22 16 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

CERTIFICATION OF RESPONSIBILITY FOR

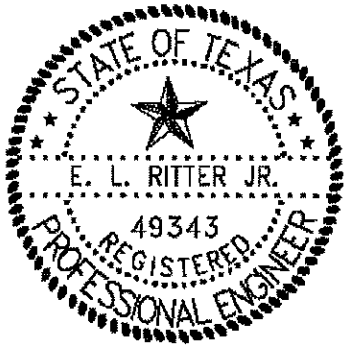
DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC



Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 00 - GENERAL PROVISIONS FOR HVAC

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

23 05 00	GENERAL PROVISIONS FOR HVAC
23 05 03	BASIC MATERIALS AND METHODS FOR HVAC
23 05 93	TESTING, ADJUSTING, AND BALANCING FOR HVAC
23 07 00	MECHANICAL INSULATION
23 09 00	TEMPERATURE CONTROLS FOR HVAC
23 28 13	COMMERCIAL KITCHEN HOODS
23 30 00	AIR DISTRIBUTION FOR HVAC
23 70 00	AIR CONDITIONING FOR HVAC

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Mechanical subcontractor shall be the sole source responsible party to furnish and install the mechanical system. Mechanical contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 23 of these specifications, it is intended to mean the Mechanical Contractor as appropriate. These are sub-contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 23 – Mechanical) under the contract with the owner. The General contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete mechanical portion of this contract, including air conditioning, heating, and ventilating systems as called for herein and on accompanying drawings. Parts of the mechanical division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items

covered in the Mechanical Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Plumbing and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all mechanical systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than seven days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Mechanical Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect/Engineer. After initial surfacing has

been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The HVAC piping shall be run in such a manner as to avoid conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire mechanical work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all mechanical work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. American Society of Heating, Refrigeration and Air Conditioning Engineers
2. National Electric Code
3. National Fire Protection Association
4. American Society of Mechanical Engineers
5. Underwriters's Laboratories
6. American Gas Association
7. Energy Code for Commercial and High Rise Residential Buildings
8. International Energy Conservation Code
9. International Building Code
10. International Mechanical Code
11. SMACNA Guidelines

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift ducts or pipes or to change the shape of ducts and these changes shall be made as required. All such changes shall be referred to the Architect for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Mechanical Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

E. Materials and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between mechanical and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the HVAC ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. **Any resizing required shall be part of this project and done without any additional cost to the Owner. DO NOT MAKE DUCTWORK WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of HVAC piping with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per instructions and details of the structural engineer.

F. All pipng shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.
4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. **HVAC ductwork shop drawings shall be prepared showing all conditions of installation coordinated with structure, lights, sprinklers, ceiling, etc. These shop drawings shall be prepared within 45 days of the award of the general contract for the project. Drawings shall be done at minimum 1/8 inch scale on 24 inch x 36 inch sheets.**

I. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

J. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

K. All submittals shall be submitted prepaid and in ample time for review before installation.

L. Six (6) copies of each submittal shall be submitted to the Architect.

M. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted (except in the case of the HVAC ductwork shop drawings).**

N. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

O. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

P. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done as per the Federal, State of Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.13 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.14 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect/Engineer prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.15 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.16 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.17 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any mechanical equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.18 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guidelines (chlorination, chemical treatment, etc.).

1.19 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.20 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major mechanical equipment (pumps, AHUs, starters, valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.21 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction. **Contractor shall provide temporary dehumidification and drying equipment as required to maintain clean, dry air during construction.**

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes, operation of refrigeration and heating system for short periods to adjust controls and temperature regulation, or the operation of fans for air balance.

1.22 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, ductwork, etc., and leave entire installation in good working order.

1.23 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of the contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, ducts, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color sample). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.24 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.25 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.26 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all mechanical systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.27 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques of the air conditioning unit.

B. Contractor shall use factory start-up personnel to train the owner's maintenance personnel.

1.28 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspection.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.29 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters. Additional warranties beyond the above shall be furnished as specified elsewhere in these specifications.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.30 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
7. Contractor, name of responsible principal, address and telephone number.
8. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
9. Provide owner with contact information for warranties which extend beyond one year.

1.31 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.32 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.33 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 23 05 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 03 - BASIC MATERIALS AND METHODS FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 REFRIGERANT PIPING/EQUIPMENT DRAIN PIPING

A. All refrigerant and equipment drain piping shall be government type "L" hard copper tube standard weight and thickness as made by Mueller, Chase, Anaconda or equivalent, unless indicated otherwise. Use Silfos 1000 degrees Fahrenheit solder on all joints.

B. Tubing shall be brought to the site with ends sealed.

2.2 A/C CONDENSATE DRAIN PIPING

A. All A/C condensate drain piping shall be government type "L" hard copper water tube of standard weight and thickness. Fittings shall be compatible with pipe. Use Silfos 1000 degrees Fahrenheit solder on all joints.

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for refrigerant piping and other copper lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers shall be 5 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported fixtures or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures, refer to Division 22.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Mechanical Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Mechanical Contractor. The Electrical Contractor shall do all power wiring required for the installation of all mechanical equipment including equipment interlocking power wiring, etc. Temperature control wiring shall be furnished and installed by the Mechanical Contractor. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Mechanical Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All motors for the mechanical equipment shall be of the 40 degrees Celsius rise type and shall be furnished and installed by the Mechanical Contractor. All motors shall be wound for +/- 10 percent of the specified voltage. Motors shall be voltages indicated on drawings. All motors shall have copper windings, Class F insulation and shall be rated for continuous duty service. All three-phase motors shall be inverter-duty type motors.

D. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

E. Starters for single phase motors 1/2 HP and below shall be furnished with pilot light and "hand-off-auto" selector switch where required.

F. Starters for three-phase, single speed motors shall be stepless solid state soft starter with "hand-off-auto" selector switch, three overload relays and auxiliary contacts as required. The starter shall operate at manufacturers ratings with 10 percent and -15 percent applied voltage tolerance and be capable of operating continuously under ambient temperatures of 0 to 50 degrees Celsius. The starter control circuitry shall be designed for current ramp operation and utilize current feedback for closed loop operation to minimize variation of acceleration time with varying load conditions. The starter shall use metal oxide varistors to clip transient voltage spikes on incoming power lines with protection to limit the rate of rise of voltage spikes to protect the SCR's from damage. The starter shall provide electronic motor overload protection. The starter shall shut down (or shall not start) to protect itself from either phase loss or phase rotation. The starter shall have adjustments for initial torque, pulse, ramp up time, ramp down time, and current limit. The starter shall have a main trip breaker to act as a disconnect and necessary contactors. The starter shall have contacts for remote starting from a building energy management system.

G. Mechanical contractor shall provide and install all smoke dampers and smoke or duct detectors. The electrical contractor shall provide and install all wiring/interlocks with fire alarm.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in walls, ceilings, floors or otherwise inaccessible. Panels shall be Milcor, Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall of ceiling where located.

B. Access panels located in rated walls, floors, or ceilings shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 PIPING

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be

repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.

a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.

2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide nonconducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Provide drain valves at main shutoff valves, low points of piping and apparatus.

I. Provide and install air vents with shutoff valve at all high points in the system.

J. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

END OF SECTION 23 05 03

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Division 23 Specification Sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.2 SCOPE OF WORK

A. The General Contractor shall obtain the services of an independent test and balance company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s). These services shall not be provided by the installing mechanical contractor on the project but shall be a direct subcontractor of the general contractor.

1. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Heating and Ventilating Technician employed by Agency.
2. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
3. If requested, conduct tests in presence of Engineer.
4. Agency shall be approved in writing by Engineer. Mechanical Contractor shall not be permitted to do this work. Submit qualifications for review.

B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems, as described in these Specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. Refer to Plumbing Division 22 for additional work required of Air System Test and Balance agency.

C. **Test and Balance agency shall be present for factory start-up of equipment when factory startup is required**.

D. Representatives of the test and balance company shall visit the job site at 60 percent and 90 percent completion of installation of the HVAC equipment, piping and ductwork to review the installation. After each site visit, the test and balance company shall report to the Architect any items that are not installed properly, are missing from the Contract Documents or items that are required to enable him to perform the testing and balancing of the HVAC systems as per normal standard practice. After review, the Architect shall instruct the contractor to implement the recommendations at no additional cost to the Owner if these items were specified in the original scope of the project.

E. Upon completion of the HVAC system installation, the test and balance company shall perform all testing and balancing with the full cooperation of the contractor and his

subcontractors. The contractor shall make changes and/or adjustments to the HVAC system components that are required by the test and balance company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work by the contractor shall be performed at no additional cost to the Owner.

F. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of air balancing test report.**

G. Engineer will choose and direct spot balancing of one zone. Differences between the spot balance and test report will be justification for requiring repeat of testing and balancing for entire building.

1. Be prepared to spot smoke test one ducted system as directed by Architect's Engineer.
2. Rebalancing shall be done in presence of Architect and subject to his approval.
3. Spot balance and rebalance shall be performed at no additional cost to Owner.

H. The test and balance report shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. If he does not concur with the report, he shall meet with the Test and Balance Company to determine what needs to be done to obtain a properly balanced system.

I. After the Mechanical Engineer signs the testing and balancing report, the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.

1.3 The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

A. AIR SYSTEMS:
Air Handling Units
Fans
Zone Branch and Main Ducts
Diffusers, Registers, Grilles and Dampers
Coils (Air Temperatures)
Valves
Vibration Isolators
Duct Smoke/Pressure Leak Testing

1.4 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

1.5 DEFINITIONS, REFERENCES, STANDARDS

A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.6 QUALIFICATIONS

A. Agency Qualifications: The TAB agency shall be a current member of the AABC,NEBB or TABB.

B. Prior to working on this project, the technicians shall attend training provided by the manufacturer of the various equipment on this project on the specific aspects of balancing the equipment. Include letters or certificates from the manufacturer on attendance and satisfactory completion of the factory training. These certifications may be used for continuing education. At a minimum, the technicians shall receive training from the air distribution equipment manufacturer, air unit manufacturer, and temperature controls manufacturer. This should be done prior to any equipment start-ups.

1.7 SUBMITTALS

A. Qualifications: The TAB agency shall submit a company resume listing personnel and project experience in air and hydronic system balancing and a copy of the agency's test and balance engineer (TBE) or technician certificate.

B. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.

C. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

D. Submit continuing educations training on each lead technician working on the project.

1.8 TAB PREPARATION AND COORDINATION

A. Shop drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days prior to the start of TAB work.

B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.

C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all

necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution. The BCA contractor shall provide all necessary software to the TAB Agency at no additional cost.

D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.

E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

F. If, upon commencing the work, the TAB contractor finds that the systems are not ready, or if a dispute occurs as to the readiness of the systems, the TAB contractor may request an inspection to be made by the Designer's Mechanical Engineer. This inspection shall establish to the satisfaction of the represented parties whether or not the systems meet the basic requirements for testing and balancing. Items that are determined to be not ready for testing and balancing shall be completed by the Mechanical Contractor and placed in operational readiness before TAB services are again requested.

1.9 TAB REPORTS

A. Final TAB Report: The TAB agency shall submit the final TAB report for review by the Engineer. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified, along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC or NEBB "National Project Performance Guaranty" assuring that the project systems were tested, adjusted and balanced in accordance with the project Specifications and AABC or NEBB National Standards.

B. Submit four (4) copies of the final TAB report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

2.1 All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC or NEBB National Standards.

PART 3 - EXECUTION

3.1 GENERAL

A. General Contractor with Mechanical Contractor shall put heating, ventilating, and cooling systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Air Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

D. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC or NEBB National Standards. Adjustment tolerances shall be + or -10 percent unless otherwise stated.

E. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.

F. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.

G. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.

H. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 AIR SYSTEMS

A. **TESTING PROCEDURE**
Air Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements. Perform the following tests at high and low speeds of multi-speed systems and single speed system.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when ductwork installation begins. Coordinate and verify the installation of all balancing dampers, fire dampers, etc.**
2. Smoke test or pressure test each low pressure steel duct system to test for air tightness. Use zinc chloride smoke candles or titanium tetrachloride ampules (sticks) to generate smoke.

a. If ducted systems leak, do not continue with air balance. Report findings to Engineer in writing and begin testing again after Mechanical Contractor has repaired ducts or applied duct sealers.
b. If ducted systems appear air tight, proceed with air balance procedure as outlined below.
c. Include in air balance report a letter indicating smoke testing has been accomplished and a report of findings regarding airtightness of each ducted system.
d. Maximum leakage loss shall not exceed 2 percent. If losses are greater, the Mechanical Contractor shall correct the leakage, then the test and balance agency shall retest the ductwork.

3. Test and adjust blower rpm to design requirements.
4. Test and record motor full load amperes.
5. Make Pitot Tube traverse of main supply and return and obtain design cfm.
6. Test and record system static pressures, suction, and discharge.
7. Test and adjust system for design cfm air.
8. Test and adjust system for design cfm outside air.
9. Test and record entering air temperatures (db heating and cooling).
10. Test and record entering air temperatures (wb cooling).
11. Test and record leaving air temperatures (db heating and cooling).
12. Test and record leaving air temperatures (wb cooling).
13. Adjust main supply and return air ducts to proper design cfm.
14. Adjust zones to proper design cfm, supply and return.
15. Test and adjust each diffuser, grille, and register to within 10 percent of design requirements.
16. Identify each diffuser, grille, and register to location and area.
17. Identify and list size, type, and Manufacturer of diffusers, grilles, registers, and testing equipment. Use Manufacturer's rating on equipment to make required calculations.
18. In readings and tests of diffusers, grilles, and registers, include required fpm velocity and test fpm velocity and required cfm and test cfm after adjustments.
19. In cooperation with Mechanical Contractor, set adjustments of automatically operated dampers to operate as specified, indicated, or noted.
20. Adjust diffusers, grilles, and registers to minimize drafts.
21. Verify the calibration of temperature control devices, thermostats, etc.
22. Verify all control sequences with specifications.
23. Include manufacturer's performance data with reports.
24. Schedule three inspections to verify original test and balance of systems within 90 days of acceptance by Owner. Make opposite season adjustment and inspection of systems at one year after acceptance by Owner. Submit reports after each inspection. Submit schedule as part of initial report.

B. Where systems supplied to job site provides over 5 percent more air than schedule requirements, rooms supplied by that system shall have their supply air quantities increased by the ratio of the actual total air quantity supplied to the minimum air quantity required by the schedule.

C. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall

perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:

1. Fans
   a. Fan Speeds--Test and adjust fan RPM to achieve design cfm requirements.
   b. Current and Voltage--Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
   c. Pitot-Tube Traverse--Perform pitot-tube traverse of the main exhaust ducts to obtain total CFM. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
   d. Static Pressure--Test and record system static pressure, including the static pressure profile of each exhaust fan.
2. Zone, Branch, and Main Ducts
   a. Adjust ducts to within design cfm requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.
3. Diffusers, Registers, and Grilles
   a. Tolerances--Test, adjust, and balance each diffuser, grille, and register to within 10 percent of design requirements. Minimize drafts.
   b. Identification--Identify the type, location, and size of each grille, diffuser and register. This information shall be recorded on air outlet data sheets.
4. Coils
   a. Air Temperature--Once air flow are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry bulb temperature shall be taken on the entering and leaving side of each heating coil.
5. Air Handling Units:
   a. Location, manufacturer, model number, serial number, motor manufacturer, fan and motor sheaves, belts. Required and test data with unit operating at full air flow conditions (all space thermostats calling for cooling) for each of following: total CFM, return and outside air CFM, total static pressure, suction and discharge static pressures across unit fan, HP, amperage, voltage, fan RPM. Verify performance of static pressure controls, vane operators, dampers and controls. Adjust and/or change pulleys and belts as required to obtain delivery of system specified or required full load air quantities.
6. Diffusers and Grilles:
   a. Space served; type and size of diffuser or grille, specified CFM, initial test CFM and final test CFM. Each air outlet shall be adjusted for +/- 5 percent of required quantity as shown on plans.
7. Control Systems:
   a. Verify all control sequences and calibration of all thermostats and sensors.
8. Equipment Start-up:
   a. The Test and Balance Contractor shall be on site to witness and record all factory start-up of mechanical equipment. Include start-up reports in final balancing report.
9. Plumbing:
   a. Refer to Plumbing Division 22 for additional work required by the Air System Testing and Balancing Agency.

3.3 INDOOR AIR QUALITY VERIFICATION:

A. The TAB agency shall take measurements at minimum outside air. It shall measure temperature and humidity uniformity throughout the space, check filter installation for proper fit, seal and operation and verify condensate drain operation. The TAB agency shall note any water damage or obvious contamination sources from inside or outside.

B. The TAB agency shall prepare a short report showing the results and location of each test, a summary of the HVAC operating conditions, and a listing of any discrepancies.

3.4 ADDITIONAL TAB SERVICES:

A. Job Site Inspections:
During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems. Inspections shall be conducted a minimum of two times. (Typically, these are performed when 60 percent of the total system is installed and again when 90 percent of the total system is installed, prior to insulation of the duct and piping.) The TAB agency shall submit a written report of each inspection to the Architect.

B. Duct Leakage Testing:
The Installing Contractor shall isolate and seal sections of ductwork for testing. The pressurization fan and test apparatus shall be connected to the test section and the test performed. The test pressure required and the amount of duct to be tested shall be described by the engineer in the appropriate duct classification section. All testing shall be based on one test per section.

C. Verification of HVAC Controls:

1. The TAB agency shall be assisted by the building control Systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
2. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
3. Verify that all controlling instruments are calibrated and set for design operating conditions.

D. Temperature Testing:
To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than 2 degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.

E. TAB Report Verification:
At the time of final inspection, the TAB agency may be required to recheck, in the presence of the Owner's representative, specific and random selections of data, air

quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the Owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10 percent of the total number tabulated in the report.

F. Kitchen Hood Testing:
The TAB agency shall test and adjust kitchen hood total air flow by duct pitot-tube traverse if applicable under local code. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. All sealing of test holes in the exhaust duct to be by others per local code requirements. The TAB agency shall test and record face velocities in accordance with design requirements. It shall test and adjust makeup air flow (if included) to meet design face velocities and pressurization and to minimize turbulence.

G. Building/Zone Pressurization:
The TAB agency shall test and adjust building/zone pressurization by setting the design flows to meet the required flow direction and pressure differential. For positive pressure areas, it shall set the supply air to design flow, and gradually reduce the exhaust air rate to obtain the required flow or pressure difference. For negative pressure areas, it shall set the supply air to design flow, and gradually increase the exhaust air rate to obtain the required flow or pressure difference.

END OF SECTION 25 05 93

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 07 00 - MECHANICAL INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 CONDENSATE DRAIN PIPING

A. Insulate condensate drain piping with 3/4 inch thick closed cell rubber type insulation.

2.2 REFRIGERANT LINES

A. Insulate all refrigerant suction lines with 1 inch thick closed cell rubber insulation. Apply two (2) coats of black mastic where the lines are exposed to the weather. Refrigerant piping below grade shall be installed in watertight PVC sleeve.

2.3 AIR CONDITIONING DUCTWORK

A. Insulate all ducts above ceiling with one layer of 3 inch thick, 3/4 pound density flexible Fiberglass duct insulation with aluminum foil facing. Duct insulation to be applied with 2 inches lap of facing sealed with tape and outward clinch staples. Seal all joints with 2 inch wide vapor barrier tape. An additional band of tape shall be applied between the circumferential joints for a maximum 2 foot spacing of taped bands.

B. The ductwrap shall have a minimum installed R-value of 8.5 and shall comply with Energy Code requirements..

2.4 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, roof drain bodies, shall be insulated same with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.5 KITCHEN HOOD EXHAUST DUCTWORK

A. Refer to Kitchen Hood specifications section.

2.6 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.7 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required: Piping shall be painted colors as standard in this facility.

END OF SECTION 23 07 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 09 00 - TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Refer to Section 23 05 00, Section 23 05 03, Section 23 30 00 and Section 23 70 00, provisions of which apply to work under this Section.

B. All control systems shall be furnished complete and functioning.

C. Coordinate all control work with the mechanical and electrical contractors. Contact the Test and Balance Contractor and notify them as to when controls work shall be installed. Test and Balance controller shall verify controls systems installation and proper operations.

1.2 DESCRIPTION OF WORK

A. Provide a complete system of "hard-wired" automatic controls (wireless unacceptable) as indicated herein. Control system shall consist of all thermostats, sensors, actuators, operators, wiring, switches, relays and control panels necessary to accomplish the control sequence specified herein.

1.3 RELATED WORK IN OTHER SECTIONS

A. For extent of power wiring and connection to mechanical equipment under Electrical Work, refer to Division 26.

B. For control devices furnished with equipment, refer to equipment specifications and schedules. Any controls equipment not specifically called for elsewhere shall be provided by controls contractor. All control wiring shall be done by controls contractor.

C. All power for control devices such as actuators, operators, fire/smoke dampers, control dampers, etc. shall be furnished, installed and wired by the Controls Contractor. Controls Contractor may use 24 VAC or 120 VAC for the control system. The controls contractor shall be responsible for obtaining the necessary power and pay all costs associated with obtaining power to controls and controls equipment.

D. All interior control wiring shall be installed in galvanized EMT conduit. The last 6 inches at connection to equipment shall be flexible metal conduit. All control wiring on exterior of building shall be in Seal-Tite conduit and/ or Liquid Tight flexible conduit.

E. All control wiring shall be furnished and installed by this contractor.

1.4 SERVICE

A. Installing Contractor (Mechanical Contractor or subcontractor under the Mechanical Contractor) shall maintain adequate automatic control personnel on his payroll to provide back-up project control service on the automatic control system provided under this contract.

1.5 WARRANTY

A. Contractor shall warranty all work performed under this contract to be free of any defects in workmanship or material for a period of one year after final acceptance by the Owner's representative. The installing controls contractor shall include a second year of extended warranty to cover all parts and labor. The warranty and extended warranty shall include quarterly calibration and set-up checks of all controls. THIS WARRANTY DOES NOT START ON DATE THAT THE MECHANICAL EQUIPMENT IS STARTED.

1.6 SUBMITTAL

A. Submit shop drawings and product data sheets indicating configuration, general assembly, and materials used in fabrication.

B. Submit manufacturer's installation instructions. Instructions shall include complete wiring diagrams drawn specifically for this project.

1.7 OPERATION AND MAINTENANCE

A. Include manufacturer's descriptive literature, operating instructions, and maintenance data.

1.8 QUALITY ASSURANCE

A. Manufacturer shall be a company specializing in products of the type specified in this section. All components shall be Class A quality commercial or industrial grade for installation in locations or environments shown on plans.

1.9 SYSTEM RESPONSIBILITY

A. The entire control system, shall be furnished by a single source manufacturer who shall be responsible for the entire system. The installations shall be by technicians employed by the controls system manufacturer.

PART 2 - PRODUCTS

2.1 FIRESTATS AND SMOKE DETECTORS

A. Duct smoke detectors shall be furnished and installed by mechanical contractor. Install a smoke detector in the supply air section/duct and return air section/ duct of each unit delivering over 2000 cfm to stop the fan and close the outside air dampers in the event of excessive temperature or smoke. Firestats to be provided in the return air units of all units over 600 cfm.

B. Smoke detectors shall be addressable and compatible with the fire alarm system.

C. Where and when the building does not have a fire alarm system, provide a remote annunciator with remote reset for each detector.

D. All smoke detectors shall have remote reset.

2.2 TEMPERATURE CONTROLLER

A. Refer to Section 23 70 00, Packaged Outside Air Unit for controller.

2.3 WIRING

A. Factory mount and wire controls. Mount electrical components in control box with removable cover. Provide clearance for access to controls (36 inch clearance).

B. Provide terminal strip(s) for field wiring of thermostat, communications and power source. DO NOT USE WIRE NUTS IN JUNCTION BOX.

C. All wiring shall comply with local and national electric codes and the manufacturer's published installation manual.

D. Provide terminal strip(s) for field wiring of air conditioning unit input connections, duct temperature sensor, velocity sensor, static pressure sensor, communications, start/stop devices, VFD controls, time clock, bypass damper motor and power wiring, etc. Do not use wire nuts on loose wire. All wire shall be in conduit, flexible conduit or wiring harness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Division 26, ELECTRICAL, shall be responsible for point to point wiring of all starters and starting switches not factory installed in the HVAC equipment.

B. Install all components of control systems under this Section using experienced control mechanics, all in the regular employ of the Installing Contractor, or the apparatus manufacturer.

3.2 WIRING

A. Install all control, pilot circuit and interlock wiring, including wiring through interposed safety or other auxiliary control devices within the confines of the mechanical equipment only. Wiring of thermostats shall be by the Mechanical Contractor.

B. All wiring shall conform to the Local and National Electrical Codes.

C. All control and interlock wiring shall be fused at conductor capacity as shown in the National Electrical Code.

D. No splices will be allowed except at junction boxes and control centers.

E. All wires to each control device must be different colors. All wires to each device must be laced or tied at point of entry into control panel and tagged as to its point of origin.

F. All wires shall be run directly from controller or controlled device to control center. There shall be no looping of wires from one device to another external to the control centers.

G. Control voltage shall be a maximum of 120-volt, unless otherwise indicated herein.

H. Control or interlock wiring shall not be run in conduit with any power wiring other than that serving the equipment controlled.

I. Refer to Division 26, ELECTRICAL, for extent of work under that Division. Provide other wiring systems required to accomplish the work of this Section, following requirements of Division 26 for products and execution.

J. Wiring connection to terminal posts shall be made by means of compression type lugs. Wire splices shall be made with sketch locks.

K. Safety devices in motor control circuits shall be wired to interrupt the holding coil circuit regardless of the position of any selector switches in the circuit.

L. Control circuit conductors shall be sized for a maximum voltage drop of 10 percent of the circuit voltage.

M. All electrical power wiring shall conform in all respects with the provisions of the National Electrical Code and Division 26, ELECTRICAL, of the Specifications.

N. Provide all necessary contactors, switches, transformers to accomplish operating sequences.

3.3 SYSTEM CHECK-OUT

A. Check-out each system for control function through entire sequence, check calibration of instruments, reset instruments control points.

B. Owner maintenance personnel shall be made thoroughly familiar, by the contractor, with the operation and service of the project automatic temperature control circuits.

3.4 SOFTWARE FOR CONTROLS SYSTEMS

A. All software required for the operation of the temperature control system shall be furnished with the control system. The temperature controls manufacturer/contractor shall furnish the software plus two years of software updates.

B. The software shall be provided in original sealed packaging with all written/printed documentation to the Test and Balance Contractor for use in balancing the project. The temperature controls contractor shall turn the software over to the owner upon completion of the project.

END OF SECTION 23 09 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 28 13 - COMMERCIAL KITCHEN HOODS

PART 1 - GENERAL

1.1 GENERAL

A. The General Section the Mechanical Specification is a part of the Commercial Kitchen Hood Specification and applies same as if herein specified.

1.2 SCOPE OF WORK

A. Furnish and install all materials, labor, tools, equipment and working plans as required to install and place in operation the complete Kitchen Hood System.

1.3 WORK INCLUDED

A. The work shall include but not be limited to the following:

1. All exhaust/make-up air ductwork
2. Fan packages
3. Kitchen hoods (Existing)
4. Insulation and controls

1.4 PLANS AND DIAGRAM

A. Working plans (drawings) shall be prepared by the contractor before commencing hood installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

1. State Fire Marshal/AHJ

B. Drawings must first be submitted to the Mechanical Engineer (POR) for approval. POR will then forward the plans to the State Fire Marshal/AHJ. Drawings must be submitted in conjunction with hood Fire Suppression Drawings. Refer to the State Fire Marshal's website for all fees, checklists, forms and requirements for submittal.

1.5 PERMITS, INSPECTIONS AND TESTS

A. All permits, fees, etc., for the installation, inspection, review or construction of the work which are required by any authority and/or agencies having jurisdiction, shall be obtained and paid for by the contractor.

B. All inspections, examinations and tests required shall be arranged and paid for by the contractor as necessary to obtain complete and final acceptance.

PART 2 - MATERIALS

2.1 KITCHEN HOOD EXHAUST DUCTWORK

A. All kitchen hood exhaust ductwork shall be constructed of 16 gauge black iron with weld seams and joints. All seams and joints shall be liquid tight. All construction of ductwork shall be in compliance with NFPA 96.

B. Cover the kitchen exhaust with a flexible wrap system listed and labeled (labeling on scrim shall include product name and certification mark) by a NRTL, Nationally Recognized Testing Laboratory. System shall be tested per internal fire test ASTM E 2336 and per ASTM E 119 engulfment test and achieve a 2 hour fire resistance rating. Wrap system shall be fully encapsulated to resist moisture absorption. System shall provide zero clearance to combustible protection at all locations on the system surface. Access doors shall be installed per the manufacturer's instructions to comply with local code. A listed and labeled firestop system must be available to seal the opening where the protected grease duct penetrates a fire rated floor or wall. The field applied grease duct enclosure system must be mechanically attached to the duct using steel banding and/or weld pins per manufacturer's instructions. System shall be NFPA 96 approved. Material shall be Unifrax FryeWrap® Elite® 1.5 3M Fire Barrier 615+ or prior approved equivalent.

2.2 KITCHEN HOOD FAN PACKAGE

A. Provide roof top pre-engineered exhaust and supply fan package(s) in sizes and quantities as shown on plans. The fan packages shall be a complete system manufactured and assembled by Greenheck, (Accurex) or prior approved equal.

B. The exhaust fan shall be constructed of heavy gauge aluminum. The fan wheel and cone shall be aluminum and of the high performance, centrifugal blower type, statically and dynamically balanced. The exhaust fan shall be constructed as to include a built-in grease drain. Motor and drives shall be isolated from the exhaust airstream and shall be located in a chamber cooled by air brought in through a tube from a location free of discharge contaminates. The entire drive assembly and wheel as unit shall be serviceable and removable through the support structure without dismantling the fan housing. The wheel shaft shall be mounted in heavy duty ball bearings. Drives shall be sized for 165 percent of driven horsepower. Motor pulleys shall be of the adjustable type for final system balancing made of cast iron and be keyed to motor and wheel shafts. The entire drive assembly shall be mounted in rubber vibration isolators. The exhaust fan assembly shall also include a rigid bird screen mounted within the discharge perimeter and a thermal barrier insulating the wheel compartment from the drive compartment. The fan shall be AMCA approved for sound and air performance and also shall be U.L. listed for grease removal in accordance with Underwriters Laboratories standards.

C. The supply fan unit shall be of the belt-driven, double width, double inlet, forward curved centrifugal blower type. The blower assembly shall be mounted on vibration isolators. Drives shall be sized for a minimum of 165 percent of driven horsepower. All exterior housing components of the supply unit shall be constructed of minimum 18 gauge galvanized steel, painted with a weatherproof finish that has been baked for durability. Heavy gauge adjustable angle iron support legs shall be furnished as required. The inlet of the unit shall contain bird screen and a bank of washable, removable air filters. Filters shall be of 1 inch aluminum mesh type, coated with filter adhesive compound and shall be U.L. Classified. The total fan package shall be furnished with a pre-wired control center which shall include, but not be limited to, a master-fused disconnect for main power. Connection, magnetic motor starters with thermal overloads and manual reset, fused 24-volt control transformer and distribution terminal strip for control wiring connection. All electrical components shall be U.L. Listed, Approved or Classified where applicable and wired in compliance with the National Electrical Code. Wiring shall be complete, requiring only one-point field connection for power service (exception: electric heater) and one-point field connection for low-voltage control harness.

D. Furnish motorized backdraft damper as integral part of supply unit. Damper unit shall open upon energization of supply fan and close upon shut-off of supply fan.

E. Furnish pre-fabricated roof curbs constructed of minimum 18 gauge galvanized steel with integral wood nailer, run-off cant and 1 inch rigid insulation. Provide curb extensions as required for exhaust fan to meet N.F.P.A. requirements for discharge height.

2.3 KITCHEN HOOD

A. Kitchen hoods are existing. Installation of existing hoods shall be by Mechanical Contractor. Furnish all hangers and stainless steel wrappers for a complete installation.

B. Contractor shall submit hood shop drawings along with hood suppression system for submittal to the Fire Marshal. Contractor shall obtain a copy of the required checklist for all requirements and shall pay all fees required.

2.4 FIRE PROTECTION SYSTEM - KITCHEN HOODS

A. GENERAL

1. The General Section of the Mechanical Specifications is a part of the Fire Protection System Specification and applies same as if herein included.

B. SCOPE OF WORK

1. Furnish all materials, labor, tools, equipment and working plans to install and place in operation the complete Hood Fire Protection System for the kitchen hood as herein specified. The contractor shall be responsible for preparing the plans, calculations, fees and Fire Marshal review of the system layout.

C. WORK INCLUDED

1. The work shall include providing hood fire protection system and shall include but not be limited to the following: all piping and fittings; automatic systems; alarm system; testing and approval; and service fees and installation cost.

D. PLAN AND DIAGRAM

1. Working plans (drawings) shall be prepared by the contractor before commencing fire protection installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

   a. State Fire Marshal.

E. HOOD FIRE PROTECTION SYSTEM

1. Furnish and install a fire protection system for the commercial type cooking hood as listed in these specs. The system shall be installed to meet the requirements of NFPA 96, NFPA 17A and UL 300. The Installing Contractor shall also prepare shop drawings for submittal to the State Fire Marshal for review. The Installing Contractor shall be responsible for paying all fees required for submittal to the state and local review agencies. The system shall be installed by all licensed hood fire protection contractor. The Installing Contractor shall be responsible for providing all certificates for Owner's records. The Installing Contractor shall make two (2) inspections of the system during the first year after acceptance by the Owner.
2. The fire protection system shall utilize a wet type fire suppression agent. The liquid agent shall be a potassium carbonate-based solution designed to suppress fires by its saponifying and cooling effects. The agent shall not require periodic replacement. For rapid fire knockdown, the agent shall have an expansion ratio of approximately 2200 to 1. It shall not have an adverse effect on stainless steel appliance, hoods and ducts.
3. The cylinder shall be manufactured and tested in accordance with DOT specifications. It shall be under coated with zinc chromate or red oxide and over coated with white high gloss enamel. The cylinder shall be pressurized to 175 psi to ensure rapid discharge at temperatures as low as 1 degree Fahrenheit. A highly polished metal enclosure shall be provided to conceal the cylinder.
4. The valve shall be heavy duty forged brass, chrome-plated. It shall incorporate an oil-filled bourdon tube gauge to indicate cylinder pressure.
5. The nozzles shall be heavy duty brass, chrome-plated. It shall incorporate a stainless steel strainer to remove scale and foreign matter from pipe or stainless steel tubing. A pure tin foil seal shall protect the nozzle orifice from grease build up. This seal shall be kept tightly in position by a threaded nut to ensure its permanence through the continuous heating-cooling cycle.
6. The system shall be designed for automatic operation with provision for remote and/or local manual control(s). Automatic operation shall be initiated by fusible metallic links, glass bulb links, or electric detectors. The links and glass bulbs are to be utilized with stainless steel cable and corner pulleys employing stainless steel ball bearings. All cable and wiring shall be enclosed in conduit. Where used, the electric detectors are to be utilized with a control panel and an electro-thermal link

that are UL listed for use with the system. All electrical work shall comply with the National Electric Code.

7. Where gas-fired appliances exist, a gas shut-off valve of either the mechanical or electrical type shall be automatically closed upon system actuation. The mechanical type shall be shut-off though the mechanical actuator or a pneumatic release installed in the discharge line. The electric type shall be wired through a manual reset relay to either micro-switch or pressure switch wired through a magnetic contactor. All work shall comply with the National Electric Code.
8. Pipe shall be black steel, stainless steel, or brass standard weight (Schedule 40). Fittings shall be malleable, ductile, or cast iron, steel, stainless steel, or brass and may be standard weight. Stainless steel tubing incorporating bends or stainless steel fittings may also be used. Fittings may be chrome-plated and piping chrome-plated or sleeved. All pipe runs shall be rigidly secured with suitable straps or hangers. Wherever possible, multiple cylinder systems shall be manifolded to minimize pipe.
9. The system shall be installed by an authorized factory trained contractor. The Installing Contractor shall visit the project to take all field measurements and verify the conditions. The Installing Contractor shall acquire and submit all plans, permits and approvals necessary for proper installation and final acceptance. Upon completion, the Installing Contractor shall conduct any and all tests required. The installation shall comply with the manufacturer's installation manual, Underwriters Laboratories listing, National Fire Protection Association Pamphlets 96 and 17A and all applicable regulatory and insurance requirements.

PART 3 - INSTALLATION

3.1 DUCTS

A. Refer to specification section 23 30 00 for any additional comments regarding general duct construction or layout.

PART 4 - EXECUTION

4.1 INSTALLATION

A. The Installing Contractor shall install to meet the manufacturer's instructions.

END OF SECTION 23 28 13

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 30 00 - AIR DISTRIBUTION

PART 1 - GENERAL

1.1 GENERAL

A. Furnish and install all ducts for Air Conditioning, Heating, and Ventilating Systems as shown on the plans and as may be required to provide complete system. Ductwork shall be complete with grilles, vanes, flashings, hangers, flexible connections, splitters, manual dampers, fresh air inlets, louvers, reinforcing angles, etc. All ductwork shall be concealed and insulated as hereinafter specified.

1.2 COORDINATION

A. The General Contractor and Mechanical Contractor shall coordinate the space clearances required for ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. Any re-sizing required shall be part of this project and done without any additional cost to the project. DO NOT MAKE DUCTWORK WITHOUT COORDINATION.

1.3 DUCTWORK SHOP DRAWINGS

A. The Mechanical Contractor/ Sheetmetal Contractor shall prepare complete sheetmetal ductwork shop drawings showing coordination with all trades on the project. The shop drawings shall show all offsets, transitions, size changes to resolve conflict, dampers, fire dampers, grilles, air units, etc. These shop drawings shall be submitted prior to starting work and ductwork fabrication.

1.4 Sealing or flashing the building envelope due to penetrations in the building shall be the responsibility of the general contractor.

PART 2 - MATERIALS

2.1 DUCT HANGERS AND SUPPORTS

A. All ductwork shall be properly braced to prevent rattling, breathing, or other unnecessary noise. No sharp edges or obstructions shall project into air stream.

2.2 LOW PRESSURE DUCTWORK

A. All ductwork shall be galvanized steel and shall be of gauges and construction as recommended by ASHRAE Guide and Data Book and SMACNA guidelines. Gauges are as follows with longest side governing.

Dimension of longest side	Low Pressure Ductwork Sheet Metal Gauge
0"-12"	26 gauge
13"-30"	24 gauge
31"-54"	22 gauge
55"-84"	20 gauge

B. Low pressure ductwork shall be all exhaust ducts, return air ducts, fresh air ducts and supply ducts.

C. Joints and reinforcing shall be as per ASHRAE Guide and Data Book and all slips shall be installed without edge of internal part of slip facing downstream.

D. Construction standard of Article 110, of the National Board of Fire Underwriters Bulletin 90, latest edition, shall apply throughout.

E. Flashings shall be of sheet copper and shall be furnished and installed around all outside openings used for ducts of fans and wherever required. Roof flashings shall extend at least 8 inches above roof.

F. All ducts shall be straight and true and installed in a neat and workmanlike manner.

G. All edges shall be straight and true and all bends shall be made with veined turns. Where long radius turns cannot be used, the contractor shall use square turns and use air splitters spaced not more than 3 inches center to center, and of a length so air will be properly distributed over ducts.

H. All ducts shown are metal to metal dimensions.

I. Mastic shall be applied to both male and female connections (all seams and joints) to make all duct joints air tight (applies to all ductwork; round or rectangular). Surplus mastic shall be removed. Tape and re-mastic joints if necessary. Mastic (hard-cast or equivalent duct sealer : tape not acceptable) shall be applied to the joints during assembly so that sealant is on all mating surfaces of the joint.

2.3 DUCT LINERS

A. Low pressure rectangular supply ductwork shall not be lined. All supply and return air ductwork shall be wrapped with same insulation as specified for round ductwork. Exhaust ductwork shall not be insulated. LINED DUCTWORK IS NOT PERMITTED IN THIS PROJECT. WRAP ALL DUCTWORK.

2.4 FILTERS--PRIMARY

A. Units shall be equipped with low velocity filter section with 30 percent efficient 2 inches thick pleated type (Continental air filters "cono pleat" FARR 3030, American Air Filter or equal) throwaway filters.

B. Provide and install one set of filters as called for in these Specifications for initial testing and start-up and another complete set upon completion of the project.

2.5 DUCT ACCESSORIES

A. Dampers of the fusible link operated type shall be provided in all ductwork passing through floor or fire walls.

B. Provide quadrant or adjustable splitters and mark shaft to give position of splitter damper in duct.

C. Provide vanes behind every supply grille or diffuser. Splitters shall be provided where shown on plans and where located in concealed non-accessible space provided Young Regulators to operate splitter. Vanes shall be Tuttle and Bailey "Ducturns", Barber-Coleman, Uniflo, or equivalent. Shop fabricated vanes will be acceptable. All dampers shall be constructed of 14 gauge steel.

2.6 REGISTERS, GRILLES AND DIFFUSERS

A. Ceiling supply outlets, unless otherwise indicated on plans shall be Titus, Price, Nailor or approved equal. Outlets shall be mounted tight to the construction, and shall have frame suitable for type of ceiling used unless otherwise noted.

B. Return air grilles shall be as manufactured by Titus, Price, Nailor or approved equivalent and shall be of style called for on plans.

C. All supply outlets shall have sponge rubber gaskets.

D. All grilles, diffusers, and registers shall be of sizes indicated on plans or scheduled on drawings.

E. Unless otherwise shown on drawings, all grilles installed in the ceiling shall be furnished with white baked-on enamel finish.

2.7 FIRE DAMPERS

A. Furnish and install, at locations shown on plans, fire dampers constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 hour fire protection rating, 212 degrees Fahrenheit fusible link, and shall include a UL label in accordance with established UL labeling procedures. Damper manufacturer's literature

submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with AMCA Standard 500 and shall illustrate pressure drops for all sizes of dampers required at all anticipated air flow rates. Fire dampers shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing steel sleeves, angles, other materials, and practices required to provide an installation equivalent to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. Fire dampers shall be Ruskin type IBD, Arrow, Cesco, Pref-Co, or equal.

B. Fire dampers installed within 10 feet of the air handling unit or where velocities exceed 2000 fpm. Dampers shall be static type for systems with duct smoke detectors, dynamic for systems without duct detector fan shut down.

1. Furnish and install at locations within 10 feet of the air handling unit multi blade fire dampers constructed and tested in accordance with UL safety standard 555 (dynamic) that meet or exceed the following specifications:
   a. Frame shall be a minimum of 16 gauge galvanized (1.52) steel formed into a structural hat and tabbed with tabbed corners for reinforcement. The blades shall be air foil-shaped double skin with 14 gauge (1.90) equivalent thickness. Bearing shall be stainless steel sleeve turning in an extruded hole in the frame.
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in accordance with established labeling procedure.
   c. Damper manufacturers' literature submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with the UL 555 standard.
   d. Fire dampers shall have been tested to close under dynamic air flow conditions with pressures up to 4 inches w.g. and to 4,000 fpm air velocity.
   e. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
   f. Fire dampers shall be installed in a wall or floor opening using steel sleeves, angles and other materials and practices required to provide an installation equivalent used by manufacturer when damper was tested at UL. Installation shall be in accordance with the damper manufacturers' instructions.

C. Fire dampers installed beyond 10 feet of the air handling unit and where velocities are under 2000 fpm.

1. Furnish and install at locations shown on plan fire dampers constructed and tested in accordance with UL safety standard 555.
   a. Fire dampers shall have been tested to close under dynamic air flow conditions and be labeled as a dynamic fire damper (static fire dampers are not allowed).
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in this specification accordance with UL 555 standards, and a dynamic label that shall illustrate maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable at 4 inches static pressure for un-ducted, in-wall mounting.

c. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
d. Fire dampers shall be installed in wall and floor openings using steel sleeves, angles and other materials and practices required to provide an installation equivalent to that used by the manufacturer when dampers were tested at UL. Installation shall be in accordance with damper manufacturers' instructions.

D. Round fire dampers: All systems with pressures to 6 inches w.q. and velocities to 4000 fpm.

1. Furnish and install at locations shown on plans, or as described in schedules, round fire dampers meeting or exceeding the following specifications.
   a. Frame shall be a minimum of 20 gauge galvanized steel and blade shall be two piece equivalent to 14 gauge minimum galvanized. Bearings shall be stainless steel sleeve with grooves to receive the 20 gauge retaining plate for damper mounting.
   b. Each round fire damper shall be 1-1/2 hour fire rated under UL standard 555, and bear a UL label attesting to same.
   c. Each round fire damper shall be equipped with a Fuse Link which shall activate at (specifier select one) 165 degrees, 212 degrees, causing damper to close in a locked position.
   d. Manufacturer must provide UL installation instructions for both masonry walls and metal stud drywall partitions.

2.8 PRE-INSULATED FLEXIBLE DUCT

A. Flexible duct shall be rated for a maximum pressure of 16 inches (4-10 inches I.D.) or 10 inches (12-16 inches I.D.) water column positive pressure and 2 inches water column maximum negative pressure and 6000 FPM maximum velocity and listed by Underwriters Laboratories, Inc. under UL Standard 181 as a Class 1 air duct complying with NFPA Standards 90A and 90B. Flexible air duct shall be factory-made and composed of an inner duct of woven and coated fiber glass fabric providing an air seal and permanently bonded to coated steel wire helix, a fiber glass insulating blanket with minimum R-8.0 value (minimum 2 inch thickness) and low permeability outer vapor barrier of fiberglass reinforced metalized film laminate. Flexible air ducts shall be Thermaflex M-KC or Flexmaster type 4M with minimum R-8.0 insulation to meet ASHRAE 90.1 energy code. Maximum installed length shall not exceed 3 feet-0 inches without approval.

PART 3 - INSTALLATION

3.1 DUCTS

A. Ductwork shall be constructed and installed as follows:

1. Straight and smooth on inside with joints neatly finished unless otherwise directed.

2. Duct panels through 48 inch dimension having acoustic duct liner need not be crossbroken or beaded.
3. Crossbreak unlined ducts and duct panels larger than 48 inches or bead 12 inches on center.
4. Securely anchor ducts to building structure with specified duct hangers attached with screws.
5. Brace and install ducts so they shall be free of vibration under all conditions of operation.
6. Ducts shall not bear on the top of structural member.
7. Make duct take-offs to branches, registers, grilles, and diffusers as detailed on Drawings.
8. Properly flash where ducts protrude above roof.
9. Install internal ends of slip joints in direction of flow. Make joints air tight using specified duct sealer.

B. Install flexible duct connections to each air handling unit.

C. Provide each take-off with an adjustable volume damper to balance that branch.

1. Anchor dampers securely to duct.
2. Install dampers in main ducts within insulation.
3. Dampers in branch ducts shall fit against sheet metal walls, bottom and top of duct, and be securely fastened.
4. Where concealed ceiling damper regulators are installed, provide a cover plate.

D. Install grilles, registers, and diffusers.

3.2 AIR TURNS

A. Permanently installed, consisting of curved metal blades or vanes arranged to permit air to make abrupt turn without appreciable turbulence, in elbows of supply and above ground return ductwork.

B. Air turns shall be quiet and free from vibration when system is in operation.

END OF SECTION 23 30 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 70 00 - AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Air Conditioning System, in general, shall be for the entire building providing cooling and dehumidification in summer and heating in winter. A constant amount of fresh air shall be taken into the system and all air shall be filtered.

B. The General Contractor (Prime Contractor) who has the contracts with the Owner shall be responsible for installing the mechanical systems using qualified subcontractors and/or employees. Any incorrect or improper work shall be corrected by the General Contractor.

C. The General Contractor shall be the sole source responsible party to furnish and install the mechanical system. General Contractor shall be properly licensed to perform this work.

1.2 STANDARDS

A. All air conditioning equipment shall comply with the requirements of applicable ARI standards and shall be tested, rated, labeled, and listed accordingly.

1.3 SPACE REQUIREMENTS

A. General Contractor and Mechanical Contractor shall refer to architectural, structural and electrical drawings and install all equipment, piping, etc. to meet building and space requirements. No equipment shall be bid on or submitted for approval if it will not fit into the space provided or coordinate with other trades involved on the project.

1.4 COMPRESSOR WARRANTIES

A. On all packaged and/or split system DX equipment 5 tons and below, the manufacturer shall provide a full 10 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

B. On all packaged and/or split system DX equipment 6 tons and larger, the manufacturer shall provide a full 5 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

C. The manufacturer shall warranty all parts, labor and refrigerant systems on the entire unit for the warranty period. In addition, annually, the manufacturer's service technicians

shall make a warranty check inspection of the unit with report to the Owner. This warranty shall not include any equipment maintenance; all equipment maintenance is the responsibility of the Owner. The manufacturer shall have full access to the units during the construction period.

D. If a longer warranty period is required elsewhere in these specs, the longer warranty period shall apply.

PART 2 - MATERIALS

2.1 PIPING

A. All piping shall be of materials as hereinbefore specified.

2.2 PACKAGED OUTSIDE AIR UNIT (100% OUTSIDE AIR)

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

1. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
2. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
3. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
4. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
5. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.
6. Unit shall be approved for use in and outside High Velocity Hurricane Zones (HVHZ) by the Florida Building Code (FL# 15031), when using the required steel rooftop curb and attachment methods. Maximum allowable lateral wind pressure is +100psf/-100psf. Maximum allowable uplift is +50psf/-50psf. Positive and negative required design pressures calculated for use with this system shall be determined by others on a job specific basis, in accordance with the governing code. Site specific pressures shall be less than or equal to the listed positive or negative allowable lateral wind design pressure and allowable uplift values for the product.

B. Manufacturer shall provide a limited "parts only" warranty for a period of 24 months from the date of equipment startup or 30 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for Installation, Operation, and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and filters.

C. Products shall be provided by the following manufacturers:

1. AAON, Addison or approved Equal
2. Substitute equipment may be considered for approval that includes at a minimum:
   a. R-410A refrigerant
   b. Variable capacity compressor with 10-100% capacity control
   c. Direct drive supply fans
   d. Double wall cabinet construction
   e. Insulation with a minimum R-value of 13
   f. Stainless steel drain pans
   g. Hinged access doors with lockable handles
   h. All other provisions of the specifications must be satisfactorily addressed

D. General Description

1. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, gas heaters, and unit controls.
2. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.
3. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
4. Unit components shall be labeled, including refrigeration system components and electrical and controls components.
5. Estimated sound power levels (dB) shall be shown on the unit ratings sheet.
6. Installation, Operation, and Maintenance manual shall be supplied within the unit.
7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

E. Construction

1. All cabinet walls, access doors, and roof shall be fabricated of double wall, impact resistant, rigid polyurethane foam panels.
2. Unit insulation shall have a minimum thermal resistance R-value of 13. Foam insulation shall have a minimum density of 2 pounds/cubic foot and shall be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.
3. Unit construction shall be double wall with G90 galvanized steel on both sides and a thermal break. Double wall construction with a thermal break prevents moisture accumulation on the insulation, provides a cleanable interior, prevents heat transfer through the panel, and prevents exterior condensation on the panel.
4. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel

deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width. Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

5. Roof of the air tunnel shall be sloped to provide complete drainage. Cabinet shall have rain break overhangs above access doors.
6. Access to filters, dampers, cooling coils, reheat coil, heaters, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges shall be included on the doors.
7. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
8. Units with cooling coils shall include double sloped 304 stainless steel drain pans.
9. Unit shall be provided with base discharge and return air openings. All openings through the base pan of the unit shall have upturned flanges of at least 1/2 inch in height around the opening.
10. Unit shall include lifting lugs on the top of the unit.
11. Unit base pan shall be provided with 1/2 inch thick foam insulation.

F. Electrical

1. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.
2. Unit shall be provided with a factory installed and factory wired 115V, 13 amp GFI outlet disconnect switch in the unit control panel.

G. Supply Fans

1. Unit shall include direct drive, unhoused, backward curved, plenum supply fans.
2. Blowers and motors shall be dynamically balance and mounted on rubber isolators.
3. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
4. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

H. Cooling Coils

1. Evaporator Coils
   a. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled.
   b. Coils shall have interlaced circuitry and shall be 6 row high capacity.
   c. Coils shall be hydrogen or helium leak tested.
   d. Coils shall be furnished with factory installed expansion valves.

I. Refrigeration System

1. Unit shall be factory charged with R-410A refrigerant.
2. Compressors shall be scroll type with thermal overload protection and carry a 10 year non-prorated warranty, from the date of original equipment shipment from the factory.
3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors shall be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.
4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
5. Each refrigeration circuit shall be equipped with expansion valve type refrigerant flow control.
6. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides and a factory installed replaceable core liquid line filter driers.
7. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
8. Lead refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
9. Each refrigeration circuit shall be equipped with a liquid line sight glass.
10. Each refrigeration circuit shall be equipped with suction and discharge compressor isolation valves.

J. Condensers

1. Air-Cooled Condenser
   a. Condenser fans shall be a vertical discharge, axial flow, direct drive fans.
   b. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.
   c. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
   d. Coils shall be hydrogen or helium leak tested.
   e. Condenser fans shall be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow shall continuously modulate based on head pressure and cooling operation shall be allowed down to 35°F with adjustable compressor lockout.

K. Gas Heating

1. Stainless steel heat exchanger furnace shall carry a 25 year non-prorated warranty, from the date of original equipment shipment from the factory.
2. Gas furnace shall consist of stainless steel heat exchangers with multiple concavities, an induced draft blower and an electronic pressure switch to lockout the gas valve until the combustion chamber is purged and combustion airflow is established.
3. Furnace shall include a gas ignition system consisting of an electronic igniter to a

pilot system, which will be continuous when the heater is operating, but will shut off the pilot when heating is not required.

4. Unit shall include a single gas connection and have gas supply piping entrances in the unit base for through-the-curb gas piping and in the outside cabinet wall for across the roof gas piping.
5. Natural gas furnace shall be equipped with modulating gas valves, adjustable speed combustion blowers, stainless steel tubular heat exchangers, and electronic controller. Combustion blowers and gas valves shall be capable of modulation. Electronic controller includes a factory wired, field installed supply air temperature sensor. Sensor shall be field installed in the supply air ductwork. Supply air temperature setpoint shall be adjustable on the electronic controller within the controls compartment.

L. Filters

1. Unit shall include 2 inch thick, pleated panel filters with an ASHRAE efficiency of 30% and MERV rating of 8, upstream of the cooling coil.
2. Unit shall include 1 inch aluminum mesh pre filters upstream of the outside air opening.

M. Outside Air/Economizer

1. Unit shall include 100% motor operated outside air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge and end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return, 2 position actuator. Unit shall include outside air opening bird screen and outside air hood.

N. Controls

1. Factory Installed and Factory Provided Controller
   a. Unit controller shall be capable of controlling all features and options of the unit. Controller shall be factory installed in the unit controls compartment and factory tested. Controller shall be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.
   b. Controller shall have an onboard clock and calendar functions that allow for occupancy scheduling.
   c. Controller shall include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.
   d. Makeup Air Controller
      1) Unit shall modulate cooling with constant airflow to meet ventilation outside air loads. Cooling capacity shall modulate based on supply air temperature.
      2) With modulating hot gas reheat, unit shall modulate cooling and hot gas reheat as efficiently as possible, to meet outside air humidity loads and prevent supply air temperature swings and overcooling of the space.

3) Unit shall modulate heating with constant airflow to meet ventilation outside air loads. Heating capacity shall modulate based on supply air temperature.

e. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling shall be accomplished with connection to interface module with LCD screen and input keypad, interface module with touch screen, or with connection to PC with free configuration software. Controller shall be capable of connection with other factory installed and factory provided unit controllers with individual unit configuration, setpoint adjustment, sensor status viewing, and occupancy scheduling available from a single unit. Connection between unit controllers shall be with a modular cable. Controller shall be capable of communicating and integrating with a LonWorks or BACnet network.

O. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.

P. Installation, Operation, and Maintenance manual shall be supplied with the unit. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install air conditioning systems in accordance with Section 23 05 00.

B. Mount equipment complete with piping system, roof curbs and air distribution system, and provide for power connection.

C. Complete structural, mechanical, and electrical connections in accordance with manufacturer's installation instructions.

3.2 TESTING

A. Refrigerant lines shall be tested under 200 psi carbon dioxide pressure for 5 hours using soap suds at joints to test for leaks. Evacuate system and charge with refrigerant.

B. All line testing shall be witnessed by the Test and Balance Agency (TAB). TAB Agency shall record results and include in final TAB report.

END OF SECTION 23 70 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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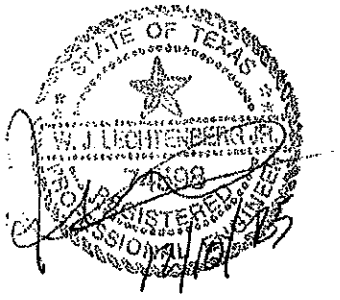

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 , Type XHHW-2 and Type SO.

C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

F. Branch Circuits Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

H. Flexible Connections to Lighting Fixtures: Type MC cable with maximum length of six feet.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

    a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
    b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
    c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. ILSCO.
4. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Pad-Mounted Transformers and Switches: Install two ground rods around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for taps to equipment grounding terminals.

3.4 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

3.5 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION 260526

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
2. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Mechanical-Expansion Anchors: Insert-wedge-type, **[zinc-coated] [stainless]** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.2 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. GRC: Comply with ANSI C80.1 and UL 6.

C. EMT: Comply with ANSI C80.3 and UL 797.

D. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

E. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Fittings for EMT:

a. Material: die cast.
b. Type: compression.

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

F. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Continuous HDPE: Comply with UL 651B.

D. Fittings for RNC: Comply with NEMA TC 3; match to conduit type and material.

E. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5.

C. Tele-Power Poles:

1. Material: Aluminum with clear anodized finish.
2. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials (top and bottom), and other fittings shall match and mate with tele-power pole as required for complete system. This project uses both sides for power raceways.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Metal Floor Boxes:

1. Material: Cast metal.
2. Type: Fully adjustable.
3. Shape: Square.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

K. Gangable boxes are prohibited.

L. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

M. Cabinets:

1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC or RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried or concrete encased.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Damp or Wet Locations: GRC.
7. Boxes and Enclosures: NEMA 250, Type 1.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use compression, cast-metal fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Raceways Shall not be Embedded in Slabs:

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

K. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

M. Surface Raceways:

1. Install surface raceway with a minimum 2-inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

N. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.

O. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

P. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC in damp or wet locations not subject to severe physical damage.

Q. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

R. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.

S. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

T. Locate boxes so that cover or plate will not span different building finishes.

U. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

V. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

W. Set metal floor boxes level and flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit.
2. Install backfill as specified in Section 312000 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
4. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Warning labels and signs.
3. Equipment identification labels.
4. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.3 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.4 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.5 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

F. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
   1. Power.

B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

   1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

      a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
      b. Colors for 208/120-V Circuits:

         1) Phase A: Black.
         2) Phase B: Red.
         3) Phase C: Blue.

      c. Colors for 480/277-V Circuits:

         1) Phase A: Brown.
         2) Phase B: Orange.
         3) Phase C: Yellow.

      d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

C. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

FORD FIELDS CONCESSION STAND
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SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Distribution, dry-type transformers rated 600 V and less, with capacities up to 1500 kVA.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Source quality-control reports.

B. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company.
2. Square D; by Schneider Electric.

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Transformers Rated 15 kVA and Larger: Comply with NEMA TP 1 energy-efficiency levels as verified by testing according to NEMA TP 2.

1. Coil Material: Copper.

D. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated.

2.3 DISTRIBUTION TRANSFORMERS

A. Comply with NFPA 70, and list and label as complying with UL 1561.

B. Cores: One leg per phase.

C. Enclosure: Ventilated.

1. NEMA 250, Type 3R: Core and coil shall be encapsulated within resin compound utilizing a vacuum pressure impregnation process to seal out moisture and air.

D. Transformer Enclosure Finish: Comply with NEMA 250.

1. Finish Color: NSF/ANSI 49 gray.

E. Taps for Transformers 3 kVA and Smaller: One 5 percent tap above normal full capacity.

F. Taps for Transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.

G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

H. Insulation Class, Smaller than 30 kVA: 185 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

I. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

2.4 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical Systems."

2.5 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from adjacent wall surface.

D. Construct concrete bases according to Section 033000 "Cast-in-Place Concrete" and anchor floor-mounted transformers according to manufacturer's written instructions and requirements in Section 260529 "Hangers and Supports for Electrical Systems."

1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

E. Secure transformer to concrete base according to manufacturer's written instructions.

F. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.

G. Remove shipping bolts, blocking, and wedges.

3.2 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS for dry-type, air-cooled, low-voltage transformers. Certify compliance with test parameters.

B. Remove and replace units that do not pass tests or inspections and retest as specified above.

C. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.

1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

3.4 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.

C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 262200

FORD FIELDS CONCESSION STAND
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SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

C. Field quality-control reports.

D. Panelboard schedules for installation in panelboards.

E. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

a. Indoor Dry and Clean Locations: NEMA 250, Type 1 or Type 12. See drawings.
b. Outdoor Locations: NEMA 250, Type 3R.

2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
3. Directory Card: Inside panelboard door, mounted in transparent card holder.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus Configured Terminators: Mechanical type.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, power and feeder distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

D. Mains: Circuit breaker, as indicated on plans.

E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs as indicated on plans.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

a. Standard frame sizes, trip ratings, and number of poles.
b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
f. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
g. Handle Lock Device: Loose attachment, for holding circuit-breaker handle in on position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.

B. Mount top of trim 90 inches above finished floor unless otherwise indicated.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262416

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A; Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.5 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Single Pole:

1) Cooper; AH1221.
2) Hubbell; HBL1221.
3) Leviton; 1221-2.
4) Pass & Seymour; CSB20AC1.

b. Two Pole:

1) Cooper; AH1222.
2) Hubbell; HBL1222.
3) Leviton; 1222-2.
4) Pass & Seymour; CSB20AC2.

c. Three Way:

1) Cooper; AH1223.
2) Hubbell; HBL1223.
3) Leviton; 1223-2.
4) Pass & Seymour; CSB20AC3.

d. Four Way:

1) Cooper; AH1224.
2) Hubbell; HBL1224.
3) Leviton; 1224-2.
4) Pass & Seymour; CSB20AC4.

C. Pilot-Light Switches, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "on."

2.6 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. Fluorescent Lamp and LED Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 5 percent of full brightness.

2.7 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with in-use, lockable cover.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect on a room by room basis unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

FORD FIELDS CONCESSION STAND
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SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:

a. Control circuits.
b. Enclosed switches.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Bussmann; a division of Cooper Industries.
2. Edison; a brand of Cooper Bussmann; a division of Cooper Industries.
3. Littelfuse, Inc.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
3. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Fuse rating shall be in accordance with equipment nameplate.

3.2 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

FORD FIELDS CONCESSION STAND
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SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Molded-case circuit breakers (MCCBs).
4. Enclosures.

1.2 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Lugs: Suitable for number, size, and conductor material.

2.2 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Lugs: Suitable for number, size, and conductor material.

2.3 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

D. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Suitable for number, size, trip ratings, and conductor material.
3. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
4. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.

2.4 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

B. Install fuses in fusible devices. Verify exact fuse rating with equipment nameplate.

C. Comply with NECA 1.

3.2 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262913 - ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following enclosed controllers rated 600 V and less:

1. Full-voltage manual.
2. Full-voltage magnetic.

1.2 DEFINITIONS

A. CPT: Control power transformer.

B. MCCB: Molded-case circuit breaker.

C. MCP: Motor circuit protector.

D. N.C.: Normally closed.

E. N.O.: Normally open.

F. OCPD: Overcurrent protective device.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed controller.

B. Shop Drawings: For each enclosed controller. Include dimensioned plans, elevations, sections, details, and required clearances and service spaces around controller enclosures.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

FORD FIELDS CONCESSION STAND
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1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FULL-VOLTAGE CONTROLLERS

A. General Requirements for Full-Voltage Controllers: Comply with NEMA ICS 2, general purpose, Class A.

B. Motor-Starting Switches: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off or on.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Nonreversing.
3. Surface mounting.
4. Pilot light.

C. Fractional Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Two speed.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

D. Integral Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters and sensors in each phase, matched to nameplate full-load current of actual protected motor and having appropriate adjustment for duty cycle; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

E. Magnetic Controllers: Full voltage, across the line, electrically held.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Contactor Coils: Pressure-encapsulated type.

    a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.

4. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
5. Control Circuits: 120-V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices. (100VA extra minimum.)

6. Solid-State Overload Relay:

    a. Switch or dial selectable for motor running overload protection.
    b. Sensors in each phase.
    c. Class 10/20 selectable tripping characteristic selected to protect motor against voltage and current unbalance and single phasing.

7. External overload reset push button.

F. Combination Magnetic Controller: Factory-assembled combination of magnetic controller, OCPD, and disconnecting means.

G. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

4. MCP Disconnecting Means:

   a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents, instantaneous-only circuit breaker with front-mounted, field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
   b. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
   c. Auxiliary contacts "a" arranged to activate with MCP handle.

2.2 ENCLOSURES

A. Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.

1. Dry and Clean Indoor Locations: Type 1.
2. Outdoor Locations: Type 3R.

2.3 ACCESSORIES

A. Push Buttons, Pilot Lights, and Selector Switches: NEMA ICS 5; heavy-duty type; factory installed in controller enclosure cover unless otherwise indicated. (Start-Stop, HOA, Red Pilot Light)

B. Control Relays: Auxiliary and adjustable time-delay relays.

C. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays: Solid-state sensing circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage, overvoltage, and time-delay settings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Wall-Mounted Controllers: Install enclosed controllers on walls with tops at uniform height, and with disconnect operating handles not higher than 79 inches above finished floor, unless otherwise indicated, and by bolting units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks complying with Section 260529 "Hangers and Supports for Electrical Systems."

B. Install fuses in each fusible-switch enclosed controller.

C. Install fuses in control circuits if not factory installed. Comply with requirements in Section 262813 "Fuses."

D. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been installed.

E. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

3.3 CONTROL WIRING INSTALLATION

A. Install wiring between enclosed controllers and remote devices and facility's central control system. Comply with requirements in Section 260523 "Control-Voltage Electrical Power Cables."

B. Bundle, train, and support wiring in enclosures.

C. Connect selector switches and other automatic-control selection devices where applicable.

1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switch is in manual-control position.
2. Connect selector switches with enclosed-controller circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed controller, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Inspect controllers, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
2. Test insulation resistance for each enclosed-controller element, component, connecting motor supply, feeder, and control circuits.
3. Test continuity of each circuit.
4. Verify that voltages at controller locations are within plus or minus 10 percent of motor nameplate rated voltages. If outside this range for any motor, notify Engineer before starting the motor(s).
5. Test each motor for proper phase rotation.
6. Perform each electrical test and visual and mechanical inspection stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed controllers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Set field-adjustable switches and overload-relay pickup and trip ranges.

B. Adjust the trip settings of MCPs and thermal-magnetic circuit breakers with adjustable instantaneous trip elements. Initially adjust to six times the motor nameplate full-load ampere ratings and attempt to start motors several times, allowing for motor cooldown between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed eight times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Engineer before increasing settings.

3.6 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain enclosed controllers.

END OF SECTION 262913

FORD FIELDS CONCESSION STAND
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SECTION 264313 - SURGE PROTECTION FOR LOW-VOLTAGE POWER CIRCUITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For manufacturer's special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

A. SPDs: Comply with UL 1449, Type 2.

1. Include LED indicator lights for power and protection status.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.

B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:

1. Line to Neutral: 700 V for 208Y/120 V.
2. Line to Ground: 700 V for 208Y/120 V.
3. Neutral to Ground: 700 V for 208Y/120 V.
4. Line to Line: 1200 V for 208Y/120 V

D. SCCR: Equal or exceed 100 kA.

E. Inominal Rating: 20 kA.

2.3 ENCLOSURES

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.

1. Compare equipment nameplate data for compliance with Drawings and Specifications.
2. Inspect anchorage, alignment, grounding, and clearances.
3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.3 DEMONSTRATION

A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 264313

FORD FIELDS CONCESSION STAND
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SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

1.2 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, arranged by designation.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires and lamps. See Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of luminaire.

B. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Recessed Fixtures: Comply with NEMA LE 4.

C. CRI of minimum 80. CCT of 4100 K.

D. Rated lamp life of 50,000 hours.

E. Lamps dimmable from 100 percent to 0 percent of maximum light output.

F. Internal driver.

G. Nominal Operating Voltage: 120 V ac or 277 V ac. See Drawings.

1. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

H. Housings:

1. Extruded-aluminum housing and heat sink.
2. White, painted finish.

2.2 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging

B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools.

Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers, and Globes:

1. Clear, UV-stabilized acrylic.
2. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear per plan, powder-coat finish.

2.3 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.4 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports: Sized and rated for luminaire weight.

E. Flush-Mounted Luminaire Support: Secured to outlet box.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

G. Ceiling-Mounted Luminaire Support:

1. Ceiling mount with two 5/32-inch diameter aircraft cable supports adjustable to 120 inches in length.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

J. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 265119

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Addressable interface device.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Locate detectors according to manufacturer's written recommendations.

12. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

a. Trained and certified by manufacturer in fire-alarm system design.
b. NICET-certified, fire-alarm technician; Level III minimum.
c. Licensed or certified by authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

C. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment.
d. Riser diagram.
e. Record copy of site-specific software.
f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

g. Manufacturer's required maintenance related to system warranty requirements.
h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Fire-extinguishing system operation.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
5. Record events in the system memory.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, or remote annunciator.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 FIRE-ALARM CONTROL UNIT

A. The Fire Alarm Control Unit is an existing system and this project shall provide the additional components to expand system to include the new facility..

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38.

1. Dual-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
    c. Multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

C. Ionization Smoke Detector:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.6 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature or a rate of rise.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.

2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.7 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464.

C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- high letters on the lens.

1. Mounting: Wall mounted unless otherwise indicated.
2. Flashing shall be in a temporal pattern, synchronized with other units.
3. Strobe Leads: Factory connected to screw terminals.
4. Mounting Faceplate: Factory finished, red.

2.8 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.9 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.

2. Store an internal identifying code for control panel use to identify the module type.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

C. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

D. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

E. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

G. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

2. Exposed pathways conductors shall be red.

B. Pathways shall be installed in EMT.

C. Exposed EMT junction boxes shall be painted red enamel.

3.3 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Smoke dampers in air ducts of designated HVAC duct systems.
2. Magnetically held-open doors.
3. Electronically locked doors and access gates.
4. Alarm-initiating connection to elevator recall system and components.
5. Supervisory connections at valve supervisory switches.
6. Supervisory connections at elevator shunt-trip breaker.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

3.5 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect and authorities having jurisdiction.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter.
b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.7 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 310000 - GEO-TECHNICAL INVESTIGATION REPORTS

GENERAL

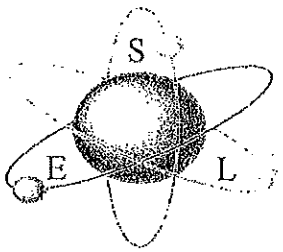
A. The report reproduced on the following pages is an exact copy of the original Subsurface Investigation Report for the Ford Park Multi-Sports Facility, Beaumont, Texas, prepared by Science Engineering, Inc.

B. Procedures and precautions recommended in the following Subsurface Investigation Report and attachments are to be strictly followed by the contractor. Where the technical sections of these specifications differ from the recommendations of the Subsurface Investigation Report, the more stringent requirement shall govern.

C. The Contractor is responsible for examining the site and determining the nature of the materials to be excavated.

D. Contractor shall be responsible for paying for all failed tests. Geo-Technical inspection service will bill all failed tests directly to the Contractor. Evidence of payment shall be a requirement for substantial completion.

SUBSURFACE SOILS INVESTIGATION REPORT FOLLOWS IN ITS ENTIRETY AND COMPLETES SECTION 310000.



SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

GEOTECHNICAL INVESTIGATION

FOR

FORD PARK MULTI-SPORTS FACILITY

IN

BEAUMONT, TEXAS

REPORT NUMBER 14260

REPORTED TO:

AMERICAN BUILDERS
9405 COLLEGE STREET
BEAUMONT, TEXAS 77707

NOVEMBER 2014

PREPARED BY:
SCIENCE ENGINEERING, LTD.

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

GEOTECHNICAL INVESTIGATION
Multi-Sports Facility
Beaumont, Texas

INTRODUCTION

The study reported herein is a preliminary investigation of subsurface conditions for the new Ford Park Multi-Sports Facility in Beaumont, Texas.

AUTHORIZATION

This investigation was authorized by Mr. Don King, P.E. by e-mail dated November 5, 2014.

SUBSURFACE EXPLORATION

The subsurface exploration at the site was accomplished by means of two (2) undisturbed sample core borings drilled to depths of approximately twenty (20) feet below existing ground surface. Approximate locations of the borings are shown on the attached boring plan.

SUBSURFACE INVESTIGATION

The subsurface investigation consisted of drilling three-inch nominal diameter core borings. Undisturbed samples of the cohesive soils were obtained from the borings by means of thin-wall, seamless steel Shelby tube samplers, in accordance with the ASTM D-1587 method. The shear strength of the cohesive soil samples was estimated by hand pentrometer in the field.

All undisturbed samples were extracted mechanically from the core barrels in the field, classified, wrapped in aluminum foil, and sealed in airtight plastic bags to prevent moisture loss and disturbance. The samples were transported to our laboratory for testing and further study.

LABORATORY INVESTIGATIONS

All samples from borings were examined and classified in the laboratory by a soil engineer, according to procedures outlined in ASTM D-2488. Laboratory tests were performed on selected soil samples in order to evaluate the engineering properties of the soil in accordance with the indicated standard procedures.

LABORATORY TESTS	STANDARD TESTS
Atterberg Limits (L.L., P. L., P.I.)	ASTM D-4318
Soil Moisture Content	ASTM D-2216
Unconfined Compressive Strength	ASTM D-2266
Soils Classification	ASTM D-2487

Undrained shear strength of selective cohesive soils was determined by unconfined compression tests. Water content and dry unit weight of the foundation soils were determined as routine parts of the unconfined compression tests. Atterberg limits tests were performed on appropriate cohesive samples. The results of these tests are shown on the attached boring logs.

SUBSURFACE CONDITIONS

Specific types and depths of subsurface strata encountered on the site are shown on the attached boring logs. Review of the boring logs indicates that generalized stratography is approximately as follows:

Stratum No.	Average Depth, feet	Description of Strata
I	0.00 - 6.00	Dark Gray CLAY (CH)
II	6.00 - 17.00	Tan and Gray CLAY (CH) with ferrous nodules and slickensides
III	17.00 - 20.00	Tan and Gray SANDY CLAY (CL)

The near surface soils are "CH" type soils when classified by the unified soils classification system. This type soil normally exhibits high swell potential during seasonal moisture variations.

Hydrostatic water was not encountered at the time of drilling.

CONSTRUCTION VARIATIONS

The information contained in this report summarizes conditions found on the date that the borings was drilled. The depth to the static water table may be expected to vary with the environmental variations, such as frequency and magnitude of precipitation and the time of year that construction begins.

DESIGN ANALYSIS AND RECOMMENDATIONS

Information available to this office indicates that the proposed construction at the site will consist of a new multi-sports facility.

DRILLED FOOTINGS (UNDERREAMS)

From analysis of the borings logs and laboratory tests results, it is recommended that the structural loads be transmitted to the foundation soils by the use of drilled and underreamed type footings. Footings should extend to a depth of nine feet (9') below existing ground surface to be located in Tan and Gray Clay. Utilizing a minimum factor of safety of three for dead load, or a minimum factor of two for total load, the allowable bearing capacity of the foundation soils for circular type footings is given as follows. 2,500 Pounds per square foot (PSF) for dead load, plus long term live loads and 3,700 PSF for total load. Whichever is critical should be used. The allowable loads given can be increased by thirty percent (30%) for wind or temporary lateral loading.

Due to the presence of slickensides at the recommended depth, we suggest that the bell to shaft ratio for the footings be limited to one to two (1:2).

There is potential for upward movement of the plastic clays in contact with the sides of the piers; the pier shafts should be well reinforced throughout their length resist tensional force.

STRUCTURE FOUNDATION

Each footing excavation should be inspected by the project's Engineer, Architect or Owner's representative prior to placing concrete to insure that (a) the footing has been constructed at the correct depth and the correct formation established by previously mentioned criteria, (b) the footing is concentric with the pier shaft or column, and (c) excessive cuttings, build-up or any soft-compressible material(s) have been removed from the bottom of the excavation.

Placement of concrete should be accomplished as soon as possible to prevent changes in the state of stress and the caving of the foundation soils. No footings should be poured without the prior approval of the projects' Engineer, Architect or Owner's representative.

FOUNDATION SETTLEMENT

A detailed settlement analysis was not within the scope of this study. It is anticipated that the footings designed, using the recommended allowable bearing pressures, will experience small settlements that will be well within the tolerable limit for the proposed structure.

FLOOR SLABS AND GRADE BEAMS

Review of the Atterberg Limits determinations indicates that the surface soils are "CH" type soils, with high plasticity, which may exhibit expansion during seasonal wetting and drying cycles. We believe that conventional "slab-on-fill" construction may be used for the interior portion of the structures built at the site. Select fill, a minimum of thirty-six-inch (36") thickness should be used to bring the structure to grade.

Prior to placement of select fill, strip site sufficiently to remove all topsoil, existing vegetation and roots larger than ½" in diameter to an approximate depth of twelve (12) inches. Then scarify the subgrade, add moisture, if necessary, and recompact to 95% of the maximum dry density as determined by ASTM D-698 (Standard Proctor). The moisture content at the time of compaction of subgrade soils should be within +1 to +3% of the proctor optimum value.

Select fill should then be placed, under laboratory control, in no greater than eight-inch (8") loose layers, and compacted to a minimum of 95% of the maximum dry unit weight, as obtained in the laboratory by means ASTM D-698 procedure. Moisture content of ±2% optimum should be maintained during placement of the select fill material. A vapor barrier consisting of six (6) mil Polyethylene shall be placed between the select fill and concrete slab.

The material used as select fill should consist of a non-active sandy clay or clayey sand type substance, having a Liquid Limit of 36 or less and Plasticity Index (P.I.) varying from 10 to 20.

SITE PREPARATION

In order to remedy construction problems, which may develop if attempts are made to work the surface materials following prolonged periods of rainfall which are common to this area, it is recommended that prior to starting any work at the site that proper construction drainage is to be provided to maintain a relatively dry construction site. (Use a minimum slope of 5% within 10 feet of the foundation).

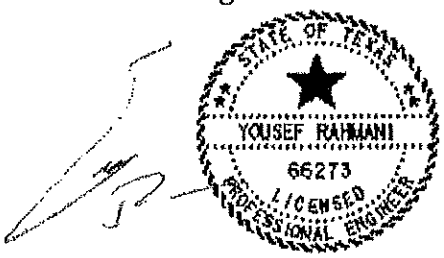
LIMITATIONS

The conclusions and recommendations given in this report are based on the analysis of the data collected for this project. Additive conclusions or recommendations made from this data by others are their responsibility.

Our study is based on the data obtained from soil borings made at the locations shown on borings plan. The nature and extent of variations between borings may become evident during construction. We should be requested to observe exposed conditions. After making these observations, and noting the engineering significance of variations, we will advise you of any changes in recommendations believed appropriate.

We appreciate this opportunity to provide our services to this project. Please let us know if you require additional information. Thank you.

Respectfully submitted for the firm,
TBPE Registration No. 4060



Yousef Rahmani, P.E.
President

Encl.: Boring Plan
Boring Logs 1 and 2
Geotechnical Chart/Symbols

Copies: 2 – Client
1- Fittz & Shipman, Inc.
1- SEL File 14260

YR/nb

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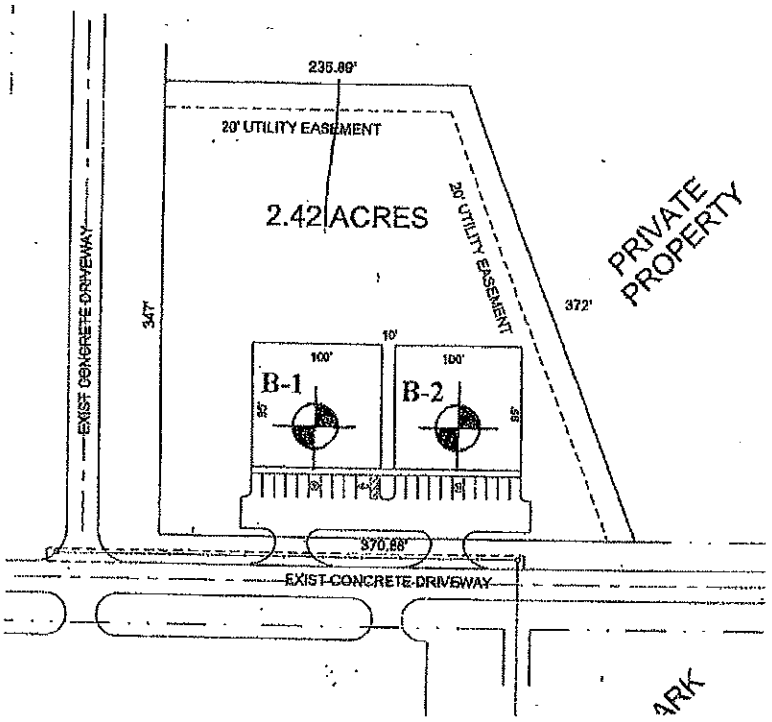
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

Report Number 14260



FORD PARK MULTI-SPORTS FACILTIY
BEAUMONT, TEXAS

BORING PLAN

NOVEMBER 2014

NOT TO SCALE

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Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Project No: 14260
Boring Number: B-1
Date of Report: 11/13/2014
Location: See Boring Plan
Date of Boring: 11/11/2014
Dry Auger: 0 to 20 Feet
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY								
							71	26	45		0.75	
											0.25	
5				CH	33	80	91	32	59		0.25	0.30
				Gray and Tan CLAY with ferrous nodules								
											0.25	
				_ tan and gray with slickensides	36	89	90	31	59		0.75	0.90
10												
					38	78	109	36	73		0.75	0.43
					42	81	112	40	72		0.75	0.51
15												
				CH								
				Gray SANDY CLAY								
				CL	22	99	39	19	20		0.50	0.30
20												
				Bottom at 20 feet								
				1. Water was not encountered during drilling.								
				2. Bore hole dry upon completion.								

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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Project No: 14260
Boring Number: B-2
Date of Report: 11/13/2014
Location: See Boring Plan
Date of Boring: 11/11/2014
Dry Auger: 0 to 20 Feet
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY							0.50	
					34	85	100	33	67		0.25	0.37
5				CH							0.25	
				Tan and Gray CLAY with ferrous nodules and slickensides	32	91	87	26	61		0.35	0.40
					29	88					0.65	0.60
10												
					39	78	108	34	74		0.75	0.50
15				CH								
				Tan and Gray SANDY CLAY								
				CL	22	107					1.00	0.85
20				Bottom at 20 feet								

1. Water was not encountered during drilling.
2. Bore hole dry upon completion.

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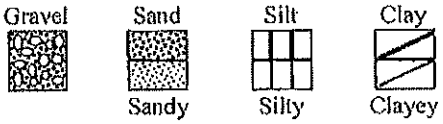
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

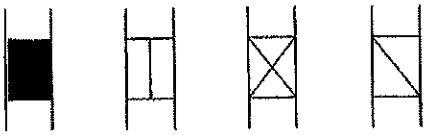
KEY TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPE



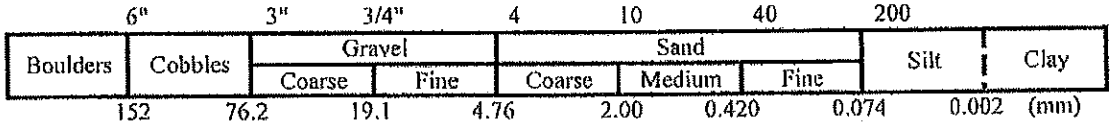
Predominant type shown heavy

SAMPLE TYPE

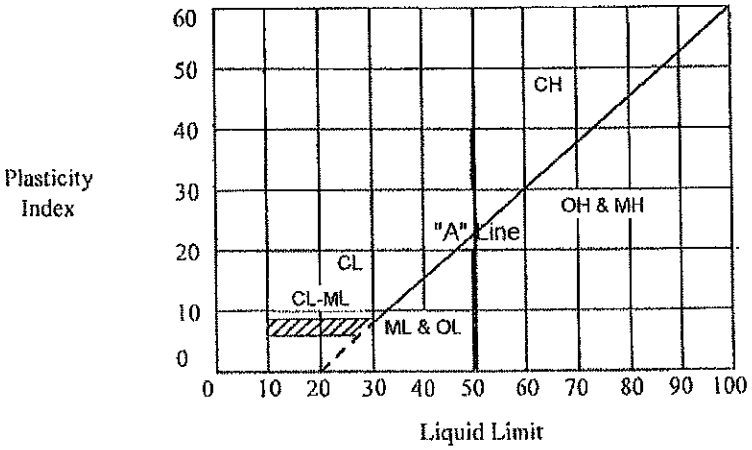


SOIL GRAIN SIZE

U.S. Standard Sieve



PLASTICITY CHART



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance, blows per foot	Consistency	Cohesion TSF	Plasticity Index	Degree of Plasticity
0 - 2	Very Soft	0 - 0.125	0 - 5	None
2 - 4	Soft	0.125 - 0.25	5 - 10	Low
4 - 8	Firm	0.25 - 0.5	10 - 20	Moderate
8 - 15	Stiff	0.5 - 1.0	20 - 40	Plastic
15 -30	Very Stiff	1.0 - 2.0	> 40	Highly Plastic
> 30	Hard	> 2.0		

RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance, blows per foot	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Removal of underground utilities is included in Division 22 and Division 26 Sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
2. Use only hand methods for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks, pavements.
5. Excavating and backfilling for utility trenches.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of [washed]crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." during earthwork operations.

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit or as indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete".

D. Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).
3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Soil treatment with termiticide.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include the EPA-Registered Label.

B. Product certificates.

C. Soil Treatment Application Report: Include the following:

1. Date and time of application.
2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Termiticides:

a. Aventis Environmental Science USA LP; Termidor.
b. Bayer Corporation; Premise 75.
c. Dow AgroSciences LLC; Dursban TC.
d. FMC Corporation, Agricultural Products Group; Prevail FT.
e. Syngenta; Demon TC.

2.2 SOIL TREATMENT

A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

B. Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

3.2 APPLYING SOIL TREATMENT

A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

1. Slabs-on-Grade: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

D. Post warning signs in areas of application.

E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 316329 - DRILLED CONCRETE PIERS AND SHAFTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes dry-installed drilled piers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For concrete reinforcement.

D. Welding certificates.

E. Material certificates & test reports.

1.3 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.4, "Structural Welding Code - Reinforcing Steel."

B. Drilled-Pier Standard: Comply with ACI 336.1 unless modified in this Section.

1.4 PROJECT CONDITIONS

A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for drilled piers.
2. The geotechnical report is included in Section 310000 – Geotechnical Investigation elsewhere in the Project Manual.

B. Survey Work: Engage a qualified land surveyor or professional engineer to perform surveys, layouts, and measurements for drilled piers. Before excavating, lay out each drilled pier to lines and levels required. Record actual measurements of each drilled

pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.

1. Record and maintain information pertinent to each drilled pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I. Supplement with the following:

a. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33, graded, 1-inch nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94 and potable.

D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
3. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
4. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.3 CONCRETE MIXTURES AND MIXING

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 limits as if concrete were exposed to deicing chemicals.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Proportion normal-weight concrete mixture as follows:

1. Compressive Strength (28 Days): 3000 psi.
2. Air Content: Do not air entrain concrete.

E. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Classified Excavation: Excavation is classified as standard excavation, special excavation, and obstruction removal and includes excavation to bearing elevations as follows:

1. Standard excavation includes excavation accomplished with conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work.
2. Special excavation includes excavation that requires special equipment or procedures above or below indicated depth of drilled piers where drilled-pier excavation equipment used in standard excavation, operating at maximum power, torque, and downthrust, cannot advance the shaft.
3. Obstructions: Payment for removing unanticipated boulders, concrete, masonry, or other subsurface obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.

B. Excavate shafts for drilled piers to indicated elevations. Remove loose material from bottom of excavation.

C. Notify and allow testing and inspecting agency to test and inspect bottom of excavation. If unsuitable bearing stratum is encountered, make adjustments to drilled piers as determined by Architect.

1. Do not excavate shafts deeper than elevations indicated unless approved by Architect.
2. Payment for additional authorized excavation will be according to Contract provisions for changes in the Work.

D. Temporary Casings: Install watertight steel casings of sufficient length and thickness to prevent water seepage into shaft; to withstand compressive, displacement, and withdrawal stresses; and to maintain stability of shaft walls.

1. Remove temporary casings, maintained in plumb position, during concrete placement and before initial set of concrete.

E. Bells: Excavate bells for drilled piers to shape, base thickness, and slope angle indicated. Excavate bottom of bells to level plane and remove loose material before placing concrete.

F. Tolerances: Construct drilled piers to remain within ACI 336.1 tolerances.

3.2 INSTALLATION

A. Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Place concrete in continuous operation and without segregation immediately after inspection and approval of shaft by Owner's independent testing and inspecting agency.

C. Place concrete to fall vertically down the center of drilled pier without striking sides of shaft or steel reinforcement. Vibrate top 60 inches of concrete.

D. Coordinate withdrawal of temporary casings with concrete placement to maintain at least a 60-inch head of concrete above bottom of casing. Vibrate top 60 inches of concrete after withdrawal of temporary casing.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Drilled piers.
2. Excavation.
3. Concrete.
4. Steel reinforcement welding.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Drilled-Pier Tests and Inspections: For each drilled pier, before concrete placement.

1. Soil Testing: Bottom elevations, bearing capacities, and lengths of drilled piers indicated have been estimated from available soil data. Actual elevations and drilled-pier lengths and bearing capacities will be determined by testing and inspecting agency. Final evaluations and approval of data will be determined by Architect.

D. Concrete Tests and Inspections: ACI 301.

END OF SECTION 316329

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Driveways and roadways.
2. Walkways.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:]

a. Fly Ash: ASTM C 618, Class C or F.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded, from a single source coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).
4. Air Content: 4-1/2 percent plus or minus 1.5 percent.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. (0.60 kg/cu. m).

C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on pavement surface according to manufacturer's written instructions.

1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch (6 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/4 inch (6 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

B. wheel stop.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type and color of joint sealant required.

C. Product certificates & test reports.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

A. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

1. Products:

a. Sonneborn, Div. of ChemRex, Inc.; Sonomeric SL-1.

2.4 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 321373

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:
   1. Chain-Link Fences: Industrial
   2. Gates: Motor operated, horizontal slide (two required)

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate framework shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

   1. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified and on the following:

      a. Wind Loads: 120 MPH.
      b. Fence Height: to match existing.
      c. Material Group: IA, ASTM F 1043, Schedule 40 steel pipe.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

   1. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

C. Product Certificates: For each type of chain-link fence and gate, from manufacturer.

D. Product Test Reports: For framing strength according to ASTM F 1043.

E. Operation and maintenance data.

1.4 QUALITY INSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70. Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. UL Standard: Provide gate operators that comply with UL 325.

C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators serving as a required means of access.

1.5 WARRANTY

F. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: to match existing w/ inserts.
2. Steel Wire Fabric: 0.148 inch (3.76 mm)

a. Mesh Size: 2 inches (50 mm).

b. Zinc-Coated Fabric: ASTM A 392, Type II

3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

1. Fence Height: to match existing.

2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

   a. Line Post: 2.25 by 1.70 inches..
   b. End, Corner and Pull Post: 2.375 inches in diameter.

3. Horizontal Framework Members: Top and bottom rails complying with ASTM F 1043.

4. Horizontal-Slide Gate Post; According to ASTM F 1184.
5. Brace Rails; Comply with ASTM F 1043.
6. Metallic Coating for Steel Framing:

   a. Type B zinc with organic overcoat.

2.3 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- (4.5-mm-) diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:

1. Type III, Zn-5-Al-MM alloy with minimum coating weight matching chain-link fabric coating weight

2.4 INDUSTRIAL HORIZONTAL-SLIDE GATES

A. General: Comply with ASTM F 1184 for single slide gated types (two required)
   1. Classification: Type II Cantilever Slide, Class 1 with external roller assemblies.
   2. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1184 for materials and protective coatings.
   3. Metal Pipe and Tubing Aluminum. Comply with ASTM F 699 for materials and protective coatings.

B. Frames and Bracing: Fabricate members from round, aluminum tubing with outside dimension and weight according to ASTM F 1184 and the following:
   1. Gate Fabric Height: As indicated.
   2. Gate Opening Width: As indicated.
   3. Frame Members:
      a) Tubular Aluminum: 2 inches rectangular.

   4. Bracing Members:
      a.) Tubular Aluminum: 2 inches rectangular.

C. Frame Corner Construction:
   1. Welded frame with panels assembled with bolted or riveted corner

Fitting and 5/16" diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame as indicated as required to attach barbed wire assemblies.
E. Overhead Track Assembly: Manufacture's standard track, with overhead framing supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.
F. Roller Guards: As required per ASTM F 1184 for Type II, Class 2 gates.
G. Hardware: Latches permitting operation from both sides of gate, locking devices, hangers, roller assemblies and stops fabricated from mill-finished Grade 319 aluminum-alloy casting with stainless-steel fastners.

2.4 FITTINGS

A. General: Comply with ASTM F 626.

B. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.

a. Polymer coating over metallic coating.

2. Aluminum: Mill finish.

2.5 BARBED WIRE

A. Steel Barbed Wire: Comply with ASTM A 121, for two-strand barbed wire, 0.099-inch- (2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, four-point round barbs spaced not more than 5 inches (127 mm) o.c.

1. Zinc Coating: Type Z, Class 3.

2.6 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at

Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

2.7 GATE OPERATORS

A. General: Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
   1. Provide HySecurity, Model 222 E-ST (02827 HYS), Extra Duty Slide Gate Operator with Smart Touch Controller.

B. Comply with NFPA 70.

C. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG-1 and the following:

   1. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
   2. Horsepower: 1 HP.
   3. Phase: One.

D. Gate Operators: Concrete base/pad mounted and as follows:

   1. Hydraulic Slide Gate Operators:

      a. Duty: Heavy-duty, commercial/industrial.

E. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure and with space for additional optional equipment. Provide station remote-control device(s).

F. Vehicle Detector: Exit Gate Only, (east gate). Presence system including automatic closing timer with adjustable time delay before closing and timer cut-off switch; designed to open and close gate.

G. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.

H. Accessories:

   1. Warning Module: Audio/Visual, ADA-compliant, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.

2. Battery Backup System: Battery-powered drive and access control system, independent of primary drive system.
3. Intercom System:
4. Instructional, Safety, and Warning Labels and Signs: According to UL 325.

I. Tie Wires: Attach wire per ASTM F 626. Bend ends of wire to minimize hazard to Individuals and clothinh.

J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

K. Barbed Wire: Uniformly spaced, angled toward security side of fence. Pull wire taut and install securely to extension arms and secure to end post or terminal arms.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

D. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

E. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

G. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment.

H. Line Posts: Space line posts uniformly at 10 feet o.c.

I. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing.

J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage unless otherwise indicated.

K. Barbed Wire: Install barbed wire uniformly spaced, angled toward security side of fence. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.

L. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

M. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 323113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, N&T Construction Co., Inc.
1376 Laurel Ave., Beaumont, TX 77701
as PRINCIPAL, AND Hartford Fire Insurance Company, P O Box 2070, Mandeville, LA 70470

as SURETY are held and firmly bound unto Commissioners' Court of Jefferson County hereinafter called the "Owner," in the penal sum of Five Percent of Amount Bid Dollars, ($ ---5%---), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas the Principal has submitted the Accompanying Bid, dated February 16, 2016, for FORD FIELDS CONCESSION STAND, BEAUMONT, TEXAS.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this 16th day of February, 2016, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

N&T Construction Co., Inc. (SEAL)

CHARLIE JABBIA, C.O.O. (SEAL)

Attest:

By: Hartford Fire Insurance Company

Douglas N. McElveen, Attorney-in-Fact

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

By: _____ Affix Corporate Seal

_____ _____

Attest:

_____ _____

By: _____ Affix Corporate Seal

Countersigned
by Christine Baker

*Attorney-in-Fact, State of LA

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, ELAINE JABBIA, certify that I am the PRESIDENT,

_____, Secretary of the Corporation named as Principal in the within bond; that Charlie Jabbia, who signed the said bond on behalf of the Principal was then C.O.O. of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

Elaine Jabbia (Corporate Seal)

Title Elaine Jabbia, PRESIDENT

* Power-of-attorney for person signing for surety company must be attached to bond.

POWER OF ATTORNEY

THE HARTFORD
Bond T-4
One Hartford Plaza
Hartford, Connecticut 06155
call: 888-266-3488 *or fax:* 860-757-5835)

KNOW ALL PERSONS BY THESE PRESENTS THAT: **Agency Code:** 43-483928

- [X] **Hartford Fire Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [X] **Hartford Casualty Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [X] **Hartford Accident and Indemnity Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Hartford Underwriters Insurance Company**, a corporation duly organized under the laws of the State of Connecticut
- [ ] **Twin City Fire Insurance Company**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of Illinois**, a corporation duly organized under the laws of the State of Illinois
- [ ] **Hartford Insurance Company of the Midwest**, a corporation duly organized under the laws of the State of Indiana
- [ ] **Hartford Insurance Company of the Southeast**, a corporation duly organized under the laws of the State of Florida

having their home office in Hartford, Connecticut (hereinafter collectively referred to as the "Companies") do hereby make, constitute and appoint, ***up to the amount of*** Unlimited :

Christine Baker, Amanda McElveen, Douglas N. McElveen, Kathy Peters of LAKE CHARLES, Louisiana

their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign its name as surety(ies) only as delineated above by ☒, and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

In Witness Whereof, and as authorized by a Resolution of the Board of Directors of the Companies on August 1, 2009, the Companies have caused these presents to be signed by its Vice President and its corporate seals to be hereto affixed, duly attested by its Assistant Secretary. Further, pursuant to Resolution of the Board of Directors of the Companies, the Companies hereby unambiguously affirm that they are and will be bound by any mechanically applied signatures applied to this Power of Attorney.

Wesley W. Cowling, Assistant Secretary

M. Ross Fisher, Vice President

STATE OF CONNECTICUT }
COUNTY OF HARTFORD } ss. Hartford

On this 12th day of July, 2012, before me personally came M. Ross Fisher, to me known, who being by me duly sworn, did depose and say: that he resides in the County of Hartford, State of Connecticut; that he is the Vice President of the Companies, the corporations described in and which executed the above instrument; that he knows the seals of the said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed by authority of the Boards of Directors of said corporations and that he signed his name thereto by like authority.

Kathleen T. Maynard
Notary Public
My Commission Expires July 31, 2016

CERTIFICATE

I, the undersigned, Vice President of the Companies, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force effective as of February 16, 2016

Signed and sealed at the City of Hartford.

Gary W. Stumper, Vice President

2212

N&T CONSTRUCTION

GENERAL CONTRACTORS

P.O. Box 269 Beaumont, Texas 77704

Sealed Bid

Ford Fields Concession Stand
IFB 16-002/JW
Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, Texas 77701

RECEIVED 10:54 AM FEB 12 2016

CONSTRUCTION MANUAL

Ford Fields

FORD FIELDS

CONCESSION STAND

5115 IH-10 South, Beaumont, Texas

PROJECT #15036

The LaBiche
ARCHITECTURAL GROUP, INC.

7999 Gladys Ave., Suite 101
Beaumont, Texas 77706
409-860-0197

REGISTERED ARCHITECT
JOHN H. LaBICHE
11592
STATE OF TEXAS

1/22/16

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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REGISTERED ARCHITECT
JOHN H. LaBICHE
STATE OF TEXAS
11592
1/22/14

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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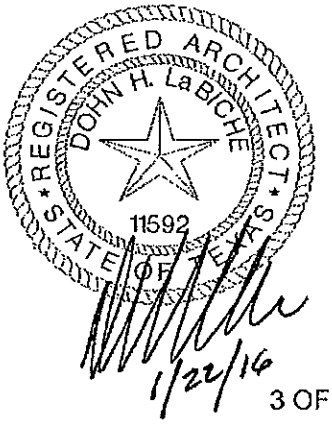

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JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1001 Pearl Street, 3rd Floor, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

January 19, 2016

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for IFB 16-002/JW, Ford Fields Concession Stand. **Construction Documents for this project may be obtained from the office of The LaBiche Architectural Group, Inc. by calling 409-860-0197 for access to the online drawings and specifications.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Commissioners' Courtroom at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Ford Fields Concession Stand**
BID NO:	**IFB 16-002/JW**
DUE DATE/TIME:	**11:00 AM CDT, Tuesday, February 16, 2016**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department**
	1001 Pearl Street, 3rd Floor
	Beaumont, Texas 77701

There will be a pre-bid conference and walk-through at 10:00 AM CDT on Tuesday, February 2, 2016 at the Ford Park Ball Fields, 5115 IH10 South, Beaumont, Texas 77705.

Within ten (10) days after the date of the signing of a contract, the bidder shall furnish a performance bond to the County for the full amount of the contract, if the contract exceeds one hundred thousand dollars ($100,000). If the contract is for one hundred thousand dollars ($100,000) or less, the County may provide that no money be paid to the contractor until completion and acceptance of the work or the fulfillment of the purchase obligation to the County.

Any questions relating to these requirements should be directed to Jamey West, Assistant Purchasing Agent, at 409-835-8593.

Jefferson County encourages Disadvantaged Business Enterprises to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provisions of services. Individuals requiring special accommodations are requested to contact our office at 409-835-8593 to make arrangements no later than seven (7) calendar days prior to the submittal deadline. Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.

Deborah Clark

Deborah L. Clark
Purchasing Agent
Jefferson County, Texas
Publish: Beaumont Enterprise & Port Arthur News – January 20th & January 27th, 2016

IFB 16-002/JW
Ford Fields Concession Stand
Bids due: 11:00 AM CDT, February 16, 2016

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BIDDER IS RESPONSIBLE FOR RETURNING ALL REQUIRED PAGES (MARKED WITH AN "X" ABOVE) WITH THE BID. ADDITIONALLY, BIDDER MUST MONITOR THE PURCHASING WEB SITE (HTTP://WWW.CO.JEFFERSON.TX.US/PURCHASING/MAIN.HTM) TO SEE IF ADDENDA OR ADDITIONAL INSTRUCTIONS HAVE BEEN POSTED. FAILURE TO RETURN ALL REQUIRED FORMS COULD RESULT IN A BID BEING DECLARED AS NON-RESPONSIVE.

Instructions to Bidders

1. Bid Submission

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1001 Pearl Street, 3rd Floor
Beaumont, TX 77701

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

All bids shall be tightly sealed in an opaque envelope and plainly marked with the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

2. Courthouse Security

Bidders are advised that all visitors to the Courthouse must pass through Security. **Bidders planning to hand deliver bids must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal.** Mondays and Tuesdays are particularly heavy days. Bidders are strongly urged to plan accordingly.

3. Preparation of Bids

The bid shall be legibly printed in ink or typed.

If a unit price or extension already entered is to be altered, it shall be crossed out and initialed in ink by the bidder.

The bid shall be legally signed and shall include the complete address of the bidder.

Jefferson County is exempt from Federal and State Sales Taxes, and such taxes shall not be included in bid prices.

4. Signatures

All bids, notifications, claims, and statements must be signed by an individual authorized to bind the bidder. The individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

5. County Holidays – 2016:

January 1	Friday	New Year's Day
January 18	Monday	Martin Luther King, Jr. Day
February 15	Monday	President's Day
March 25	Friday	Good Friday
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24 & 25	Thursday & Friday	Thanksgiving
December 26-27	Monday & Tuesday	Christmas

6. Rejection or Withdrawal

Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive any informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date.

7. Emergency/Declared Disaster Requirements

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s). Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

8. Award

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected. Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial nonconformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

9. Contract

A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by mutually agreed terms and conditions in the contract documents.

10. Waiver of Subrogation

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

11. Fiscal Funding

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

12. Bid Results

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page (http://co.jefferson.tx.us/ purchasing/main.htm) as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

13. Changes and Addenda to Bid Documents

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

14. Specifications

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

15. Delivery

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

16. Interpretation of Bid and/or Contract Documents

All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

17. Currency

Prices calculated by the bidder shall be stated in U.S. dollars.

18. Pricing

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

19. Notice to Proceed/Purchase Order

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

20. Certification

By signing the offer section of the Offer and Acceptance page, bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.

- The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.

21. Definitions

"County" – Jefferson County, Texas.

"Contractor" – The bidder whose proposal is accepted by Jefferson County.

22. Minority-Women Business Enterprise Participation

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

General Conditions of Bidding and Terms of Contract

By execution of this document, the vendor accepts all general and special conditions of the contract as outlined below and in the specifications and plans.

1. Bidding

1.1 Bids. All bids must be submitted on the bid form furnished in this package.

1.2 Authorized Signatures. The bid must be executed personally by the vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the vendor shall accompany the bid to become a valid bid.

1.3 Late Bids. Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.4 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 Withdrawal of Bids after Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.6 Bid Amounts. Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.7 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.8 Alternates. The Invitation for Bid and/or specifications may expressly allow bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.9 Descriptions. Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.10 Bid Alterations. Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.11 Tax Exempt Status. Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.12 Quantities. Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.13 Bid Award. Award of contract shall be made to the most responsible, responsive bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended. Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.14 Silence of Specifications for Complete Units. All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.15 Addenda. Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.16 General Bid Bond/Surety Requirements. Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.17 General Insurance Requirements. Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 Responsiveness. A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 Responsible Standing of Bidder. To be considered for award, bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.20 Proprietary Data. Bidder may, by written request, indicate as confidential any portion(s) of a bid that contain proprietary information, including manufacturing and/or design processes exclusive to the vendor. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.

1.21 Public Bid Opening. Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. Performance

2.1 Design, Strength, and Quality. Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be

the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 Material Safety Data Sheets. Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 Evaluation. Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. Purchase Orders and Payment

3.1 Purchase Orders. A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 Invoices. All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful bidder(s) is required to pay subcontractors within ten (10) days after the successful bidder receives payment from the County.

3.4 Funding. Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. Contract

4.1 Contract Definition. The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful bidder and Jefferson County.

4.2 Change Order. No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 Price Re-determination. A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The bidder's past experience of honor-

regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 Age and Manufacture. All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 Delivery Location. All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 Delivery Charges. All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 Installation Charges. All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 Operating Instructions and Training. Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 Compliance with Federal, State, County, and Local Laws. Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA. The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 Samples, Demonstrations and Testing. At Jefferson County's request and direction, bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the bidder/vendor.

2.13 Acceptability. All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 Maintenance. Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on

ing contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County. .

4.4 Termination. Jefferson County reserves the right to terminate the contract for default if the bidder breached any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the bidder in default.

4.5 Conflict of Interest. Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.6 Injuries or Damages Resulting from Negligence. Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.7 Interest by Public Officials. No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.8 Warranty. The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.9 Uniform Commercial Code. The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.10 Venue. This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.11 Sale, Assignment, or Transfer of Contract. The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.12 Silence of Specifications. The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Special Requirements/Instructions

The following requirements and instructions supersede General Requirements where applicable.

1. **Bid Requirement**

Each bidder shall insure that all parts of the bid are **completed and returned.** The Table of Contents indicates specifically which pages need to be returned; these pages shall constitute the vendor's bid.

Vendor shall use an opaque envelope, clearly indicating on the outside the **Bid Number, Bid Description, and marked "SEALED BID".** Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB. All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court. **Bidders** shall submit (1) one original, and (2) two copies of the bid.

2. Vendor Registration: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov
Bid Respondents are highly encouraged to check their firm's SAM (System for Award Management) status prior to Bid Submission; as it is a requirement for vendors doing business with Jefferson County to be registered.

3. Awarded Vendor(s): Submission of FORM 1295 (Texas Ethics Commission)

As of January 1, 2016, per House Bill 1295, the Texas Ethics Commission (TEC) requires **all awarded vendors** to complete a Certificate of Interested Parties (FORM 1295) at time of notification of award. **Awarded Vendors** must visit the TEC website link below, enter the required information on Form 1295, and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

At the time of award, the Jefferson County Purchasing Department will submit a request to the Awarded Vendor to both:

1. Submit FORM 1295 online via the Texas Ethics Commission website link below.

2. Submit a printed copy of FORM 1295, signed by an Authorized Agent of the Awarded Vendor and notarized to the Jefferson County Purchasing Department.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at:https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4. **Multiple Vendor Award**

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. **Delivery**

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. Payment

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to: Jefferson County Auditing Department, Attention: Accounts Payable, 1149 Pearl Street, 7th floor, Beaumont, TX 77701.

7. Usage Reports

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. Insurance

The contractor (including any and all subcontractors as defined in Section 7.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

Minimum Insurance Requirements

Public Liability	$1,000,000.00
Excess Liability	$1,000,000.00

Property Insurance (policy below that is applicable to this project):
Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)
Builder's Risk Policy: Structural Coverage for Construction Projects
Installation Floater Policy: Improvements/Alterations to Existing Structure

Workers' Compensation	Statutory Coverage (see attached)

9. Workers' Compensation Insurance

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 6 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

Minimum Specifications

The following requirements and specifications supersede General Requirements where applicable. Contact Dohn H. LaBiche, FAIA (e-mail: dlabiche@labiche.com; phone: 409-860-0197), regarding any questions or comments. Please reference bid number **IFB 16-002/JW**.

Scope

FURNISH ALL MATERIALS AND LABOR FOR THE CONSTRUCTION OF A NEW CONCESSION STAND TO BE LOCATED AT FORD FIELDS.

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): 1, 2, 3, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

SETEX Construction Corp.
Company Name

PO Box 20678
Address

Beaumont, TX 77720-0678
City State Zip

Signature of Person Authorized to Sign

Nathan Rivers
Printed Name

President
Title

For clarification of this offer, contact:

Nathan Rivers
Name

409-842-8181 409-842-2274
Phone Fax

setex@setexconstruction.com
E-mail

Bidder Shall Return Completed Form with Offer.

Bid Form

We propose to furnish all labor, material and equipment, and to perform all work necessary to construct the **Ford Fields Concession Stand** including Mechanical, Plumbing and Electrical Work, in accordance with drawings and specifications prepared by The LaBiche Architectural Group, Inc., for the following sum:

BASE BID: Four hundred ninety-nine Thousand Five hundred

Dollars $ 499,500

Materials $ 299,700

Labor $ 199,800

We have examined the site of the Work and the nature and kind of work to be performed and have informed ourselves of all local conditions and other things that might affect the cost or difficulty of performing the Work, and we represent and warrant that we have experience in the use of materials and methods of performance specified, and that we can and will do the Work and construct the improvements with the specified materials as contemplated and indicated by the Drawings and Specifications.

Upon receipt of notice of acceptance of our bid, we agree to execute the Contract within 10 (ten) days after such notice, deliver Performance and Payment Bonds for the faithful performance of the Work, to begin work on or before the date of commencement of the Work established in the Notice to Proceed, and to complete the Work in 180 calendar days.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project on or before the date of completion shown on the "Notice to Proceed". Bidder further agrees to pay as liquidated damages, the sum of **$300.00** for each consecutive calendar day thereafter.

Acknowledgment of Addenda (if any):

Addendum 1 ✓ Date Received 2-8-16

Addendum 2 ✓ Date Received 2-11-16

Addendum 3 ✓ Date Received 2-15-16

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: Jefferson County

Address: 1149 Pearl St, 1st Floor, Beaumont, TX 77701

Contact Person and Title: Mike Fuselier

Phone: 409-835-8584 Fax: 409-835-8718

Contract Period: Dec. 2015 to Jan. 2016 Scope of Work: Port Arthur DPS repairs to front

REFERENCE TWO

Government/Company Name: ARC of Greater Beaumont

Address: 4330 West Ridge Lane, Beaumont, TX 77706

Contact Person and Title: Gary Hildago

Phone: 409-838-9012 Fax: 409-515-1129

Contract Period: July 2015 to Current Scope of Work: New Multi-Purpose Bldg

REFERENCE THREE

Government/Company Name: Spindletop Center

Address: PO Box 3846, Beaumont, TX 77704-3846

Contact Person and Title: Chalonnes Hoover

Phone: 409-784-5400 Fax: 409-833-8041

Contract Period: Oct. 2014 to Feb 2015 Scope of Work: Spindletop "F" Courtyards II Remodel Building

Bidder Shall Return Completed Form with Offer.

Signature Page

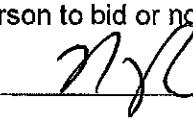
As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☑ **No** ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

SETEX Construction Corp.	
Bidder (Entity Name)	Signature
1660 S. 23rd Street	Nathan Rivers
Street & Mailing Address	Print Name
Beaumont, TX 77707	2-16-16
City, State & Zip	Date Signed
409-842-8181	409-842-2274
Telephone Number	Fax Number
setex@setexconstruction.com	
E-mail Address	

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☑ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☑ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☑ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

SETEX Construction Corp. does not have a business or family relationship with Jefferson County

4

Signature of vendor doing business with the governmental entity

2-16-16
Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____ _____ _____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☑ Yes	☐ No	1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?
☑ Yes	☐ No	2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?
☑ Yes	☐ No	3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?
☑ Yes	☐ No	4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?
☑ Yes	☐ No	5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?
☑ Yes	☐ No	6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid.
If necessary, please use a separate sheet to answer the above questions.

Nathan Rivers
Printed Name of Authorized Representative

Signature

President
Title

2-16-16
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: SETEX Construction Corp. HUB: ☐ Yes ☑ No

Address: PO Box 20678, Beaumont, TX 77720-0678
Street City State Zip

Phone (with area code): 409-842-8181 Fax (with area code): 409-842-2274

Project Title & No.: Ford Fields Concession Stand

Prime Contract Amount: $ 499,500

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Nathan Rivers		2-16-16
Printed Name of Contractor Representative	Signature of Representative	Date
Printed Name of HUB	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☑ Yes ☐ No

Prime Contractor: SETEX Construction Corp. HUB: ☐ Yes ☑ No

HUB Status (Gender & Ethnicity): _____

Address: PO Box 20678, Beaumont, TX 77720-0678
Street City State Zip

Phone (with area code): 409-842-8181 Fax (with area code): 409-842-2274

Project Title & No.: Ford Fields Concession Stand IFB/RFP No.: IFB 16-002/JW

Total Contract: $ 499,500 Total HUB Subcontract(s): $ 106,125.00

Construction HUB Goals: 12.8% MBE:: 24 % 12.6% WBE: .01 %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American. Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub Information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: Southeast Texas Drywall

HUB Status (Gender & Ethnicity): Male - Hispanic

Certifying Agency: ☑ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: 225 Hwy 365, Port Arthur, TX 77640
Street City State Zip

Contact person: Bruce Reyes Title: President

Phone (with area code): 409-454-1128 Fax (with area code): 409-736-9010

Proposed Subcontract Amount: $ 40,000.00 Percentage of Prime Contract: 9 %

Description of Subcontract Work to be Performed: Painting & Drywall

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: A+ A Electric Company of Beaumont

HUB Status (Gender & Ethnicity): Male-Hispanic

Certifying Agency: ☑ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: 6250 Walden Road, Beaumont, Tx 77705
Street City State Zip

Contact person: Lee Acevedo, Jr. Title: Owner

Phone (with area code): 409-842-4437 Fax (with area code): 409-842-5230

Proposed Subcontract Amount: $65,535.00 Percentage of Prime Contract: 1.5 %

Description of Subcontract Work to be Performed: Electrical

HUB Subcontractor Name: Floor Shoppe

HUB Status (Gender & Ethnicity): Female

Certifying Agency: ☑ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: 6413 Calder Ave, Beaumont, Tx 77706
Street City State Zip

Contact person: Cathy Kojak Title: Owner

Phone (with area code): 409-866-4045 Fax (with area code): 409-866-2692

Proposed Subcontract Amount: $590.00 Percentage of Prime Contract: .01 %

Description of Subcontract Work to be Performed: Resilient Base

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All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☑ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $_____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $_____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required.** I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): Nathan Rivers

Title: President

Signature: NR

Date: 2-16-16

E-mail address: setex@setexconstruction.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Sherry Daniels

Title: Administrative Manager

Date: 2-16-16

E-mail address: setex@setexconstruction.com

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☑ I certify that SETEX Construction Corp. [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	76-0309789
Company Name submitting bid/proposal:	SETEX Construction Corp.
Mailing address:	PO Box 20678, Beaumont, TX 77720-0678
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
197876	1660 S. 23rd Street, Beaumont

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas,

on this day personally appeared Nathan Rivers (name), who

after being by me duly sworn, did depose and say:

"I, Nathan Rivers (name) am a duly authorized officer of/agent

for SETEX Construction Corp. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said SETEX Construction Corp. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: SETEX Construction Corp.

PO Box 20678, Beaumont, TX 77720-0678

Fax: 409-842-274 Telephone# 409-842-8181

by: Nathan Rivers (print name) Title: President

Signature: NR

SUBSCRIBED AND SWORN to before me by the above-named Nathan Rivers on

this the 16th day of February, 2016.

SHERRY DANIELS
Notary Public, State Of Texas
My Commission Expires
06-06-2017

Notary Public in and for the State of Texas

Bidder Shall Return Completed Form with Offer.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010100 - SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The project is located at 5115 IH-10 South, in Beaumont, Texas.

B. The Work of this Contract consists of the furnishing of all labor, materials, services, equipment and appliances as indicated in the Drawings and Specifications.

1. **Base Bid:** Construct a new concession stand on the grounds of Ford Park Fields.

C. The Drawings and Specifications do not necessarily indicate or describe all Work required for completion of the Project. Contractor shall provide and install all incidentals reasonably inferable from the Contract Documents that are required for a complete Project.

D. These documents describe the essential elements sufficiently to determine the scope of the Project.

E. Provide all items required for complete operating systems including items not necessarily shown in these documents, but that can be reasonably inferred as being required for the complete operating system.

F. The Drawings and Specifications indicate the basic quality of materials and quality of construction required for the entire project.

G. Site Inspection: Offers' can access the site at any day and time. Access to the Sub Courthouse requires contacting County Maintenance Supervisor Mark Bernard at (409) 466-1790.

H. Inquiries Concerning Proposal and Contract Documents: Prior to submitting a proposal, technical questions concerning the proposal documents shall be directed to:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
dlabiche@labiche.com
Tel: 409/860-0197
Fax: 409/860-0198

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 CONTRACT

A. The Contract will be executed as a lump-sum agreement on the forms provided.

B. Employ subcontractors for the disconnection, re-connection and installation of all mechanical and electrical Work in conjunction with all Work required, or implied, to be performed by licensed mechanics of these disciplines:
   1. Subcontractors of Contractor shall furnish to Contractor bonds covering faithful performance of subcontract Work and payment of all obligations there under, when Contractor is required to furnish such bonds to the Owner.
   2. Subcontractors of Contractor shall purchase and maintain liability insurance as will protect him from claims, for not less than limits of liability which Contractor is required to provide to Owner.
   3. The Contractor shall include in Contract Amount costs of supervision, coordination and monitoring Work of his selected Subcontractors.

1.04 CONTRACTOR'S USE OF PREMISES

A. Contractor shall be responsible for monitoring the use of premises by Contractor's employees and Subcontractors.

B. Access routes for delivery of materials and equipment shall be as indicated by Owner. Do not use access routes other than those indicated without written permission of the Owner.

C. Assume full responsibility for the protection and safekeeping of Products under this Contract, stored on the site. Store materials and products only in those areas indicated for staging.

D. Protect existing lawns, sidewalks, pavements, curbs and utilities subject to damage by Work under this Contract. Repair or replace any existing Work damaged by the Contractor.

E. Parking areas for Contractor's personnel shall be on the project site to the extent it does not interfere with on-going contract Work and in areas designated by the Owner.

1.05 WORK ON PROPERTY

A. Obtain and pay all fees required applicable governing authorities, prior to commencing Work on this Project.

B. Post all notices and warning signs required by applicable governing authorities.

C. Perform Work on this Project in accordance with local codes and ordinance and utility company requirements.

1.06 WORK SEQUENCE AND CLAIMS FOR ADDITIONAL TIME

A. Construct Work in phases to accommodate Owner's occupancy requirements. During the construction period, coordinate construction schedule and operation with the Architect.

B. Claims for additional time as a result of adverse weather conditions will be considered only for weather conditions which are abnormal and if such weather conditions had an adverse effect on the scheduled construction: Rain Day claims for day(s) when Contractor is normally not on site are not legitimate. The Contractor shall document rain delays on a regular basis and submit an itemized listing to the Owner at each payment application meeting. Only requests for extra time, which prevents Work on critical activities for fifty percent (50%) or more of a scheduled workday will be considered. If no request is submitted for a given month, it will be assumed that no time was lost and the contract time shall not be adjusted.

C. No extension of time shall be deemed as waiver by the Owner of its right to terminate the contract for abandonment or delay by the Contractor. Once the Work has begun the contractor shall properly man the project in a continuous manner and proceed with all diligence to complete the project within the contract time. The Contractor must Work continuously and will not be allowed to stop activity on any weekday unless due to adverse weather of to reason pre-approved in writing by the Owner.

1.07 OWNER OCCUPANCY

A. The Owner may occupy all portions of the building and conduct normal operations during the Work. Owner occupancy shall be during the course of the normal Work day and not include evenings. Owner activities may occur on weekends. The Contractor shall fully clean the site and remove all debris and materials from the grounds on days when scheduled Owner's activities will conflict with the Work.

B. Cooperate with the Owner and schedule the Work to minimize conflicts, and to facilitate Owner's normal operations.

C. All electrical, HVAC units and controls shall remain in operation during times the building is occupied.

1.08 OWNER'S OPERATIONS

A. The Contractor shall conduct its Work in a manner to provide minimal interruption of the school campus during all construction Work. The Work shall be done at such times and in such manner and locations as to cause a minimum of inconvenience for the students, instructors, and staff. Limit operations to specific Work areas. A system of barricades, fences and enclosures shall be used by the Contractor to avoid conflict between construction and operations of the facility.

1.09 HAZARDOUS MATERIALS

A. If, during the progress of the Work, Contractor uncovers work which he believes contains asbestos or other hazardous materials, he shall immediately cease operations in the area of such discovery and notify the both the Architect and the Owner's Representative in writing.

B. Owner will arrange with the Abatement Contractor to perform necessary testing, barricades, enclosures, filtering, and ventilation in areas containing hazardous materials; decontamination, or removal and disposal of hazardous materials in accordance with requirements of authorities having jurisdiction.

C. Owner's Abatement Consultant will notify Owner's Representative and Architect in writing when it is safe to resume construction operations in the areas in question.

D. Contractor shall identify potential lead containing material hazards at the Site and oversee appropriate protective measures, including protection of persons, establishing

END OF SECTION 01010

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010300 - SPECIAL CONDITIONS

PART 1 - GENERAL

1.01 REFERENCES

A. References to known standard specifications shall mean and shall refer to the latest edition of such specifications adopted and published at date of invitation to submit proposals.

B. Reference to technical society, organization or body is made in these Specifications in accordance with the following abbreviations:

AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
ANAAMM	National Association Architectural Metals Manufacturers
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
FS	Federal Specifications
NBS	National Bureau of Standards
NEC	National Electric Code
NFPA	National Fire Protection Association
NRCA	National Roofing Contractors Association
UL	Underwriters' Laboratories, Inc.

1.02 CONDITIONS

A. "General Conditions" apply with equal force to the General Contractor, Subcontractors, Work, extra Work, and the like that may be specified herein or performed in or about the building or site under this Contract.

B. For convenience of reference and to facilitate letting of subcontracts, these Specifications are separated into sections. Such separation shall not operate to make Owner an arbitrator to establish subcontract limits between subcontractors.

C. Execute Work as per Contract Documents. Make no changes therefore without having first received written permission. Where detailed information is lacking before proceeding with Work, refer matter to Architect for clarification.

D. All Work shall be executed by mechanics skilled in their respective trades. Mechanics whose Work is unsatisfactory to the Owner and/or Architect, or who are considered by the Owner to be careless, incompetent, unskilled, or otherwise objectionable, are to be dismissed from Work upon notice from the Owner.

E. The Owner will provide temporary water and electrical power required for the Work at no cost to the Contractor. The Contractor shall make necessary connections to existing fireplugs and/or tap the existing water service, and to power transformer or

other power sources at each building or site as required for performance of his Work. Coordinate all connections with the Owner's Maintenance Department.

F. Contractor shall be responsible for furnishing storage trailers, temporary security fencing, temporary fire protection, telephones, etc., as required to carry out construction operations.

G. Construction related access to the site, shall be limited to areas permitted by the Owner and/or as shown on the Drawings. It shall be the responsibility of the Contractor to prevent damage to the existing paving, to repair all damage, and to recognize and respect all traffic safety requirements and signage. Any loss or damage to the Owner's property caused by the Contractor or his workmen shall be repaired or replaced at no cost to the Owner. Restore the grounds to original condition at the completion of the Project. Remove all fences, barricades, etc. Replace all vegetation damaged by construction operations, including grass, shrubs, and trees, to the satisfaction of the Owner.

H. Work hours in general are between 7:00 am and 6:00 pm, Monday through Friday, unless an exception is granted by the Owner and Architect, or as otherwise defined by various Section of these Specifications.

I. The Contractor shall remove trash and rubbish from the Owner's premises at the end of each Workday. This shall mean that these materials shall be cleaned from the grounds and shall not be left in areas or locations other that containers specified for this purpose. Burning of combustibles will not be permitted.

1.03 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.04 PROJECT SUPERINTENDENT

A. In addition to other duties imposed by these Specifications the Project Superintendent shall meet the following requirements:

B. Show prior to the start of Work references from Owners of a minimum of five (5) previously completed jobs of similar size, complexity and construction cost.

C. Show proficiency prior to the start of the Work that the Superintendent is fluent in the English language, or if not, provide a competent and approved interpreter for such purposes. The purpose of this clause is to assure adequate communications with all parties involved in the Work.

D. The Project Superintendent shall be present at the project site at all times that any Work of this contract is underway. In the case that the Project Superintendent must be away from the project site the Contractor shall first file written documentation of the absence with the Architect at least 48-hours in advance of the new replacement. The replacement, or acting Project Superintendent, shall meet the minimum requirements defined above and elsewhere in the Specifications for the Project Superintendent. The only exception to this shall be when the Contractor, an officer of the company with

a majority share of ownership, shall be permitted to act as the Project Superintendent. A majority owner of the contracting company may act as the Project Superintendent for the entirety of the project.

E. No Work shall be performed and no subcontractor(s) shall be permitted to Work at any time when the Project Superintendent is not present.

1.05 INSURANCE CLAIMS FOR PROPERTY DAMAGES

A. In the event that any damage is incurred to the Owner's or employees property due to any act of the Contractor, the Contractor shall make payment of the claim through its own resources or via its insurance carrier within thirty (30) days of the claim occurrence.

1.06 ADDITIONAL INSPECTIONS BY ARCHITECT

A. In the event that the Contractor exceeds the completion date for whatever reason he/she shall be responsible for reimbursing the Owner through authorized change order for all costs of the Architect's staff and expenses to carry on inspection duties at the rate performed during the project before the completion date.

B. The rate of reimbursement shall be as follows:

Construction Observer	$ 65.00 per hour
Architect / Roofing Consultant	$135.00 per hour
Re-Inspection Following Substantial or Final Completion	$135.00 per hour
Mileage	$ 0.45 per mile
Other Expenses	Cost plus 10%

END OF SECTION 010300

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010410 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Coordinate Work with that of other contractors and trades and on-going Work by Owner under administration of the Architect.

1.02 RELATED DOCUMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 VISIT TO SITE

A. Prior to submitting his quotation for Work under this project, the Contractor shall visit the site to examine all conditions related to his Work, and to acquaint himself with these conditions. FIELD MEASUREMENTS ARE REQUIRED FOR THIS PROJECT.

B. The Contractor shall verify that existing facilities, utilities and/or conditions are adequate and if equipment, utilities, facilities or conditions are such that other items and services, in addition to those specified, are required to achieve operational systems as described herein, the Contractor shall advise the Architect of the scope and costs of necessary additional Work or services at the time of proposal submittal.

1.04 CONSTRUCTION MOBILIZATION

A. The Contractor shall attend the scheduled pre-construction conference as directed by the Architect and Owner for the purpose of project coordination.

B. Cooperate with the Owner and Architect in location of mobilization areas on site for access, traffic, and parking facilities. During construction coordinate use of site and facilities through the Architect and Owner.

C. Comply with the Architect's procedures for intra-project communications: Submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Architect for use of temporary facilities.

E. Coordinate field and layout Work under instructions of the Architect.

1.05 SUBMITTALS TO THE ARCHITECT

A. All submittals for this project will be required to be submitted at the same time and shall be in accordance with requirements of Section 010300. The Contractor shall provide submittals covering all materials specified in the Specifications. Any changes from the existing Work or sheet metal profiles shown in the Drawings will be forwarded in the

form of shop drawings to the Architect by facsimile prior to beginning fabrication or installation. Update and provide revised schedules at each pay application meeting.

B. Deliver submittals to the Architect for transmittal to all required parties. The office of the Architect is located as follows:

The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
Tel: 409/860-0197
Fax: 409/860-0198

C. Submit written requests for interpretation of Contract Documents and obtain instructions through the Architect.

1.06 COORDINATION DRAWINGS

A. Provide information required by the Architect for preparation of coordination drawings.

B. Review Drawings carefully prior to submission of all submittals to the Architect.

1.07 CLOSEOUT PROCEDURES

Submit in accordance with Section 017000.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 010410

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 010450 - CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Requirements and limitations for cutting and patching of Work.

B. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other Work, and subsequent fitting and patching required for restoration of surfaces to their original condition.
   1. "Cutting and patching" is performed for coordination of the Work, to uncover Work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections found in Division 01 through Division 16, and all Drawings apply to Work specified in this Section.

1.03 SUBMITTALS

A. Submit written request in advance of cutting or alteration, which affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather-exposed or moisture-resistant element.
   3. Efficiency, maintenance, or safety of any operational equipment.
   4. Visual qualities of sight-exposed elements.
   5. Work of Owner or separate contractor.

B. Include in request:
   1. Identification of Project.
   2. Location and description of affected Work.
   3. Necessity for cutting or alteration.
   4. Description of proposed Work, and products to be used.
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades who will execute the Work..
      c. Products proposed to be used.
      d. Extent of re-finishing.
      e. Cost proposal when applicable.
      f. Alternatives to cutting and patching.
   5. Effect on Work of Owner or separate contractor, if any
   6. Written permission of affected separate contractor, if any.
   7. Date and time Work will be executed.

1.04 QUALITY ASSURANCE

Requirements for Structural Work: Do not cut or alter any structural Work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Except as otherwise indicated, or as directed by the Owner, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

B. Those required for original installation.

C. No substitutions of materials will be accepted after proposals are submitted.

PART 3 - EXECUTION

3.01 GENERAL

A. Execute cutting, fitting and patching including excavation and fill, to complete Work and to:
1. Fit the several parts together, to integrate with other Work.
2. Uncover Work to install ill-timed Work.
3. Remove and replace defective and non-conforming Work.
4. Remove samples of installed Work for testing.
5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

3.02 INSPECTION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the Work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the Work.

B. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

C. After uncovering, inspect conditions affecting performance of Work.

D. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

A. Provide supports to assure structural integrity of surroundings, devices and methods to protect other portions of Work from damage.

B. Provide protection from elements for areas, which may be exposed by uncovering Work; maintain excavations and openings free of water.

C. Prevent debris from entering facility; do not permit product contamination.

3.04 PERFORMANCE

A. Employ skilled workers to perform cutting and patching Work. Except as otherwise indicated or as approved by the Architect, proceed with cutting and patching at the earliest feasible time and complete without delay.

B. Cut the Work using methods that are least likely to damage Work to be retained or adjoining Work. Where possible review proposed procedures with the original installer and comply with its recommendations.

C. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut through concrete and masonry using a cutting machine, such as a carborundum saw, or core drill, to ensure a neat hole. Cut holes and slots neatly to size required with a minimum disturbance of adjacent Work. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces. Temporarily cover unused openings.

D. Patch with seams, which are durable and as invisible as possible. Comply with specified tolerances for the Work. Where feasible, inspect and test patched areas to demonstrate integrity of Work. Restore exposed finishes of patched areas and where necessary extend finish restoration into retained adjoining Work in a manner which will eliminate evidence of patching and re-finishing.

E. Where removal of walls or partitions extends from one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall covering; replace with new materials.

F. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface of wall or ceiling containing patch, after patched area has received prime and base coat. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

G. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through roof, wall, floor or other surfaces.

H. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with fire rated material, full thickness of the construction element.

I. Do not leave facility open to contamination or rain; close off at end of each Work day.

J. Thoroughly clean areas and spaces where Work is performed or used as access to Work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied.

END OF SECTION 010450

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SECTION 011200 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedural requirements

B. Rehabilitation and renovations of existing spaces and materials.

C. Installation of products removed in Sections as specified.

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials shall be as specified in individual Sections

B. Match existing products and Work for patching and extending Work.

C. Determine type and quality of existing products by inspection and any necessary testing, and workmanship by use of existing as a standard. Presence of a product, finish or type of Work requires that patching, extending or matching shall be performed as necessary to make Work complete and consistent with the Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that demolition is complete and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.02 PREPARATION

A. Cut, move or remove items as necessary for access to alteration and renovation Work; replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, rusted metals, and deteriorated masonry and concrete: replace materials as specified for finished Work.

C. Remove debris and abandoned items from area and from concealed spaces.

D. Prepare surfaces and remove surface finishes to provide for proper installation of new Work and new finishes.

E. Close openings in exterior surfaces to protect existing Work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.03 INSTALLATION

A. Coordinate Work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.

B. Designated areas, rooms and spaces and finishes shall be complete in all respects, including operational mechanical and electrical systems.

C. Remove, cut and patch Work in a manner to minimize damage and to provide means to minimize products and finishes to specified condition.

D. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent new finishes.

E. In addition to specified replacement of equipment and fixtures, restore existing plumbing, heating, ventilation, air conditioning, and electrical systems to full operational condition.

F. Install products as specified in individual sections.

3.04 TRANSITIONS

A. Where new Work abuts or aligns with existing make a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to the Architect for completion.

3.05 ADJUSTMENTS

Fit Work at penetrations of surfaces as specified in Section 01045.

3.06 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored or showing other imperfections.

B. Repair substrate prior to patching finish.

3.07 FINISHES

A. Finish surfaces as specified in individual Sections.

B. Finish patches to produce uniform texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersection or natural termination point.

3.08 CLEANING

In addition to cleaning specified in Section 01500, clean Owner-occupied areas of Work as required.

END OF SECTION 011200

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SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Section:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.

g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Requested substitution will not adversely affect Contractor's construction schedule.
    c. Requested substitution has received necessary approvals of authorities having jurisdiction.
    d. Requested substitution is compatible with other portions of the Work.
    e. Requested substitution has been coordinated with other portions of the Work.
    f. Requested substitution provides specified warranty.
    g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

    a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
    b. Requested substitution does not require extensive revisions to the Contract Documents.
    c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    d. Requested substitution will not adversely affect Contractor's construction schedule.
    e. Requested substitution has received necessary approvals of authorities having jurisdiction.
    f. Requested substitution is compatible with other portions of the Work.
    g. Requested substitution has been coordinated with other portions of the Work.
    h. Requested substitution provides specified warranty.
    i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.4 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 7 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has

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SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. See Division 01 Section "Allowances" for procedural requirements for handling and processing allowances.

C. See Division 01 Section "Unit Prices" for administrative requirements for using unit prices.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Application for Payment forms with Continuation Sheets, Submittals Schedule and Contractor's Construction Schedule.
2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

    1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Progress payments shall be submitted to Architect by the 23rd of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

    1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
    2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's Construction Schedule (preliminary if not final).
4. Schedule of unit prices.
5. Submittals Schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Initial progress report.
11. Report of preconstruction conference.
12. Certificates of insurance and insurance policies.

I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

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SECTION 013000 - SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures
B. Construction Progress Schedule
C. Shop Drawings
D. Product Data
E. Samples
F. Manufacturer's Instructions
G. Manufacturer's Certificates
H. Schedule of Required Submittals
I. Request for Substitution Form

1.02 RELATED REQUIREMENTS

General Conditions, Supplementary General Conditions, Forms, Specification Sections and all Drawings apply to Work specified in this Section.

1.03 PROCEDURES - BEFORE PROPOSAL OPENING

No substitute systems or materials will be considered prior to proposal opening.

1.04 PROCEDURES - AFTER PROPOSAL OPENING

A. Deliver submittals to: The LaBiche Architectural Group, Inc.
7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706

B. All submittals required for the project shall be submitted at the same time.

C. Transmit each item under form acceptable to the Architect in this document. Identify Project, Contractor, Subcontractor and major suppliers. Identify pertinent drawing sheet and detail number, and specification section number as appropriate. Identify any and all deviations from Contract Documents. Provide 3-inch x 5-inch space each for Contractor and Architect review stamps. Provide certification stamp on all submittal sets.

D. Submit Submittal Schedule at the same time as all other submittals.

E. All submittals including shop drawings, product data and samples for this project will be submitted at the same time to the Architect and within ten (10) days after receipt of the Notice to Proceed.

F. After Architect's review of submittal, revise and re-submit as required, identifying changes made since previous submittal.

G. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to

promptly report any inability to comply with provisions.

H. Bind sets of submittals in labeled three-ring binders identified on the outside with the project title, date, Contractor's, Architect's and Owner's names, and including a table of contents corresponding to the Specification format, with all contents correlated.

1.05 CONSTRUCTION PROGRESS SCHEDULES

A. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first Workday of each week.

B. Show submittal dates required for Shop Drawings product data and samples and product delivery dates including those, if any, identified to be furnished by the Owner.

1.06 SHOP DRAWINGS

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all shop drawings on opaque reproductions.

B. Present in a clear and thorough manner. Title each Drawing with Project Name and the same information indicated for 1.04.H above. Identify each element of Drawings by reference to sheet number and detail of the Contract Documents.

C. Identify field dimensions. Show relation to adjacent or critical features or Work or products.

1.07 PRODUCT DATA

A. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all product data.

B. Submit only pages that are pertinent. Mark each copy of standard printed data with yellow hi-liter to identify pertinent products, reference to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.

C. Modify manufacturer standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete or cross-out information not applicable.

D. Any deviation from the Contract Documents must be clearly identified when submitted. Any items not identified will be deemed to be the items exactly as specified in the Contract Documents.

1.08 MANUFACTURER'S INSTRUCTIONS

When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

1.09 SAMPLES

A. Submit full range of manufacturer's standard colors, textures, and patterns for Owner's selection. Submit a minimum of four (4) sets, and a maximum of seven (7) sets of all samples unless otherwise indicated by these Specifications.

B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing Work.

C. Include identification on each sample, giving full information.

D. Submit the number specified in respective Specification Section: Two (2) will be retained by the Architect. Reviewed samples that may be used in the Work are indicated in the Specification Section.

1.10 FIELD SAMPLES

Provide field samples of finishes at the project site as required by individual Specification Sections. Install sample complete and finished. Acceptable samples in place may be retained in completed Work.

1.11 CONTRACTOR REVIEW

A. Review submittals prior to transmittal. Determine and verify field measurements, field construction criteria, manufacturer's catalog numbers and conformance of submittal with requirements of Contract Documents.

B. Coordinate submittals with requirements of Work and of Contract Documents.

C. Apply Contractor's stamp on each section of Shop Drawings and Product Data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.

D. The Contractor is encouraged not to fabricate products or begin Work which requires submittals until return of reviewed submittal with Architect's review stamp. Fabrication of items and beginning of Work when submittals have not been reviewed will be at the Contractor's risk.

1.12 SUBMITTAL REQUIREMENTS

A. Transmit submittals in such sequence to avoid delay in the Work or Work of other contracts.

B. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

C. Submit under Architect approved transmittal letter. Identify Project by title and number. Identify Work and product by Specification Section and Article Number.

1.13 RE-SUBMITTAL REQUIREMENTS

A. Make re-submittals under procedures specified for initial submittals. Identify changes made since previous submittal.

B. Re-submittals beyond the initial and a second will be reviewed by the Architect and/or his consultants at the Contractor's expense.

1.14 ARCHITECT AND OWNER REVIEW

A. The Architect and Owner and/or other authorized representative will review all submittals. Submittals will be returned to the Contractor with the Architect's review stamp affixed, and/or with the indication of any changes, which may need to be made, shown thereon, or with disapproval.

B. The Architect's review of any such Submittal shall not relieve the Contractor from responsibility for deviations from Drawings or Specifications, nor shall it relieve him from responsibility for errors of any sort in the Submittal, nor shall it in any way diminish the Contractor's obligation to conduct the Work in accordance with the Contract Documents.

C. Approval of samples shall be for design and appearance only, and such approval shall not relieve Contractor from any obligation as provided in the Contract Documents.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

REQUEST FOR SUBSTITUTION
(Attach Additional Sheets As Necessary)

From: _____
_____
To: _____
_____

Date of Request: _____
Project: Project Name
Location: Project Location
Architect's Project No.: 09015

References: Specification Section: _____ Part: _____ Paragraph: _____ Subparagraph: _____
Specified Product Name: _____ Model No.: _____
Drawing Sheet(s): _____ De tail(s): _____

Description of Proposed Substitution:
Substitute Product Name: _____ Model No.: _____
Manufacturer: _____ Address: _____ Phone: _____
Installer: _____ Address: _____ Phone: _____
Reason for not providing specified item: _____
_____
Differences between proposed substitution and specified product: _____
_____
_____
☐ Point-by-point comparative data attached (Required for analysis and review by Architect)

Substitution Product History: ☐ New Product ☐ 2 to 5 Years Old ☐ 5 to 10 Years Old ☐ More than 10 Years Old
Similar Installations of Proposed Product:
Project: _____ Architect: _____ Phone: _____
Project Address: _____ Owner: _____ Phone: _____
_____ Date Product Installed: _____

Effect of Proposed Substitution:
Acceptance of proposed substitute will require the following change in Contract Sum and Contract Time:
☐ No Change in Contract Sum ☐ No Change in Contract Time
☐ Increase Contract Sum By $ _____ ☐ Increase Contract Time By _____ Calendar Days
☐ Decrease Contract Sum By $ _____ ☐ Decrease Contract Time By _____ Calendar Days.
Effect of proposed request for substitution on (Attach additional sheets if necessary):
a. Change in Construction Progress Schedule: ☐ No Effect ☐ _____
_____
b. Changes required in details and construction of related work: ☐ No Change ☐ Yes, Explain: _____
_____
c. Change in warranty requirements: ☐ No Change ☐ _____

Representations by Contractor: (1) Substitute item is equivalent or superior to that specified in quality and durability, design, appearance, function, finish, performance, is of size and weight that will permit installation in spaces provided, and that will allow adequate service access; (2) Substitute item is compatible with other portions of the Work; (3) Substitute item has been coordinated with other portions of the Work; (4) Substitute item has received necessary approvals from authorities having jurisdiction; (5) Substitute item is consistent with the Contract Documents and will produce the intended results; (6) Substitute item provides specified warranty; and (7) If requested substitution involves more than one contractor, or subcontractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors, or subcontractors involved.

_____ _____ _____
(Signature) (Typed or Printed Name and Title) (Date)

END OF SECTION 013000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Project meetings.
3. Requests for Interpretation (RFIs).

B. See Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

   a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
   b. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque copies of each submittal. Architect will return four copies.
4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

1.5 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.

2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. LEED requirements.
    l. Preparation of Record Documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Owner's occupancy requirements.
    p. Responsibility for temporary facilities and controls.
    q. Construction waste management and recycling.
    r. Parking availability.
    s. Office, work, and storage areas.
    t. Equipment deliveries and priorities.
    u. First aid.
    v. Security.
    w. Progress cleaning.
    x. Working hours.

3. Minutes: Record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written recommendations.
    n. Warranty requirements.
    o. Compatibility of materials.
    p. Acceptability of substrates.
    q. Temporary facilities and controls.
    r. Space and access limitations.
    s. Regulations of authorities having jurisdiction.
    t. Testing and inspecting requirements.
    u. Installation procedures.
    v. Coordination with other work.
    w. Required performance results.
    x. Protection of adjacent work.
    y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at monthly intervals in conjunction with the review of the month's payment request. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

   a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

      1) Review schedule for next period.

   b. Review present and future needs of each entity present, including the following:

      1) Interface requirements.
      2) Sequence of operations.
      3) Status of submittals.
      4) Deliveries.
      5) Off-site fabrication.
      6) Access.
      7) Site utilization.
      8) Temporary facilities and controls.
      9) Work hours.
      10) Hazards and risks.
      11) Progress cleaning.
      12) Quality and work standards.
      13) Status of correction of deficient items.
      14) Field observations.
      15) RFIs.
      16) Status of proposal requests.
      17) Pending changes.
      18) Status of Change Orders.
      19) Pending claims and disputes.
      20) Documentation of information for payment requests.

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

   a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

1.6 REQUESTS FOR INTERPRETATION (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.

C. Hard-Copy RFIs:

1. Identify each page of attachments with the RFI number and sequential page number.

D. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

a. Requests for approval of submittals.
b. Requests for approval of substitutions.
c. Requests for coordination information already indicated in the Contract Documents.
d. Requests for adjustments in the Contract Time or the Contract Sum.
e. Requests for interpretation of Architect's actions on submittals.
f. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

FORD FIELDS CONCESSION STAND
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SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's Construction Schedule.
2. Submittals Schedule.
3. Daily construction reports.
4. Field condition reports.

B. See Division 01 Section "Payment Procedures" for submitting the Schedule of Values.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

E. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

F. Major Area: A story of construction, a separate building, or a similar significant construction element.

1.3 SUBMITTALS

A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Contractor's Construction Schedule: Submit three opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.

C. Daily Construction Reports: Submit three copies at monthly intervals.

D. Field Condition Reports: Submit three copies at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
4. Startup and Testing Time: Include not less than seven days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

6. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

FORD FIELDS CONCESSION STAND
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SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. See Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule.

C. See Division 01 Section "Quality Requirements" for submitting test and inspection reports.

D. See Division 01 Section "Closeout Procedures" for submitting warranties.

E. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

F. See Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

G. See Division 01 Section "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect's responsive action.

B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.
    e. Name and address of subcontractor.
    f. Name and address of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810 or approved Contractor Transmittal Form.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked approved on Architect's Submittal review form attached at the end of this section.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating approval taken by Architect.

1.4 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Approval by the Architect and Owner.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.

3. Include the following information, as applicable:

    a. Manufacturer's written recommendations.
    b. Manufacturer's product specifications.
    c. Manufacturer's installation instructions.
    d. Manufacturer's catalog cuts.
    e. Wiring diagrams showing factory-installed wiring.
    f. Printed performance curves.
    g. Operational range diagrams.
    h. Compliance with specified referenced standards.
    i. Testing by recognized testing agency.

4. Number of Copies: Submit seven copies of Product Data, unless otherwise indicated. Architect will return five copies. Mark up and retain two returned copies as Project Record Documents.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.
    h. Schedules.
    i. Notation of coordination requirements.
    j. Notation of dimensions established by field measurement.
    k. Relationship to adjoining construction clearly indicated.
    l. Seal and signature of professional engineer if specified.
    m. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
3. Number of Copies: Submit six opaque (bond) copies of each submittal. Architect will return one copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

    1. Number of Copies: Submit seven copies of product schedule or list, unless otherwise indicated. Architect will return five copies.

F. Submittals Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Statement on condition of substrates and their acceptability for installation of product.
2. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

3. Results of operational and other tests and a statement of whether observed performance complies with requirements.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.

1. Architect will not review submittals that include MSDSs and will return them for resubmittal.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. See sample of Architect's Shop Drawing Review Sheet at the end of this section.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

Submittals not required by the Contract Documents may not be reviewed and may be discarded.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

The LaBiche
ARCHITECTURAL GROUP, INC.

Dohn H. LaBiche, FAIA - Principal
Greg Wall, AIA - Principal

7999 Gladys Avenue, Suite 101
Beaumont, Texas 77706
(409) 860-0197 • Fax (409) 860-0198

SHOP DRAWING REVIEW

Project Name: XX

Project Number: XX

Submittal For: **XX**

	No Exception		Exceptions Noted		Rejected
	Revise & Resubmit		Submit Specified Item		

NOTE:
Our checking is only to determine general conformance with the design concept of the project and general compliance with the Contract Documents. The Contractor is solely responsible for confirming and correlating dimensions at the job site; for information which pertains to fabrication processes or construction techniques, and for coordinating the work of all trades. Our checking of shop drawings and submittals shall not relieve the Contractor of responsibility for deviation from the requirements of the Contract Documents nor for errors or emissions in the shop drawings and submittals.

By: Dohn H. LaBiche, FAIA Date:

Remarks:

END OF SECTION 013300

FORD FIELDS CONCESSION STAND
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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. See Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.5 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those

operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

J. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 49.

1.6 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which situations tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.7 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

B. Special Tests and Inspections: Conducted by a qualified testing agency required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists (The)
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers

AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALCA	Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	AWCI International (Association of the Wall and Ceiling Industry International)

AWCMA	American Window Covering Manufacturers Association (Now WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
BICSI	BICSI
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

D. Final Property Survey: Prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

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SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Warranties.
3. Final cleaning.

B. See Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

C. See Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

D. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

E. See Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.

F. See Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Prepare a report.

D. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Emergency manuals.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

B. See Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 SUBMITTALS

A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire, flood, water leak, power failure, water outage, equipment failure and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.

4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions, and demonstration and training videotape if available, that detail essential maintenance procedures:

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

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PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. See Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

C. See Divisions 02 through 49 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit two set(s) of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set of corrected Record Transparencies and two set(s) of marked-up Record Prints. Architect will initial and date each transparency and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return transparencies and prints for organizing into sets, printing, binding, and final submittal.

b. Final Submittal: Submit two set(s) of marked-up Record Prints, and the following:

1) Record Transparencies: One (1) set.
2) Copies printed from Record Transparencies: Two (2). Print each Drawing, whether or not changes and additional information were recorded.
3) Scanned PDF document record set.

B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit two copies of each Product Data submittal.

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PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Substantial Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Owner will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Record Transparencies: Organize into unbound sets matching Record Prints. Place transparencies in durable tube-type drawing containers with end caps. Mark end cap of each container with identification. If container does not include a complete set, identify Drawings included.

3. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 017839

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For steel reinforcement. Material test reports and certificates.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specification for Structural Concrete".

2. ACI 318, "Building Code Requirements for Reinforced Concrete".
3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
4. CRSI, "Manual of Standard Practice".

C. Preinstallation Conference: Conduct conference with Architect and Testing Laboratory representative at Project site.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I.

   a. Fly Ash: ASTM C 618.

B. Normal-Weight Aggregates: ASTM C 33, graded, 1-inch (25-mm) nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Lightweight Aggregate: ASTM C 330, 3/4-inch (19-mm) nominal maximum aggregate size.

D. Water: ASTM C 94/C 94M and potable.

E. Air-Entraining Admixture: ASTM C 260.

F. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

G. Synthetic Fiber: Polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III.

2.4 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 3000 psi (20.7 MPa) at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45.
3. Slump Limit: 5 inches maximum.
4. Air Content: Do not allow air content of troweled finished floors to exceed 3 percent.

2.7 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

C. Cold-Weather Placement: Comply with ACI 306.1.

D. Hot-Weather Placement: Comply with ACI 301.

3.6 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.7 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch (6 mm) in 1 direction.

1. Apply scratch finish to surfaces to receive mortar setting beds for bonded cementitious floor finishes.

C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish.

D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
2. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot- (3.05-m-) long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.

1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.8 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

   a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after

initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.9 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

1. Testing Services: Tests shall be performed according to ACI 301.

2. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

3. Slump: ASTM C 143, one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.

4. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.

5. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 degrees F (4 deg. C) and below; when 80 degrees F (27 deg. C) and above, and one test for each set of compressive-strength specimens.

6. Compression Test Specimen: ASTM C 31, one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.

7. Compressive-Strength Tests: ASTM C 39, one set for each day's pour exceeding 5 cubic yards plus additional sets for 50 cu. yd. more than the first 25 cu. yd. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

B. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.

C. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

D. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test results falls below specified compressive strength by more than 500 psi.

E. Test Results will be reported in writing to Architect, Structural Engineer, ready-mix producer, and Contractor within 24 hours after tests. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for each of the 7-day tests and 28-day tests.

F. Additional Tests: The testing agency will make additional tests of in-place concrete, as directed by Architect, when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed by Architect.

END OF SECTION 033000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Wood blocking, cants, and nailers.
2. Wood furring and grounds.
3. Wood sleepers.
4. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Power-driven fasteners.
5. Powder-actuated fasteners.
6. Expansion anchors.
7. Metal framing anchors.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an

agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Provide dressed lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

C. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat items indicated on Drawings, and the following:
1. Plywood backing panels.

2.3 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: DOC PS 1, Exterior, AC in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

1. Plywood shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

B. Plastic Wall Panel Backing Panels: Interior grade CD in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Power-Driven Fasteners: NES NER-272.

C. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

C. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Do not splice structural members between supports unless otherwise indicated.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-Family Dwellings.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes sufficiently wet that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 066400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes plastic sheet paneling.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For plastic paneling and trim accessories.

1.3 QUALITY ASSURANCE

A. Testing Agency: Acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PLASTIC SHEET PANELING

A. Glass-Fiber-Reinforced Plastic Paneling: Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D 5319.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

a. Crane Composites, Inc.
b. Glasteel.
c. Marlite.
d. Newcourt, Inc.
e. Nudo Products, Inc.
f. Parkland Plastics, Inc.

2. Nominal Thickness: Not less than 0.12 inch.
3. Surface Finish: As selected by Architect from manufacturer's full range.
4. Color: As selected by Architect from manufacturer's full range.

2.2 ACCESSORIES

A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, outside corners, and caps as needed to conceal edges.

1. Color: As selected by Architect from manufacturer's full range.

B. Adhesive: As recommended by plastic paneling manufacturer and with a VOC content of 50g/L or less.

C. Sealant: Mildew-resistant, single-component, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 079200 "Joint Sealants."

1. Sealant shall have a VOC content of 250 g/L or less.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that could impair adhesive bond, including oil, grease, dirt, and dust.

B. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

C. Lay out paneling before installing. Locate panel joints so that trimmed panels at corners are not less than 12 inches (300 mm) wide.

3.2 INSTALLATION

A. Install plastic paneling according to manufacturer's written instructions.

B. Install panels in a full spread of adhesive.

C. Install trim accessories with adhesive. Do not fasten through panels.

D. Fill grooves in trim accessories with sealant before installing panels, and bed inside corner trim in a bead of sealant.

E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.

F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 066400

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Acoustical joint sealants.

1.2 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers four samples of materials that will contact or affect joint sealants. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates. Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

D. Product test reports.

E. Preconstruction compatibility and adhesion test reports.

F. Preconstruction field-adhesion test reports.

G. Field-adhesion test reports.

H. Warranties.

1.4 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Minimum Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

B. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

C. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

2.2 SILICONE JOINT SEALANTS

A. Mildew-Resistant Silicone Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. BASF Building Systems.
   b. Dow Corning Corporation.
   c. GE Advanced Materials - Silicones.
   d. May National Associates, Inc.
   e. Pecora Corporation.
   f. Polymeric Systems, Inc.
   g. Schnee-Morehead, Inc.
   h. Sika Corporation; Construction Products Division.
   i. Tremco Incorporated.

2. Type: Single component (S).
3. Grade: Nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Nontraffic (NT).

2.3 URETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. BASF Building Systems.
   b. Bostik, Inc.
   c. Lymtal, International, Inc.
   d. May National Associates, Inc.
   e. Pacific Polymers International, Inc.
   f. Pecora Corporation.
   g. Polymeric Systems, Inc.
   h. Schnee-Morehead, Inc.
   i. Sika Corporation; Construction Products Division.
   j. Tremco Incorporated.

2. Type: Single component (S) or multicomponent (M).
3. Grade: Pourable (P) or nonsag (NS).
4. Class: 100/50.
5. Uses Related to Exposure: Traffic (T).

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. BASF Building Systems.
    b. Bostik, Inc.
    c. May National Associates, Inc.
    d. Pecora Corporation.
    e. Schnee-Morehead, Inc.
    f. Tremco Incorporated.

2.5 ACOUSTICAL JOINT SEALANTS

A. Acoustical Joint Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Pecora Corporation.
    b. USG Corporation.

2.6 JOINT SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Acoustical Sealant Installation: Comply with ASTM C 919 and with manufacturer's written recommendations.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Tile control and expansion joints.
   c. Joints between different materials listed above.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surface.

1. Joint Locations:
   a. Control and expansion joints in unit masonry.
   b. Joints between metal panels.
   c. Joints between different materials listed above.
   d. Perimeter joints between materials listed above and frames of doors, windows, and louvers.
   e. Control and expansion joints in ceilings and other overhead surfaces.
2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation joints in cast-in-place concrete slabs.

b. Control and expansion joints in tile flooring.

2. Joint Sealant: Urethane.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings.
c. Tile control and expansion joints.
d. Vertical joints on exposed surfaces of interior unit masonry, concrete, walls and partitions.
e. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.

2. Joint Sealant: Latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints.

2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 079200

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Standard hollow metal doors and frames to be supplied by metal building manufacturer.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Samples for Initial Selection: For units with factory-applied color finishes.

D. Samples for Verification: For each type of exposed finish required.

E. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

1.3 QUALITY ASSURANCE

A. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at as close to neutral pressure as possible according to NFPA 252.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Metal Building manufacturer's standard.

2.2 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, CS, Type B; suitable for exposed applications.

B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, CS, Type B.

C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

D. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z (12G) coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

E. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

F. Grout: ASTM C 476, except with a maximum slump of 4 inches (102 mm), as measured according to ASTM C 143/C 143M.

G. Mineral-Fiber Insulation: ASTM C 665, Type I.

H. Glazing: Division 08 Section "Glazing."

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil (0.4-mm) dry film thickness per coat.

2.3 STANDARD HOLLOW METAL DOORS

A. General: Comply with ANSI/SDI A250.8.

1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
   a. Thermal-Rated (Insulated) Doors: R-value of not less than 12.3 deg F x h x sq. ft./Btu (2.166 K x sq. m/W) when tested according to ASTM C 1363.
3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
4. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.
5. Tolerances: SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."

B. Exterior Doors: Face sheets fabricated from metallic-coated steel sheet. Comply with ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:

1. Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush).

   a. Width: 1-3/4 inches (44.5 mm).

   b. Fabricate of metallic-coated sheet.

C. Hardware Reinforcement: ANSI/SDI A250.6.

2.4 STANDARD HOLLOW METAL FRAMES

A. General: Comply with ANSI/SDI A250.8.

B. Exterior Frames: Fabricated from metallic-coated steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.

C. Interior Frames: Fabricated from cold-rolled steel sheet.

1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Fabricate knocked-down, drywall slip-on frames for in-place gypsum board partitions.
4. Frames for Level 1 Steel Doors: 0.042-inch- (1.0-mm-) thick steel sheet.
5. Frames for Level 2 Steel Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
6. Frames for Wood Doors: 0.053-inch- (1.3-mm-) thick steel sheet.
7. Frames for Borrowed Lights: 0.053-inch- (1.3-mm-) thick steel sheet.

D. Hardware Reinforcement: ANSI/SDI A250.6.

2.5 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch (1.0 mm) thick, with corrugated or perforated straps not less than 2 inches (50 mm) wide by 10 inches (250 mm) long; or wire anchors not less than 0.177 inch (4.5 mm) thick.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch (1.0 mm) thick, and as follows:

1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.6 STOPS AND MOLDINGS

A. Moldings for Glazed Lites in Doors: Minimum 0.032 inch (0.8 mm) thick, same material as door face sheet.

B. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated.

C. Loose Stops for Glazed Lites in Frames: Minimum 0.032 inch (0.8 mm) thick, same material as frames.

D. Terminated Stops: Where indicated, terminate stops 6 inches (152 mm) above finish floor with a 45-degree angle cut, and close open end of stop with steel sheet closure. Cover opening in extension of frame with welded-steel filler plate, with welds ground smooth and flush with frame.

2.7 ACCESSORIES

A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.

B. Grout Guards: Formed from same material as frames, not less than 0.016 inch (0.4 mm) thick.

2.8 FABRICATION

A. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.

B. Hollow Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors. Seal joints in top edges of doors against water penetration.
2. Glazed Lites: Factory cut openings in doors.
3. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated.

C. Hollow Metal Frames: Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.

2. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
4. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
5. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
6. Jamb Anchors: Provide number and spacing of anchors as follows:

    a. Stud-Wall Type: Locate anchors not more than 18 inches (457 mm) from top and bottom of frame. Space anchors not more than 32 inches (813 mm) o.c. and as follows:

        1) Three anchors per jamb up to 60 inches (1524 mm) high.
        2) Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.
        3) Five anchors per jamb from 90 to 96 inches (2286 to 2438 mm) high.
        4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches (610 mm) or fraction thereof above 96 inches (2438 mm) high.
        5) Two anchors per head for frames more than 42 inches (1066 mm) wide and mounted in metal-stud partitions.

    b. Compression Type: Not less than two anchors in each jamb.
    c. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

7. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers.

    a. Single-Door Frames: Three door silencers.
    b. Double-Door Frames: Two door silencers.

D. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."

1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 electrical Sections.

E. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints.

1. Single Glazed Lites: Provide fixed stops and moldings welded on secure side of hollow metal work.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
4. Provide loose stops and moldings on inside of hollow metal work.
5. Coordinate rabbet width between fixed and removable stops with type of glazing and type of installation indicated.

2.9 STEEL FINISHES

A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

1. Shop Primer: ANSI/SDI A250.10.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow Metal Frames: Comply with ANSI/SDI A250.11.

1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

   a. At fire-protection-rated openings, install frames according to NFPA 80.
   b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
   c. Install frames with removable glazing stops located on secure side of opening.
   d. Install door silencers in frames before grouting.
   e. Remove temporary braces necessary for installation only after frames have been properly set and secured.
   f. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
   g. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.

   a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. In-Place Concrete: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
4. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch (1.6 mm), measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch (1.6 mm), measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch (1.6 mm), measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch (1.6 mm), measured at jambs at floor.

B. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.

1. Non-Fire-Rated Standard Steel Doors:

    a. Jambs and Head: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    b. Between Edges of Pairs of Doors: 1/8 inch (3 mm) plus or minus 1/16 inch (1.6 mm).
    c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch (9.5 mm).
    d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch (19 mm).

2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

C. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches (230 mm) o.c. and not more than 2 inches (50 mm) o.c. from each corner.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

C. Metallic-Coated Surfaces: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

END OF SECTION 081113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes non-load-bearing steel framing members for the following applications:

1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
2. Interior suspension systems (e.g., supports for ceilings, suspended soffits, etc.).

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. Sound Transmission Characteristics: For STC-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
2. Protective Coating: manufacturer's standard corrosion-resistant zinc coating, unless otherwise indicated.

2.2 SUSPENSION SYSTEM COMPONENTS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

   a. Type: Post installed, chemical anchor or Post installed, expansion anchor.

2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch (4.12-mm) diameter.

D. Flat Hangers: Steel sheet, 1 by 3/16 inch (25.4 by 4.76 mm) by length indicated.

E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch (1.37 mm) and minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38 mm).

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges, 3/4 inch (19.1 mm) deep.
2. Steel Studs: ASTM C 645.

   a. Minimum Base-Metal Thickness: 0.0312 inch (0.79 mm).
   b. Depth: 1-5/8 inches (41.3 mm).

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.

   a. Minimum Base Metal Thickness: 0.0312 inch (0.79 mm).

4. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep members designed to reduce sound transmission.

   a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
2. Products: Subject to compliance with requirements, provide one of the following:

   a. Armstrong World Industries, Inc.; Drywall Grid Systems.
   b. Chicago Metallic Corporation; Drywall Furring System.

c. USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

A. Steel Studs and Runners: ASTM C 645.

1. Minimum Base-Metal Thickness: As indicated on Drawings.

B. Slip-Type Head Joints: Where indicated, provide one of the following:

1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches (305 mm) of the top of studs to provide lateral bracing.
2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- (50.8-mm-) deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.

a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
b. Products: Subject to compliance with requirements, provide one of the following:

1) Steel Network Inc. (The); VertiClip SLD Series.
2) Superior Metal Trim; Superior Flex Track System (SFT).

C. Firestop Track: As specified in Division 07 Section "Fire-Resistive Joint Systems."

D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.027 inch (0.7 mm).

E. Cold-Rolled Channel Bridging: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: 1-1/2 inches (38.1 mm).
2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches (38.1 by 38.1 mm), 0.068-inch- (1.73-mm-) thick, galvanized steel.

F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.

1. Minimum Base Metal Thickness: As indicated on Drawings.
2. Depth: 1-1/2 inches (38.1 mm).

G. Resilient Furring Channels: 1/2-inch- (12.7-mm-) deep, steel sheet members designed to reduce sound transmission.

1. Configuration: Asymmetrical or hat shaped.

H. Cold-Rolled Furring Channels: 0.0538-inch (1.37-mm) bare-steel thickness, with minimum 1/2-inch- (12.7-mm-) wide flanges.

1. Depth: As indicated on Drawings.
2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch (0.79 mm).
3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- (1.59-mm-) diameter wire, or double strand of 0.0475-inch- (1.21-mm-) diameter wire.

I. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches (31.8 mm), wall attachment flange of 7/8 inch (22.2 mm), minimum bare-metal thickness of 0.0179 inch (0.45 mm), and depth required to fit insulation thickness indicated.

2.4 AUXILIARY MATERIALS

A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch (3.2 mm) thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.
1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

3.2 INSTALLING SUSPENSION SYSTEMS

A. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

B. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Do not attach hangers to steel roof deck.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

C. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

D. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet (3 mm in 3.6 m) measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb, unless otherwise indicated.

b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch (12.7-mm) clearance from jamb stud to allow for installation of control joint in finished assembly.
c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

C. Direct Furring:

1. Screw to wood framing.
2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (610 mm) o.c.

D. Z-Furring Members:

1. Erect insulation (specified in Division 07 Section "Thermal Insulation") vertically and hold in place with Z-furring members spaced 24 inches (610 mm) o.c.
2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches (600 mm) o.c.
3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches (300 mm) from corner and cut insulation to fit.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

END OF SECTION 092216

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes acoustical panels and exposed suspension systems for ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Drawn to scale and coordinating acoustical panel ceiling installation with hanger attachment to building structure and ceiling mounted items:

C. Samples: For each exposed finish.

D. Product test reports.

E. Research/evaluation reports.

F. Maintenance data.

1.3 QUALITY ASSURANCE

A. Acoustical Testing Agency Qualifications: An independent testing laboratory or an NVLAP-accredited laboratory.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANEL CEILINGS, GENERAL

A. Acoustical Panel Standard: Comply with ASTM E 1264.

B. Metal Suspension System Standard: Comply with ASTM C 635.

C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

1. Anchors in Concrete: Expansion or Bonded anchors fabricated from corrosion-resistant materials, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or

ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

D. Wire Hangers, Braces, and Ties: Zinc-coated carbon-steel wire; ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

1. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.

E. Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

2.2 ACOUSTICAL PANELS FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; "Clean Room VL", unperforated square lay-in.

B. Classification: Provide panels complying with ASTM E 1264 for type and form as follows:

1. Type and Form: Type IV, Form 2, Pattern E, Fire Class A. Wet-formed mineral fiber, vinyl-faced membrane.

C. Color: White.

D. NRC: Not less than 0.50- 0.60, Type E-400 mounting per ASTM E 795.

E. Edge/Joint Detail: Square.

F. Thickness: 5/8 inch (15 mm).

G. Modular Size: 24 by 24 inches (610 by 610 mm).

2.3 METAL SUSPENSION SYSTEM FOR ACOUSTICAL PANEL CEILING

A. Products: Subject to compliance with requirements, provide the following:

1. Armstrong World Industries, Inc.; Prelude Plus XL, AL7200 Series, Non-rated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with ASTM C 636 and seismic design requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders.

C. Suspend ceiling hangers from building's structural members, plumb and free from contact with insulation or other objects within ceiling plenum. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counters playing, or other equally effective means. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with location of hangers, use trapezes or equivalent devices. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.

1. Do not support ceilings directly from permanent metal forms or floor deck; anchor into concrete slabs.
2. Do not attach hangers to steel deck tabs.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels. Screw attach moldings to substrate at intervals not more than 16 inches (400 mm) o.c. and not more than 3 inches (75 mm) from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet (3.2 mm in 3.6 m). Miter corners accurately and connect securely.

E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

END OF SECTION 095113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches (300 mm) long.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE

A. Roppe Corporation.

B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Style and Location:
   a. Style C, Butt to: Provide in areas indicated.

C. Thickness: 0.125 inch (3.2 mm).

D. Height: 6 inches.

E. Lengths: Cut lengths 48 inches (1219 mm) long or coils in manufacturer's standard length.

F. Outside Corners: Job formed or preformed.

G. Inside Corners: Job formed or preformed.

H. Colors: As selected by Architect from full range of industry colors.

2.2 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:

    a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) in 24 hours.
    b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install resilient products until they are the same temperature as the space where they are to be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Form without producing discoloration (whitening) at bends.

2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches (76 mm) in length.

    a. Miter or cope corners to minimize open joints.

3.3 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on exterior substrates.

1. Concrete.
2. Clay masonry.
3. Concrete masonry units (CMU).
4. Steel.
5. Galvanized metal.
6. Aluminum (not anodized or otherwise coated)

1.2 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples: For each type of paint system and each color and gloss of topcoat.

C. Product List: For each product indicated. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles for the paint category indicated.

B. Acceptable Manufacturers:
1. ICI
2. Pittsburgh Paint
3. Sherwin Williams

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

B. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As indicated in Finish Schedule.

2.3 BLOCK FILLERS

A. Block Filler, Latex, Interior/Exterior:

1. SW: Loxon Block Surfacer.

2.4 PRIMERS/SEALERS

A. Primer, Alkali Resistant, Water Based:[MPI #3.]

1. Sherwin Williams, Loxon Exterior Concrete and Masonry Primer, #A24W8300.

2.5 METAL PRIMERS

A. Primer, Alkyd, Anti-Corrosive for all Metal: [MPI #79]

1. Sherwin Williams, Water Based Rust Inhibited Primer, Pro Industrial Pro-Cryl Universal Metal Primer.

2.6 WOOD PRIMERS

A. Primer, Latex for Exterior Plywood:

1. Sherwin Williams, Exterior Latex Wood Primer, B42W8041

B. Primer, Oil for Exterior Wood:[MPI #7]
1. ICI: #2110-1200.
2. Pittburgh: Speedhide exterior oil based primer.
3. SW: A-100 Exterior oil wood primer, Y24W8020.

2.7 WATER-BASED PAINTS

A. Latex, Exterior Flat (Gloss Level 1):[MPI #10.]

1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

B. Latex, Exterior Semi-Gloss (Gloss Level 5):[MPI #11]
1. ICI:#2416
2. Pittsburgh: Speedhide exterior semi-gloss latex, 6-900 Series.
3. SW: A-100 Exterior latex.

C. Light Industrial Coating, Exterior, Water Based, Semi-Gloss (Gloss Level 5):[MPI #163.]

1. Sherwin Williams, DTM Acrylic

2.8 SOLVENT-BASED PAINTS

A. Alkyd, Exterior Gloss (Gloss Level 6) for metal handrails, doors and bollards:[MPI #9.]

1. Sherwin Williams, Pro Industrial Urethane Alkyd, #B54W151.

2.9 ALUMINUM PAINT

A. Aluminum Paint, 100% Acrylic D.T.M.: [MPI#1]
1. ICI: Devflex 4208 Series.
2. Pittsburgh: 90-Line Finish.
3. SW: Bondplex Waterbased Acrylic Aluminum, B71S200.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Portland Cement Plaster: 12 percent.
5. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

e. Intermediate Coat: Alkyd, interior, matching topcoat.
f. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
g. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
h. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
i. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

7. Quick-Drying Enamel System:

a. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
b. Intermediate Coat: Alkyd, quick dry, matching topcoat.
c. Topcoat: Alkyd, quick dry, semi-gloss (Gloss Level 5)[, MPI #81].
d. Topcoat: Alkyd, quick dry, gloss (Gloss Level 7)[, MPI #96].

8. Alkyd Dry-Fall System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Topcoat: Dry fall, alkyd, flat[, MPI #55].

9. Aluminum Paint System:

a. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79].
b. Prime Coat: Primer, alkyd, quick dry, for metal[, MPI #76].
c. Prime Coat: Primer, alkyd, anti-corrosive, for metal[, MPI #79] or primer, alkyd, quick dry, for metal[, MPI #76].
d. Prime Coat: Shop primer specified in Section where substrate is specified.
e. Intermediate Coat: Aluminum paint[, MPI #1].
f. Topcoat: Aluminum paint[, MPI #1].

F. Galvanized-Metal Substrates:

1. Latex over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Water-Based Dry-Fall System:

a. Prime Coat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

b. Topcoat: Dry fall, water based, for galvanized steel, flat (Gloss Level 1)[, MPI #133].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Water-Based Light Industrial Coating Over Waterborne Primer System:

a. Prime Coat: Primer, galvanized, water based[, MPI #134].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

6. Aluminum Paint System:

a. Prime Coat: Primer, galvanized metal, as recommended in writing by topcoat manufacturer for use on galvanized-metal substrates with topcoat indicated.
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

G. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].

e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Prime Coat: Primer, quick dry, for aluminum[, MPI #95].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

6. Aluminum Paint System:

a. Prime Coat: Primer, vinyl wash[, MPI #80].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

H. Wood Substrates: Including wood trim, architectural woodwork, doors, windows, wood-based panel products, glued-laminated construction, exposed joists and exposed beams.

1. Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].

b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

4. High-Performance Architectural Latex System:

a. Prime Coat: Primer, latex, for interior wood[, MPI #39].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[. MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

I. Wood Substrates, Traffic Surfaces:

1. Latex Floor Paint System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].
c. Topcoat: Floor paint, latex, low gloss (maximum Gloss Level 3)[, MPI #60].

2. Alkyd Floor Enamel System:

a. Prime Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
b. Intermediate Coat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].
c. Topcoat: Floor enamel, alkyd, gloss (Gloss Level 6)[, MPI #27].

J. Fiberglass and Plastic Substrates:

1. Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, matching topcoat.
    d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
    e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
    f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
    g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
    h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
    i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
    d. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
    e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
    f. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
    g. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
    d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].
    e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
    f. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
    g. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

    a. Prime Coat: Primer, bonding, water based[, MPI #17].
    b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
    c. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    d. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].

e. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
f. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd System:

a. Prime Coat: Primer, bonding, water based[, MPI #17].
b. Prime Coat: Primer, bonding, solvent based[, MPI #69].
c. Intermediate Coat: Alkyd, interior, matching topcoat.
d. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
e. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
f. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
g. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

K. Gypsum Board & Plaster Substrates:

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Prime Coat: Latex, interior, matching topcoat.
c. Intermediate Coat: Latex, interior, matching topcoat.
d. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
e. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
f. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
g. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
h. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
i. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, interior, institutional low odor/VOC[, MPI #149].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. High-Performance Architectural Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, high performance architectural, matching topcoat.
c. Topcoat: Latex, interior, high performance architectural, (Gloss Level 2)[, MPI #138].

d. Topcoat: Latex, interior, high performance architectural, (Gloss Level 3)[, MPI #139].
e. Topcoat: Latex, interior, high performance architectural, (Gloss Level 4)[, MPI #140].
f. Topcoat: Latex, interior, high performance architectural, semi-gloss (Gloss Level 5)[, MPI #141].

4. Water-Based Light Industrial Coating System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
c. Topcoat: Light industrial coating, interior, water based (Gloss Level 3)[, MPI #151].
d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5)[, MPI #153].
e. Topcoat: Light industrial coating, interior, water based, gloss (Gloss Level 6)[, MPI #154].

5. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

L. Spray-Textured Ceiling Substrates:

1. Latex (Flat) System: Spray applied.

a. Prime Coat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

2. Latex System: Spray applied.

a. Prime Coat: Latex, interior, matching topcoat.
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

3. Latex over Alkyd Primer System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].

c. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
d. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
e. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
f. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
g. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

4. Alkyd (Flat) System:

a. Prime Coat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
b. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].

5. Alkyd System:

a. Prime Coat: Primer sealer, alkyd, interior[, MPI #45].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

M. Cotton or Canvas and ASJ Insulation-Covering Substrates: Including pipe and duct coverings.

1. Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, matching topcoat.
c. Topcoat: Latex, interior, flat, (Gloss Level 1)[, MPI #53].
d. Topcoat: Latex, interior, (Gloss Level 2)[, MPI #44].
e. Topcoat: Latex, interior, (Gloss Level 3)[, MPI #52].
f. Topcoat: Latex, interior, (Gloss Level 4)[, MPI #43].
g. Topcoat: Latex, interior, semi-gloss, (Gloss Level 5)[, MPI #54].
h. Topcoat: Latex, interior, gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees)[, MPI #114].

2. Institutional Low-Odor/VOC Latex System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
c. Topcoat: Latex, interior, institutional low odor/VOC, flat (Gloss Level 1)[, MPI #143].
d. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 2)[, MPI #144].
e. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3)[, MPI #145].
f. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5)[, MPI #147].

3. Alkyd over Latex Primer System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Alkyd, interior, matching topcoat.
c. Topcoat: Alkyd, interior, flat (Gloss Level 1)[, MPI #49].
d. Topcoat: Alkyd, interior, (Gloss Level 3)[, MPI #51].
e. Topcoat: Alkyd, interior, semi-gloss (Gloss Level 5)[, MPI #47].
f. Topcoat: Alkyd, interior, gloss (Gloss Level 6)[, MPI #48].

4. Aluminum Paint System:

a. Prime Coat: Primer sealer, latex, interior[, MPI #50].
b. Intermediate Coat: Aluminum paint[, MPI #1].
c. Topcoat: Aluminum paint[, MPI #1].

END OF SECTION 099123

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Operation and maintenance data.

C. Warranty: Sample of special warranty.

1.3 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

C. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

   a. Failure of hydrostatic test according to NFPA 10.
   b. Faulty operation of valves or release levers.

2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
h. Larsen's Manufacturing Company.
i. Moon-American.
j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
k. Potter Roemer LLC.
l. Pyro-Chem; Tyco Safety Products.

2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type : UL-rated 2-A:10:B:C 10-lb. nominal capacity, with monoammonium phosphate-based dry chemical in manufacturer's standard enameled container.

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Amerex Corporation.
b. Ansul Incorporated; Tyco International Ltd.
c. Badger Fire Protection; a Kidde company.
d. Buckeye Fire Equipment Company.
e. Fire End & Croker Corporation.
f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
g. Larsen's Manufacturing Company.
h. Potter Roemer LLC.

FORD FIELDS CONCESSION STAND
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PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

1. Mounting Brackets: In cabinets.

C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 104416

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 133419 - METAL BUILDING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural-steel framing.
2. Metal roof panels.
3. Metal wall panels.
4. Thermal insulation.
5. Doors and frames.
6. Accessories.

1.2 SUBMITTALS

A. Product Data: For each type of metal building system component.

B. Shop Drawings: For metal building system components. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For metal building systems indicated to comply with performance requirements and design criteria, including analysis data and calculations signed and sealed by the qualified professional engineer responsible for their preparation.

E. Welding certificates.

F. Metal Building System Certificates: For each type of metal building system, from manufacturer.

1. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

a. Name and location of Project.
b. Order number.
c. Name of manufacturer.
d. Name of Contractor.
e. Building dimensions including width, length, height, and roof slope.
f. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
g. Governing building code and year of edition.
h. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category

or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).

i. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.

j. Building-Use Category: Indicate category of building use and its effect on load importance factors.

k. AISC Certification for Category MB: Include statement that metal building system and components were designed and produced in an AISC-Certified Facility by an AISC-Certified Manufacturer.

G. Material test reports.

H. Source quality-control reports.

I. Field quality-control reports.

J. Maintenance data.

K. Warranties: Sample of special warranties.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

1. AISC Certification for Category MB: An AISC-Certified Manufacturer that designs and produces metal building systems and components in an AISC-Certified Facility.
2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

C. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."

D. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings," for design requirements and allowable stresses.

E. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.

1.4 WARRANTY

A. Special Warranty on Metal Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

B. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:

B. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:

1. A&S Building Systems, Inc.; Division of NCI Building Systems, L.P.
2. Alliance Steel, Inc.
3. American Buildings Company; Division of Magnatrax Corp.
4. American Steel Building Co., Inc.
5. BC Steel Buildings, Inc.
6. Behlen Mfg. Co.
7. Bigbee Steel Buildings, Inc.
8. Butler Manufacturing Company; a BlueScope Steel company.
9. CBC Steel Buildings; Division of Magnatrax Corp.
10. Ceco Building Systems; Division of NCI Building Systems, L.P.
11. Chief Buildings; Division of Chief Industries, Inc.
12. Elite Structures, Inc.
13. Garco Building Systems; Division of NCI Building Systems, L.P.
14. Gulf States Manufacturers, Inc.; Division of Magnatrax Corp.
15. Inland Buildings; Subsidiary of Behlen Mfg. Co.
16. Kirby Building Systems; Division of Magnatrax Corp.
17. Mesco Building Solutions; Division of NCI Building Systems, L.P.
18. Metallic Building Company; Division of NCI Building Systems, L.P.
19. Metco Metal Supply.
20. Mid-West Steel Building Company; Division of NCI Building Systems, L.P.
21. Mueller, Inc.
22. Nucor Building Systems.

23. Oakland Metal Buildings, Inc.
24. Olympia Steel Building Systems.
25. Package Industries, Inc.
26. Pinnacle Structures, Inc.
27. Robertson Building Systems; an NCI company.
28. Ruffin Building Systems, Inc.
29. Schulte Building Systems, LLP.
30. Spirco Manufacturing.
31. Star Building Systems; an NCI company.
32. Tyler Building Systems, L.P.
33. USA, Inc.
34. VP Buildings; a United Dominion company.
35. Vulcan Steel Structures, Inc.
36. Whirlwind Building Systems.

2.2 METAL BUILDING SYSTEM PERFORMANCE

A. Delegated Design: Design metal building system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Structural Performance: Metal building systems shall be designed according to procedures in MBMA's "Metal Building Systems Manual."

1. Design Loads: As indicated on Drawings.
2. Design Loads: As required by [MBMA's "Metal Building Systems Manual."] [ASCE/SEI 7.] <Insert applicable code requirement.>
3. Deflection Limits: Design metal building system assemblies to withstand design loads with deflections no greater than the following:

    a. Purlins and Rafters: Vertical deflection of 1/240 of the span.
    b. Girts: Horizontal deflection of 1/240 of the span.
    c. Metal Roof Panels: Vertical deflection of 1/240 of the span.
    d. Metal Wall Panels: Horizontal deflection of 1/240 of the span.
    e. Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.

4. Drift Limits: Engineer building structure to withstand design loads with drift limits no greater than the following:

    a. Lateral Drift: Maximum of 1/400 of the building height.

5. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under conditions indicated according to ASTM E 1592.

C. Thermal Movements: Allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of

connections, and other detrimental effects. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Air Infiltration for Metal Roof Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of roof area when tested according to ASTM E 1680 at negative test-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

E. Air Infiltration for Metal Wall Panels: Air leakage through assembly of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) of wall area when tested according to ASTM E 283 at static-air-pressure difference of [1.57 lbf/sq. ft. (75 Pa).

F. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E 1646 at test-pressure difference of 2.86 lbf/sq. ft. (137 Pa).

G. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E 331 at a wind-load design pressure of not less than 2.86 lbf/sq. ft. (137 Pa).

H. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for Class 90.

2.3 STRUCTURAL-STEEL FRAMING

A. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Primary framing includes transverse and lean-to frames; rafter, rake, and canopy beams; sidewall, intermediate, end-wall, and corner columns; and wind bracing.

1. General: Provide frames with attachment plates, bearing plates, and splice members. Factory drill for field-bolted assembly.
2. Frame Configuration: One-directional sloped.
3. Exterior Column Type: Uniform depth.
4. Rafter Type: Tapered.

B. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly.

C. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate framing from either cold-formed, structural-steel sheet or roll-formed, metallic-coated steel sheet, prepainted with coil coating.

D. Bolts: Provide plain-finish bolts for structural-framing components that are primed or finish painted. Provide zinc-plated or hot-dip galvanized bolts for structural-framing components that are galvanized.

E. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating.

2.4 METAL ROOF PANELS

A. Tapered-Rib-Profile, Lap-Seam Metal Roof Panels: Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

    a. Exterior Finish: Galalume.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches.

2.5 METAL WALL PANELS

A. Tapered-Rib-Profile, Exposed-Fastener Metal Wall Panels, Panel Type "A": Formed with raised, trapezoidal major ribs and intermediate stiffening ribs symmetrically spaced between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

    a. Exterior Finish: Kynar 500.
    b. Color: As selected by Architect from manufacturer's full range.

2. Major-Rib Spacing: 12 inches o.c.
3. Panel Coverage: 36 inches.
4. Panel Height: 1.25 inches (32 mm).

B. Corrigated Profile, Exposed-Fastener Metal Wall Panels Panel Type "B": Designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

1. Material: Zinc-coated (galvanized) steel sheet, 26 gauge nominal thickness.

    a. Exterior Finish: Kynar 500.
    b. Color: As selected by Architect from manufacturer's full range.

2. Corrugated Spacing: 2 ¾" o.c.
3. Panel Coverage: 29 ½".
4. Panel Height: 7/8".

2.6 THERMAL INSULATION

A. Faced Metal Building Insulation: ASTM C 991, Type II, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.

2.7 DOORS AND FRAMES

A. Swinging Personnel Doors and Frames: Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.

1. Hardware:

a. Provide hardware for each door leaf, as follows:

1) Hinges: BHMA A156.1. Three antifriction-bearing, standard-weight, full-mortise, stainless-steel or bronze, template-type hinges; 4-1/2 by 4-1/2 inches (114 by 114 mm), with nonremovable pin.
2) Lockset: BHMA A156.2. Heavy-duty Key-in-lever cylindrical type. Cylinders shall match owners existing keyway.
3) Exit Device: BHMA A156.3. Touch- or push-bar type.
4) Threshold: BHMA A156.21. Extruded aluminum. ADA compliant.
5) Silencers: Pneumatic rubber; three silencers on strike jambs of single door frames and two silencers on heads of double door frames.
6) Closer: BHMA A156.4. Surface-applied, standard-duty hydraulic type.
7) Weather Stripping: Vinyl applied to head and jambs, with vinyl sweep at sill.
8) Double Doors: Provide head and sill bolts on enactive leaf. Provide heavy-duty floor mounted stops/hold open devices on both leafs of exterior doors.

B. Finishes for Personnel Doors and Frames:

1. Prime Finish: Factory-apply manufacturer's standard primer immediately after cleaning and pretreating.

C. Overhead Coiling type Door: Mueller W300 Windlock Roll Up Door (RUD) are approved equal.

1. Quantity: Three (3).

2. Size: 4'-6" height x 12'-0" width.

3. Operation: Manual.

4. Security: Manual locking mechanism.

2.8 ACCESSORIES

A. General: Provide accessories as standard with metal building system manufacturer and as specified. Fabricate and finish accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes. Comply with indicated profiles and with dimensional and structural requirements.

1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.

B. Roof Panel Accessories: Provide components required for a complete metal roof panel assembly including copings, fasciae, corner units, ridge closures, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.

C. Wall Panel Accessories: Provide components required for a complete metal wall panel assembly including copings, fasciae, mullions, sills, corner units, clips, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal wall panels unless otherwise indicated.

D. Flashing and Trim: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match adjacent metal panels.

E. Gutters: Formed from 0.022-inch (0.56-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."

1. Gutter Supports: Fabricated from same material and finish as gutters.
2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.

F. Downspouts: Formed from 0.022-inch (0.56-mm) nominal-thickness, zinc-coated (galvanized) steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal wall panels. Fabricate in minimum 10-foot- (3-m-) long sections, complete with formed elbows and offsets.

1. Mounting Straps: Fabricated from same material and finish as gutters.

G. Roof Curbs: Fabricated from minimum 0.052-inch (1.32-mm) nominal-thickness, metallic-coated steel sheet or aluminum-zinc alloy-coated steel sheet prepainted with coil coating; finished to match metal roof panels; capable of withstanding loads of size and height indicated.

H. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.

2.9 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

1. Mark each piece and part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.
2. Fabricate structural framing to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Members shall be free of cracks, tears, and ruptures.

B. Tolerances: Comply with MBMA's "Metal Building Systems Manual" for fabrication and erection tolerances.

C. Primary Framing: Shop fabricate framing components to size and section, with baseplates, bearing plates, stiffeners, and other items required for erection welded into place. Cut, form, punch, drill, and weld framing for bolted field assembly.

D. Secondary Framing: Shop fabricate framing components to size and section by roll-forming or break-forming, with baseplates, bearing plates, stiffeners, and other plates required for erection welded into place. Cut, form, punch, drill, and weld secondary framing for bolted field connections to primary framing.

E. Metal Panels: Fabricate and finish metal panels at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.

PART 3 - EXECUTION

3.1 ERECTION OF STRUCTURAL FRAMING

A. Erect metal building system according to manufacturer's written erection instructions and erection drawings.

B. Do not field cut, drill, or alter structural members without written approval from metal building system manufacturer's professional engineer.

C. Set structural framing accurately in locations and to elevations indicated, according to AISC specifications referenced in this Section. Maintain structural stability of frame during erection.

D. Base and Bearing Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.

2. Tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
3. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

E. Align and adjust structural framing before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with framing. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

1. Level and plumb individual members of structure.
2. Make allowances for difference between temperature at time of erection and mean temperature when structure will be completed and in service.

F. Primary Framing and End Walls: Erect framing level, plumb, rigid, secure, and true to line. Level baseplates to a true even plane with full bearing to supporting structures, set with double-nutted anchor bolts. Use grout to obtain uniform bearing and to maintain a level base-line elevation. Moist-cure grout for not less than seven days after placement.

1. Make field connections using high-strength bolts installed according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for bolt type and joint type specified.

    a. Joint Type: Snug tightened or pretensioned.

G. Secondary Framing: Erect framing level, plumb, rigid, secure, and true to line. Field bolt secondary framing to clips attached to primary framing.

1. Provide rake or gable purlins with tight-fitting closure channels and fasciae.
2. Locate and space wall girts to suit openings such as doors and windows.
3. Locate canopy framing as indicated.
4. Provide supplemental framing at entire perimeter of openings, including doors, windows, louvers, ventilators, and other penetrations of roof and walls.

H. Steel Joists: Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction according to SJI's "Standard Specifications and Load Tables for Steel Joists and Joist Girders," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.
4. Bolt joists to supporting steel framework using carbon-steel bolts unless high-strength structural bolts are required by the manufacturer.

5. Comply with RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for high-strength structural bolt installation and tightening requirements.
6. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

I. Bracing: Install bracing in roof and sidewalls where indicated on erection drawings.

1. Tighten rod and cable bracing to avoid sag.
2. Locate interior end-bay bracing only where indicated.

J. Framing for Openings: Provide shapes of proper design and size to reinforce openings and to carry loads and vibrations imposed, including equipment furnished under mechanical and electrical work. Securely attach to structural framing.

K. Erection Tolerances: Maintain erection tolerances of structural framing within AISC 303.

3.2 METAL PANEL INSTALLATION, GENERAL

A. General: Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.

   a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

2. Install metal panels perpendicular to structural supports unless otherwise indicated.
3. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Locate metal panel splices over, but not attached to, structural supports with end laps in alignment.
6. Lap metal flashing over metal panels to allow moisture to run over and off the material.

B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.

1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

D. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants recommended by metal panel manufacturer.

1. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.3 METAL ROOF PANEL INSTALLATION

A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.

1. Install ridge[and hip] caps as metal roof panel work proceeds.
2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.

B. Lap-Seam Metal Roof Panels: Fasten metal roof panels to supports with exposed fasteners at each lapped joint, at location and spacing recommended by manufacturer.

1. Provide metal-backed sealing washers under heads of exposed fasteners bearing on weather side of metal roof panels.
2. Provide sealant tape at lapped joints of metal roof panels and between panels and protruding equipment, vents, and accessories.
3. Apply a continuous ribbon of sealant tape to weather-side surface of fastenings on end laps and on side laps of nesting-type metal panels, on side laps of ribbed or fluted metal panels, and elsewhere as needed to make metal panels weatherproof to driving rains.
4. At metal panel splices, nest panels with minimum 6-inch (152-mm) end lap, sealed with butyl-rubber sealant and fastened together by interlocking clamping plates.

C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.

3.4 METAL WALL PANEL INSTALLATION

A. General: Install metal wall panels in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to girts, extending full height of building, unless otherwise indicated. Anchor metal wall panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
2. Shim or otherwise plumb substrates receiving metal wall panels.
3. When two rows of metal panels are required, lap panels 4 inches (102 mm) minimum.
4. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
5. Rigidly fasten base end of metal wall panels and allow eave end free movement due to thermal expansion and contraction. Predrill panels.
6. Flash and seal metal wall panels with weather closures at eaves, rakes, and at perimeter of all openings. Fasten with self-tapping screws.
7. Install screw fasteners in predrilled holes.
8. Install flashing and trim as metal wall panel work proceeds.
9. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated; or, if not indicated, as necessary for waterproofing.
10. Align bottom of metal wall panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws.
11. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.

B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.

3.5 THERMAL INSULATION INSTALLATION

A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, according to manufacturer's written instructions.

1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.
2. Tape joints and ruptures in vapor retarder, and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.
3. Install factory-laminated, vapor-retarder-faced blankets straight and true in one-piece lengths, with both sets of facing tabs sealed, to provide a complete vapor retarder.

B. Blanket Roof Insulation: Comply with the following installation method:

1. Over-Framing Installation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal roof panels fastened to secondary framing.
2. Between-Purlin Installation: Extend insulation and vapor retarder between purlins. Carry vapor-retarder-facing tabs up and over purlin, overlapping adjoining facing of next insulation course and maintaining continuity of retarder. Hold in place with bands and crossbands below insulation.

C. Blanket Wall Insulation: Extend insulation and vapor retarder over and perpendicular to top flange of secondary framing. Hold in place by metal wall panels fastened to secondary framing.

1. Retainer Strips: Install retainer strips at each longitudinal insulation joint, straight and taut, nesting with secondary framing to hold insulation in place.

3.6 DOOR AND FRAME INSTALLATION

A. General: Install doors and frames plumb, rigid, properly aligned, and securely fastened in place according to manufacturers' written instructions. Coordinate installation with wall flashings and other components. Seal perimeter of each door frame with elastomeric sealant used for metal wall panels.

B. Personnel Doors and Frames: Install doors and frames according to SDI A250.8.

C. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing."

D. Door Hardware: Mount units at heights indicated in DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

1. Install surface-mounted items after finishes have been completed on substrates involved.
2. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
3. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
4. Set thresholds for exterior doors in full bed of butyl-rubber sealant complying with requirements specified in Division 07 Section "Joint Sealants."

3.7 ACCESSORY INSTALLATION

A. General: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal roof panel assembly, including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
2. Install components for a complete metal wall panel assembly, including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
3. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide

concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without excessive oil-canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

C. Gutters: Join sections with riveted-and-soldered or lapped-and-sealed joints. Attach gutters to eave with gutter hangers spaced as required for gutter size, but not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

D. Downspouts: Join sections with 1-1/2-inch (38-mm) telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1524 mm) o.c. in between.

1. Provide elbows at base of downspouts to direct water away from building.
2. Tie downspouts to underground drainage system indicated.

E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.

F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to panel as recommended by manufacturer.

3.8 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform special inspections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Tests and Inspections:

1. High-Strength, Field-Bolted Connections: Connections shall be[tested and] inspected during installation according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

2. Welded Connections: In addition to visual inspection, field-welded connections shall be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at inspector's option:

    a. Liquid Penetrant Inspection: ASTM E 165.
    b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
    c. Ultrasonic Inspection: ASTM E 164.
    d. Radiographic Inspection: ASTM E 94.

D. Product will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

END OF SECTION 133419

CERTIFICATION OF RESPONSIBILITY FOR

DOCUMENT PREPARATION

FORD PARK-FORD FIELDS CONCESSION STAND
RCE Project No.: 150021

MECHANICAL SPECIFICATIONS

THE FOLLOWING SPECIFICATION SECTIONS INCLUDED IN THIS PROJECT MANUAL WERE PREPARED BY OR UNDER THE RESPONSIBLE SUPERVISION OF THE COMPANY LISTED BELOW:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	NATURAL GAS PIPING/DISTRIBUTION

Ervin L. Ritter 1/22/2016

Ervin L. Ritter, P.E.
Ritter Consulting Engineers Ltd.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 00 - GENERAL PROVISIONS FOR PLUMBING

PART 1 - GENERAL

1.1 DIVISION OF SPECIFICATIONS

A. For Bidder's convenience only, this Division of the Specifications is divided into the following parts:

22 05 00	GENERAL PROVISIONS FOR PLUMBING
22 05 03	BASIC MATERIALS AND METHODS FOR PLUMBING
22 05 93	SYSTEM TESTING AND BALANCING FOR PLUMBING
22 07 00	PLUMBING INSULATION
22 10 00	PLUMBING
22 11 00	WATER SUPPLY
22 13 00	WASTE WATER DISPOSAL
22 16 00	GAS DISTRIBUTION

1.2 GENERAL CONDITIONS

A. The General Conditions of the Architectural Specifications along with supplementary conditions, special conditions, information to bidders, and any other pertinent information and documents shall apply the same as if repeated herein. The contractor shall review Architectural General Conditions. Where the requirements of Architectural General Conditions and these specs conflict for the contractor, the most stringent shall be applied.

B. Plumbing subcontractor shall be the sole source responsible party to furnish and install the plumbing system. Plumbing contractor shall be properly licensed to perform this work.

C. Wherever the word contractor is mentioned in Division 22 of these specifications, it is intended to mean the Plumbing Contractor as appropriate. These are sub contractors to the General Contractor who has the contract with the owner. It is the General contractor who bears the responsibility to fulfill this part of the project (Division 22 – Plumbing) under the contract with the owner. The General Contractor shall be responsible for all costs associated with any and all bidding errors and omissions of the sub-contractor.

1.3 SCOPE OF WORK

A. Furnish labor, materials and equipment necessary to provide and install the complete plumbing portion of this contract, as called for herein and on accompanying drawings. Parts of the plumbing division may be bid separately or in combination at the contractor's option; however, it shall be the responsibility of the General Contractor to assure himself that all items covered in the Plumbing Division have been included if he chooses to accept separate bids.

B. Contractor shall refer to the Architectural, Structural, Mechanical and Electrical drawings and install all equipment, piping, etc., to meet building and space requirements. **No equipment shall be bid on or submitted for approval if it will not fit in space provided or coordinated with other trades involved on the project**.

C. It is the intention of these Specifications that all plumbing systems shall be furnished complete with all necessary valves, controls, insulation, piping, devices, equipment, etc., necessary to provide a satisfactory installation in working order and in accordance with all Federal, State, and local codes and ordinances.

D. Contractor shall visit the site and acquaint himself thoroughly with all existing facilities and conditions which would affect his portion of the work. Failure to do so shall not relieve the contractor from the responsibility of installing his work to meet conditions.

E. Lack of coordination shall not be acceptable and shall not be a reason for poorly installed work or additional cost to this trade or others on the project. All associated extra cost shall be borne by the contractor. The General Contractor shall be responsible for all costs, time, and liquidated damages associated with lack of coordination or poor coordination.

1.4 LOCAL CONDITIONS

A. Location and elevation of all services is based on information obtained from the Owner. However, this shall serve as a general guide only and the contractor shall visit the site and verify the location and elevation of this service to his own satisfaction in order to determine the amount of work required for the execution of the contract.

B. Contractor shall contact the various utility companies, determine the extent of their requirements and cooperate with the utility company in reaching a finished product. Contractor shall pay charges by Utility Company for extensions, connections, meter fees, street patching, etc.

C. In case major changes are required, this fact, together with the reasons therefore, shall be submitted to the Architect, in writing, not less than 7 days before the date of bidding. Failure to comply with this requirement will make the contractor liable for any changes, additions and expenses necessary for the successful completion of the project.

1.5 CUTTING AND PATCHING

A. Initial cutting and patching shall be the responsibility of the General Contractor with the Plumbing Contractor responsible for laying out and marking any and all holes required for the reception of his work. No structural beams or joists shall be cut or thimbled without first receiving the approval of the Architect. After initial surfacing has been done, any further cutting, patching and painting shall be done at this contractor's expense.

B. Cutting and patching shall be done in such a manner that the surrounding work will be restored to its original condition.

C. The plumbing piping shall be run at proper slopes and without conflicts with other trades. It may be necessary to penetrate beams, grade beams, footings, and foundations. Install thimbles as required and as approved by the Structural Engineer and Architect.

1.6 CODES AND STANDARDS

A. The entire plumbing work shall comply with the rules and regulations of the City, Parish and State in which this project is being constructed including the State Fire Marshal and State Board of Health. All modifications required by these authorities shall be made without additional charge to the Owners. The Mechanical Contractor shall report these changes to the Architect and secure his approval before work is started.

B. In addition to the codes mentioned, all plumbing work and equipment shall conform to the applicable portions of the following Specifications, codes and regulations:

1. National Electric Code
2. National Fire Protection Association
3. American Society of Mechanical Engineers
4. Underwriters's Laboratories
5. American Gas Association
6. Energy Code for Commercial and High Rise Residential Buildings
7. International Energy Conservation Code
8. International Building Code
9. International Plumbing Code

C. Materials, equipment and accessories installed under this contract shall conform to all rules, codes, etc., as recommended by National Associations governing the manufacturer, rating and testing of such materials, equipment and accessories. Materials shall be new and of the best quality and first class in every respect. Whenever directed by the Architect, contractor shall submit a sample for approval before proceeding.

D. Where laws or local regulations provide that certain accessories such as gauges, thermometers, relief valves and parts be installed on equipment, it shall be understood that such equipment be furnished complete with the necessary accessories whether or not called for in these Specifications.

E. Unfired pressure vessels shall be built in accordance with the ASME Code and so stamped. Furnish shop certificates for each vessel.

F. Material and equipment furnished or installed as part of these construction documents shall be installed and operated in strict accordance with the respective manufacturer's guidelines for installation and operating instructions. The manufacturer's guidelines shall become part of the construction documents.

1.7 MINOR DEVIATIONS

A. Plans and detail sketches are submitted to limit, explain and define conditions, specified requirements, pipe sizes and manner of erecting work. Structural or other conditions may require certain modifications from the manner of installation shown and such deviations are permissible and shall be made as required, but, specified sizes and requirements necessary for satisfactory operation shall remain unchanged. It may be necessary to shift pipes or to change the shape of and these changes shall be made as required. All such changes shall be referred to the Architect/Engineer for approval before proceeding. Extra charges shall not be allowed for these changes.

B. No structural beams or joists (concrete or steel) shall be cut or thimbled without first receiving the approval of the Architect/Structural Engineer. After initial surfacing has been done, any further cutting, patching and painting shall be done at the Plumbing Contractor's own expense.

C. Contractor shall realize that the drawings could delve into every step, sequence or operation necessary for the completion of the project without drawing on the contractor's experience or ingenuity. However, only typical details are shown on the plans. In cases where the contractor is not certain about the method of installation of his work, he shall ask for details. Lack of details shall not be an excuse for improper installation. Submit installation shop drawings with manufacturer's details for review prior to installation.

D. In general, the drawings are diagrammatic and the contractor shall install his work in a manner so that interferences between the various trades are avoided. In cases where interferences do occur, the Architect/Engineer is to state which equipment, piping, etc., is to be relocated regardless of which item was first installed.

1.8 WORKMANSHIP

A. Workmanship shall be of highest grade, highest quality and all construction shall be done according to the best practice of the trade. Work shall be completed to satisfaction of the Architect/Engineer.

1.9 COORDINATION

A. Coordinate work of the different trades to avoid interferences between plumbing and all other work. All piping, ductwork, etc., shall be installed in lines as required to accomplish this end whether or not shown on the plans.

B. There will be a certain amount of work which must be coordinated with the Owner. This contractor shall coordinate required work with the Owner through the General Contractor using procedures acceptable to the Architect and Owner. The contractor shall maintain documentation of coordinated work.

C. This contractor shall coordinate and confirm that all equipment requiring electric service will be adequately and properly serviced by Electrical Contractor. Any conflicts shall be brought to the attention of the Architect/Engineer prior to ordering the equipment.

D. This contractor shall coordinate the space clearances required for the sprinkler system with the structure, ceilings, lights, ductwork, etc. In some cases, due to space limitations, it may be necessary to reroute piping to meet the conditions of the project. Any rerouting required shall be part of this project and done without any additional cost to the Owner. **DO NOT MAKE PIPING WITHOUT COORDINATION. Avoid conflicts with other trades.**

E. This contractor shall coordinate the installation of sewer lines with all parts of the structural foundation system and structural building systems. Provide sleeves through graded beams or concrete beams at all conflicts. All points of penetration of foundation shall be reviewed by the Architect/Engineer prior to rough-in. All sleeves shall be installed per the instructions and details of structural engineer.

F. All piping shall be run as high as possible with sleeves through concrete beams to avoid conflicts. This means the piping shall run in or through the structure unless approved otherwise by the Architect/Engineer.

1.10 REVIEW OF MATERIALS

A. Whenever manufacturers or trade names are mentioned in these plans or Specifications, the words "or approved equivalent" shall be assumed to follow whether or not so stated. Manufacturers or trade names are used to establish a standard of quality only and should not be construed to infer a preference. Equivalent products which meet the Architect's approval will be accepted; however, these requests for acceptance of products must be received by the Architect a minimum of 10 days prior to bid date. Submission shall include manufacturer's name, model number, rating table and construction features. Upon receipt and checking of this submittal, the Architect will issue an addendum listing items which are approved as equivalent to those specified. The contractor shall base his bid solely on those items specified or included in the "Prior Approval Addendum" as no other item will be acceptable. Prior approval of a particular piece of equipment does not mean automatic final acceptance and will not relieve the contractor of the responsibility of assuring himself that this equipment is in complete accord with plans and Specifications and will fit into the space provided. Submit shop drawings on all items of equipment for approval as hereinafter specified.

B. Should a substitution or variation occur, the better quality or greater quantity of material or work shall be furnished. This also does not preclude other manufacturers if they meet the following criteria:

1. Product proposed for substitution shall be equal or superior to that specified in construction, efficiency, utility and function.
2. Physical size of substitute brand shall not be greater than space provided for it.
3. Profile of substitution shall be same concerning size, shape, indentations, recesses, etc.

4. Complete illustrations, specifications and description of substitution shall be submitted for approval.
5. Availability and proximity of manufacturer's service representative shall be factors considered in substitution approval.
6. Substitution and/or variations shall be reviewed and allowed when there is no change in cost to the project and shall be made at the discretion of the Engineer.

1.11 SHOP DRAWINGS

A. The General Contractor shall submit all submittals within 30 days of the date of the contract between owner and contractor or the date of notice to proceed as issued by the Owner to the General Contractor. The submittals shall have been submitted to the General Contractor within 30 days after the construction contract has been signed. The General Contractor and his sub-contractors shall bear all responsibility for any extra costs or delays to late submittals of shop drawings.

B. Drawings shall be presented in a clear and thorough manner.

C. Details shall be identified by reference to sheet detail, schedule or room numbers shown on contract and drawings.

D. Drawings shall contain the following information:

1. Date.
2. Number of the drawing or revision.
3. Name of project or facility.
4. Name of contractor and subcontractor.
5. Clear identification of contents and location of work.

E. Preparation:

1. Clearly mark each copy to identify pertinent products or models.
2. Show performance characteristics and capacities.
3. Show dimensions and clearances required.
4. Show wiring or piping diagrams and controls.
5. Show weights and mounting data.
6. Provide letter documentation confirming that all coordination with other trades effected have been done. This is especially necessary with the electrical requirements and rough-in requirements.

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

I. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

J. All submittals shall be submitted prepaid and in ample time for review before installation.

K. Six (6) copies of each submittal shall be submitted to the Architect.

L. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted.**

M. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

N. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

O. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 UTILITIES

A. Connect all utilities at the points indicated on the drawings and extend such utilities to the building and to equipment or facilities requiring same.

B. Contractor shall pay all service andconnection charges required by utility companies and/or site conditions (offsets, conflict boxes, etc.).

C. Contractor shall include all costs required by utility companies to extend utilities to the site. It is the responsibility of the contractor to obtain these fees from the utility companies and include those costs in the bid.

1.13 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done per the Federal, State or Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.14 EXCAVATION AND BACK FILL

A. Trench and excavation work shall include excavating, preparing of trenches, and backfilling as specified. Contractor shall install caution tape 12 inches above all piping, conduit, etc., as backfilling processes.

B. Trench and excavation work shall not include pavement breaking, cutting of holes through foundation walls and floors, removal of obstructions, relaying and/or repairing of floors, and repaving, which work shall be the responsibility of the General Contractor.

C. Contractor shall do all necessary trenching, excavation and backfilling for the proper installation of his work. Care shall be taken not to excavate below depth required, that trench beds are well rounded and that ground under pipe line is firm and secure before any pipe is laid. Trenches shall be excavated where bells of pipe occur in order to insure a pipe resting on the entire length of the bottom of the trench.

D. Unless otherwise noted, minimum cover over underground lines shall be 2-1/2 feet, except under streets and parking lots where minimum cover shall be 3 feet.

E. The width of the trench shall be sufficient to permit thorough compaction of the backfill under and around the pipe but not exceeding the external diameter of the pipe by more than 12 inches. Excavation for pipes shall be by hand and/or machine and as specified herein and shall confirm to the lines and elevations indicated on the plans.

F. The pipe shall be placed on a uniformly firm and compacted bed of sand, carefully shaped to support the pipe at the desired grade and so that any reaction will be distributed as nearly uniform as possible over a horizontal width of not less than six-tenths (6/10) of the outside diameter and all possibility of concentration of the reaction at or near the vertical diameter eliminated. The bed shall be shaped as to fit the lower part of the pipe exterior for at least 10 percent of its overall height.

G. The pipe shall be placed on a firm foundation. Any muck or other objectionable material found during excavation and preparation of the bed shall be removed and replaced with suitable bed material directed by the Architect.

H. All trenches and excavation shall be backfilled in a reasonable time after the pipes are installed unless otherwise directed by the Architect. Special care shall be taken in placing the backfill and extra care shall be used to obtain compaction under and along sides to the top of the pipe.

I. The backfill shall be placed in loose layers not exceeding 6 inches in depth under and around the pipe and not exceeding 8 inches over the pipe. Each layer shall be compacted to the compaction requirements as specified by the Architect.

J. Compaction shall be by hand and pneumatic tampers and the successive layers shall be added and compacted until the trench is completely filled and brought to elevation as directed. Back-filling shall be done in such a manner as to avoid injurious top or side pressures on the pipe.

K. Improper backfilling and compacting shall be cause to have the trench opened to expose the pipe for inspection then properly backfilled and compacted with fill material.

L. Where trenching is for piping, the bottom of the trench shall have minimum 95 percent compaction and shall be bedded with a minimum 12 inches compacted sand, crushed stone or shell on undisturbed soil (minimum 95 percent compaction).

1.15 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.16 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.17 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.18 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.19 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.20 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guideline. (Chlorination, chemical treatment, etc.)

1.21 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.22 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major plumbing equipment (water heaters, pumps, starters, mixing valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to

Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.23 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction.

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes.

1.24 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, etc., and leave entire installation in good working order.

1.25 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of his contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color samples). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.26 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.27 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.28 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all plumbing systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.29 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques.

B. Contractor shall use factory start-up personnel to train the Owner's maintenance personnel.

1.30 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspections.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.31 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.32 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
   c. Contractor, name of responsible principal, address and telephone number.
   d. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
   e. Provide owner with contact information for warranties which extend beyond one year.

1.33 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.34 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.35 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 22 05 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 22 05 03 - BASIC MATERIALS AND METHODS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 SANITARY SEWER WASTE AND VENT LINES

A. All sanitary sewer waste and vent lines above and below building slab shall be constructed of service weight bell and spigot cast iron pipe and fittings. Where space requirements do not allow the use of the above materials, government type DWV copper pipe shall be used. All cast iron pipes shall comply with Commercial Standards CS 188-59 coated with tar inside and out and marked with manufacturer's identification and proper weight classification. Joints shall be made with neoprene gaskets.

B. At contractor's option, all sanitary sewer waste and vent lines **excluding grease waste piping** may be Schedule 40 PVC plastic lines and fittings with solvent weld joints (solid core allowed only; foam or cell core not acceptable). Grease waste piping shall remain cast iron.

C. Sanitary sewer lines exterior of building (5 feet from building) **excluding grease waste piping** shall be constructed of ABS or PVC Schedule 40 type "DWV" plastic pipe and fittings (solid core allowed only; foam or cell core not acceptable). Do not mix PVC and ABS materials. Grease waste piping shall remain cast iron.

D. At contractor's option, sanitary sewer vent lines above grade may be constructed of "no hub" service weight cast iron pipe with neoprene/stainless steel clamp couplings.

2.2 DOMESTIC WATER PIPE/WATER HEATER RELIEF PIPE/EQUIPMENT DRAIN PIPE/TRAP PRIMER

A. All domestic cold water lines/hot water lines within building, water heater relief lines and equipment drain piping shall be government type "L" hard copper water tube of standard weight and thickness, unless indicated otherwise. Use 95-5 "lead free" solder on all piping above slab. Use Silfos 1000 degrees Fahrenheit solder on all piping beneath slabs. "Press-Fit" or "Pro-Press" piping is not acceptable.

B. Site water piping (beyond 5 feet of building footprint) shall be Schedule 40 PVC pipe and fittings solvent weld joints (solid core allowed only; foam or cell core not acceptable).

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for domestic water lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe unless other material is approved by the Structural Engineer. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers for cast iron pipes shall be 5 feet; for other than soil, use 10 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported piping or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures.

B. Valves and unions shall be as follows:

COPPER PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 1320	115	Crane 461	M-2882
Globe Valve	Crane 1310	1590T	Crane 359	F-2981
Unions	Crane 633		Crane Std. Gal.	
Check Valve	Crane 1303	1509	Crane 373	2974M

IRON PIPE	2" AND LESS	MV	OVER 2"	MV
Gate Valve	Crane 440	148	Crane 461	F2882-M
Globe Valve	Crane 7	590	Crane 359	F
Unions	Crane 633			
Check Valve	Crane 1303	1509	Crane 373	2974M

C. The following valves are considered equal to Crane Company:

CRANE	POWELL	NIBCO	HAMMOND	STOCKHAM	MV
7	150	T-235-Y	1B413T	B-22	590T
359	301	F-718-Y	1R126	G514	F2981
373	559	F918B	1R1124	G931	M2974
440	500	T113	1B640	B114	148
461	1787	F619	1R1138	G612	M-2882
1303	1825	S413(BWY)	1B943	B309	1509
1310	1823	S211(YW)	424	B14	1502
1320	1822	S113	1B647	B112	115

D. All valves, unions, etc., where pipe is chrome plated shall have similar finish. All exposed supplies to plumbing fixtures shall be chrome plated.

E. Ball valves shall be as manufactured by Milwaukee Valve (MV), Watts, Stockham, Powell, NIBCO, Neles-Jamesbury or Hammond.

	2" and Smaller	2-1/2 to 4"	Over 4"
Watts	Series B-6800	Series G-4000	Series G-4000
Neles-Jamesbury	Series 4000	Full Port Series	Full Port Series
Milwaukee Valve	BA-300	F-20CS	F-20CS

F. All valves over 2 inches shall be flanged type and full port type. All valves 2 inches and smaller shall be screw type, sweat type or flanged type as appropriate for type of pipe.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Plumbing Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Plumbing Contractor. The Electrical Contractor shall do all power wiring required for the installation of all equipment including equipment interlocking power wiring, etc. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Plumbing Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

D. Plumbing contractor shall provide and install transformers and low voltage wiring (below 120-1-60) from transformer to equipment. Electrical contractor shall provide and install power wiring to transformers.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in wals, ceilings, floors or otherwise inaccessible. Panels shall be Milcor Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall or ceiling where located.

B. Access panels located in rated walls, floors, ceilings, shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

PART 3 - EXECUTION

3.1 SANITARY SEWER PIPE

A. Pipe ends shall be square cut. Ends of pipes shall be reamed and shall be wiped clean to remove cuttings. Before installation, pipe shall be stood on end and tapped sharply to remove cuttings and other foreign materials from interior. Pipe shall be thoroughly cleaned inside and outside. Bending or springing of pipe shall not be permitted.

B. Various service pipes, valves, fittings, etc., running parallel with each other and near together shall be in line with each other and shall be kept at a sufficient distance from

each other and other work to permit no less than 1/2 inch between finished coverings on different services.

C. Each contractor shall furnish all foundations, structural or pipe supports indicated, called for specifically or that may be required to support his particular equipment and material unless hangers are definitely indicated as being furnished by others. Sewer waste and vent lines shall be supported every 4 feet.

D. Perforated strap hangers shall not be allowed for any part of the hangers.

E. Drainage and vent pipes: Horizontal soil and waste pipes 3 inches and smaller shall have a grade of 1/4 inch per foot and line 4 inches and larger shall have a grade of 1/8 inch per foot unless otherwise specified. The main vertical soil and waste vent shall be extended full size through the wall. Cast-iron pipe inside the building shall be extended 6 inches above the floor.

F. Fittings: Changes in pipe size on soil, waste, and drain lines shall be made with reducing fittings of recessed reducers. All changes in direction shall be made by the appropriate use of 45 degree wyes, long or short sweep 1/4 bends, 1/6, 1/8, or 1/16 bends, or by a combination of those or equivalent fitting, except that single and double sanitary tees may be used in drainage lines only where the direction of flow is from horizontal to vertical. Short sweeps not less than 3 inches in diameter may be used where the change in direction of flow is either from horizontal to vertical or from vertical to horizontal.

G. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.

4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

H. Make connections to equipment and branch mains with unions.

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Install each fixture with trap, easily removable for servicing and cleaning. Each trap shall be placed as near the fixture as possible, and no fixture shall be double trapped. At completion thoroughly clean plumbing fixtures and equipment.

K. Fixture connections: Connections between earthenware fixtures and flanges on soil pipes shall be made absolutely gas tight and water tight with a closet-setting compound or gasket. Bolts shall be not less than 1/4 inch in diameter and shall be equipped with chromium-plated nuts and washers.

L. Test sanitary drainage, condensate drains and vent systems with water or air in accordance with requirements of the State Sanitary Code, International Plumbing Code and all applicable local codes. Water test may be applied to entire drainage systems or sections of systems. All openings shall be tightly closed in section to be tested except at highest opening. All portions of systems shall be subject to a minimum of 10 feet head of water. Water must have been in the system two hours prior to inspection. Air test in accordance with the Plumbing Code may be used at contractor's option.

M. Sanitary sewer or storm drain pipe penetrating concrete slabs shall be wrapped with foam insulation tape.

3.2 DOMESTIC WATER PIPE

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.
   a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
   b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.
2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.

5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide non-conducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Domestic cold water lines penetrating concrete slabs shall be wrapped with vinyl flexible tube. Domestic hot or return water piping penetrating concrete slabs shall be insulated at all penetrations through slab (refer to insulation specifications).

I. Provide drain valves at main shutoff valves, low points of piping and apparatus.

J. Hydrostatically test entire domestic water system to 200 psig or 2-1/2 times normal working pressure.

K. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

L. Sealing or flashing the building envelope due to penetrations in building shall be the responsibility of the general contractor.

M. Water service to fixtures or groups of fixtures shall have 12 inch long air chambers at the same diameter as header or service pipe on both hot and cold water lines. Air chamber shall be installed close to fixture. Provide and install shock arrestors on sterilizer water supplies or supplies with quick closing valves such as flush valves, dishwashers, tempering valves, etc. Location and size of shock arrestor shall be as per manufacturer's instructions.

END OF SECTION 22 05 03

FORD FIELDS CONCESSION STAND
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SECTION 22 05 93 - SYSTEM TESTING AND BALANCING FOR PLUMBING

PART 1 - GENERAL

1.1 SCOPE

A. Includes But Not Limited To -

1. Witnessing of all plumbing system testing required of Plumbing Subcontractor.
2. Test and Balance agency shall be present for factory start-up of equipment when factory start-up is required.

B. Related Work Specified Elsewhere -

1. The plumbing subcontractor shall address all issues as recommended by Air Balance and Testing Agency at no additional cost to Owner.

1.2 QUALITY ASSURANCE

A. Testing Agency -

1. **General Contractor shall procure services of an independent AABC or NEBB Air Balance and Testing Agency which specializes in balancing and testing of heating, ventilating, and cooling systems. These services shall not be provided by the installing Plumbing Contractor on the project but shall be direct subcontractor of the general contractor. This shall be the same contractor providing Air Balance and Testing services as indicated in Division 23.**
2. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Technician employed by Agency.
3. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
4. If requested, conduct tests in presence of Engineer.
5. Agency shall be approved in writing by Engineer. Plumbing Contractor shall not be permitted to do this work. Submit qualifications for review.

B. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of balancing test report.**

1.3 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

PART 2 - EXECUTION

2.1 Begin balance and testing upon completion of plumbing systems including installation of all specialties and devices.

A. General Contractor shall put systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance Manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

2.2 STANDARDS

A. Perform testing and balancing in complete accordance with the Associated Air Balance Council Standards for Field Measurement and Instructions, Form P1266, Volume I. Record test data on AABC standard forms or facsimile thereof.

2.3 TESTING PROCEDURE

A. Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when piping installation begins.**

B. The following minimum information shall be included in the finished report:

1. Plumbing:
The Test and Balance Contractor shall observe witness and record all plumbing tests required by these specs. The Plumbing Contractor shall contact the Test and Balance Contractor when testing is done. FAILURE TO DO SO WILL REQUIRE TESTING OF THE ENTIRE SYSTEM.

END OF SECTION 22 05 93

FORD FIELDS CONCESSION STAND
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SECTION 22 07 00 – PLUMBING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 DOMESTIC WATER PIPING

A. Cover cold water lines above ceilings and in exterior walls with 1 inch thick and all hot water lines with 1-1/2 inch thick closed cell rubber type insulation. At contractor's option, fiberglass insulation with white universal jacket may be used. All flanges, valves and fittings shall be insulated with closed cell rubber type molded fittings insulation, fabricated mitered segments of pipe insulation or closed cell rubber type insulation equivalent in thickness to insulation of adjoining pipe.

B. All water lines exposed in mechanical rooms shall be covered with 0.020 color coded PVC jacket with solvent welded seams and joints.

C. All water lines outside of building exposed to the weather shall have 1 inch thick closed cell rubber type insulation covered with 0.016 smooth aluminum jacket and elbows.

D. All water lines below building slab shall be insulated with 1 inch thick closed cell insulation with two (2) coats of mastic.

2.2 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, shall be insulated with 2 inch thick, 3/4 pound density fiberglass insulation with aluminum foil vapor barrier or closed cell rubber insulation.

2.3 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.4 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 22 07 00

FORD FIELDS CONCESSION STAND
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SECTION 22 10 00 - PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Furnish all labor and materials as hereinbefore specified, indicated or reasonably implied for the complete installation of the following systems:

1. Cold Water
2. Hot Water System
3. Sanitary Drainage System

PART 2 - MATERIALS

2.1 FLOOR DRAINS

A. All floor drains shall be constructed of cast iron and shall be complete with clamping devices as required.

B. Floor drains (Marked "FD"): shall be bottom outlet with duracoated cast iron body with clamping collar and 6 inch diameter nickel bronze strainer adjustable vertically to floor level, with square perforations and vandal proof screws. Refer to fixture schedule for specific types.

2.2 CLEANOUTS

A. Cleanouts shall be provided where shown on plans, at each change of direction of the building drain greater than 45 degrees and at or near the foot of each vertical waste or soil stack. Location of all cleanouts shall be same size as piping up to 4 inches. Larger pipes shall have 4 inch cleanouts unless noted otherwise. Every cleanout shall be installed so that the cleanout opens in the direction of flow of the drainage line or at right angles thereto. Floor cleanouts shall be adjustable type, double drainage flange, clamping collar (above ground installations), 2 pound lead flashing, nickel bronze cover. Top of cleanout shall be level with top of finished floor so there is a continuous surface. Floor cleanouts shall be Jay R. Smith, Josam or Wade. Wall cleanouts shall be nickel bronze access frame and cover Zurn, Jay R. Smith, Josam or Wade. Outside cleanouts shall be installed with cover, set flush with finished grade, or as detailed on plans.

2.3 FLASHING

A. Flash around all pipes passing through roof in connection with this contract with sheet lead, not less than 2-1/2 pound to the square foot, built 6 inches into the waterproofing, running 10 inches up the pipe and turned over into the pipe cavity. Flashing around roof

drains shall be not less than 2-1/2 pound lead extending at least 12 inches from the drain rim into membrane waterproofing. Fasten flashing to drain clamp device making watertight durable joint.

2.4 EQUIPMENT FURNISHED BY OWNER AND/OR BY OTHER TRADES

A. This equipment and other miscellaneous equipment shall be furnished and set in place under other sections of these Specifications and/or by the Owner, unless specified otherwise.

B. Plumbing Contractor shall provide necessary rough-in required for the equipment and shall completely connect all plumbing services for this equipment providing cut-off valves and unions for each plumbing supply service to each piece of equipment. It is the obligation of the Plumbing Contractor to obtain correct rough-in dimension plans for this equipment as well as the equipment furnished under this contractor.

C. The various Equipment Contractors shall provide access holes for service lines that enter his equipment. This work to be performed on the job site, as necessary. Plumbing Contractor shall furnish and install escutcheons, locknut type, at these locations.

2.5 PLUMBING FIXTURES

A. Plumbing Contractor shall furnish and install all plumbing fixtures shown on accompanying drawings. Refer to both plumbing and architectural drawings and provide all fixtures shown on either. Fixtures shall be complete with all necessary brass and accessories required for a complete installation including traps, escutcheons, angle supplies, basin cocks, etc. All fixtures shall be new and must be delivered to the building properly crated in perfect condition.

B. All brass must be of the best quality, lightweight goods will not be accepted. All brass pipe shall be seamless brass tubing and nipples shall be extra heavy. All fittings and trim shall be chromium plated heavy brass unless otherwise specified. "P" traps shall be cast brass with cleanouts. All exposed piping shall be chromium plated. Provide cutoff valves at each fixture in both hot and cold water piping.

C. For the purpose of establishing type and class of fixtures required, the scheduled plate numbers have been taken from the indicated catalog. Approved equals shall be as follows: Fixtures: Kohler, Briggs, American Standard, Crane, Eljer, Elkay, Dayton, Just or Universal Rundle. Flush Valves: Sloan, Zurn. Faucets: Elkay, Just, Chicago, Kohler, American Standard, Delta Commercial, Zurn, Speakman. Water Heaters: A.O. Smith, Ruud/Rheem, State, Bradford White. Drains: Wade, J.R. Smith, Zurn, Josam. Hose Bibbs: Josam, Woodford, J.R. Smith, Wade, Zurn.

D. All vitreous china plumbing fixtures shall be manufactured in the United States, Canada or Mexico.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Inspection:

1. Prior to all work of this section, carefully inspect the installed work of adjacent trades and verify that all such work is complete to the point where fixture installation may properly commence.
2. Verify that all hangers and fixture supports are properly installed to receive plumbing fixtures.

3.2 PLUMBING FIXTURE

A. Each plumbing fixture shall be fitted with all necessary and proper fittings, trimmings and operating devices, and shall be in perfect operating condition.

B. Refer to architectural drawings for any other information that may be necessary or required in connection with plumbing installation.

C. Before setting any fixtures, obtain the exact mounting height, as desired, from the Architect.

D. Wall mounted water closets, urinals, and lavatories shall have a floor anchored carrier to fit in available wall space (coordinate requirements in drawings).

END OF SECTION 22 10 00

FORD FIELDS CONCESSION STAND
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SECTION 22 11 00 - WATER SUPPLY

PART 1 - GENERAL

1.1 DESCRIPTION

A. Install water supply piping as indicated on plans.

PART 2 - MATERIALS

2.1 PIPING

A. All water supply piping shall be of materials hereinbefore specified.

B. All water lines shall be disinfected in accordance with the State Sanitary Code.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Water lines run underground shall have a minimum of 24 inches cover to finished grade.

B. Make up complete water supply system. Connect to all fixtures and outlets requiring water.

C. At each fixture or group of fixtures furnish and install a 12 inch high air chamber of same size as branch feed line except at fixtures with quick closing valves such as flush valves, dishwashers, etc., in which cases provide "Shock Arrester" properly sized for each unit.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 11 00

FORD FIELDS CONCESSION STAND
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SECTION 22 13 00 - WASTE WATER DISPOSAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Extend sanitary sewer lines to the location as shown on the plans.

PART 2 - MATERIALS

2.1 PIPING

A. The system of sewage and drainage shall be of materials as hereinbefore specified except where space requirements necessitate the use of Type "DWV" copper.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All work shall be in strict conformity with the International Plumbing Code and in accordance with all local codes. Piping shall be routed as shown on plans or in acceptable manner to meet building conditions. Venting shall be as shown on plumbing riser diagrams.

B. Connections between traps and cast iron pipes are to be made with heavy brass ferrules.

C. Provide reducers, increasers, special flanges, and fittings where required between piping work and fixtures in order to connect and complete work and render it ready for use. Make any offsets required to avoid construction.

D. All lines 3 inches and smaller shall be sloped 1/4 inch per foot, lines 4 inches shall be sloped 1/8 inch per foot, lines 6 inches shall be sloped 1/16 inch per foot and all lines 8 inches and larger shall be sloped 0.4 percent. Piping shall be laid so slope is continuous.

E. All vents shall extend 10 inches above roof and terminate in an appropriate flashing collar. No vents shall penetrate roof within 48 inches of an exterior wall. Offset in ceiling as required. All back vents shall be taken off as near trap as possible.

3.2 TESTING

A. All lines shall be tested in accordance with requirements listed in construction documents and International Plumbing Code.

END OF SECTION 22 13 00

FORD FIELDS CONCESSION STAND
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SECTION 22 16 00 – NATURAL GAS PIPING/DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Fuel gas systems, including piping, equipment and all necessary accessories as designated in this section. Fuel gas piping to equipment shall be routed as shown on plans.

1.2 RELATED WORK

A. FIRESTOPPING: Penetrations in rated enclosures.

B. PAINTING: Preparation and finish painting and identification of piping systems.

C. COMMON WORK RESULTS FOR PLUMBING.

D. GENERAL DUTY VALVES FOR PLUMBING PIPING

1.3 SUBMITTALS

A. Submit SHOP DRAWINGS, PRODUCT DATA, and SAMPLES.

B. Manufacturer's Literature and Data:

1. Pipe & Fittings.
2. Valves.
3. Strainers.
4. All items listed in Part 2 - Products.

C. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane.

1.4 APPLICABLE PUBLICATIONS

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only. Use the edition listed or most recent edition adopted by Local, State or Federal agencies having jurisdiction.

B. Federal Specifications (Fed. Spec.):
A-A-59617 ..... Unions, Brass or Bronze Threaded, Pipe Connections and Solder-Joint Tube Connections

C. American National Standards Institute (ANSI):
American Society of Mechanical Engineers (ASME): (Copyrighted Society)

A13.1-(2007)	Scheme for Identification of Piping Systems
B16.3-(2006)	Malleable Iron Threaded Fittings: Classes 150 and 300 ANSI/ASME
B16.9-2007	Factory-Made Wrought Steel Buttwelding Fittings ANSI/ASME
B16.11-2009	Forged Steel Fittings, Socket-Welding and Threaded ANSI/ASME
B16.15-2006	Cast Copper Alloy Threaded Fittings: Classes 125 and 250 ANSI/ASME
B31.8-2010	Gas Transmission and Distribution Piping Systems ANSI/ASME

D. American Society for Testing and Materials (ASTM):

A47-99(2009)	Standard Specification for Ferritic Malleable Iron Castings
A53-10	Standard Specification for Pipe, Steel, Black And Hot-Dipped, Zinc- coated Welded and Seamless
A183-09	Standard Specification for Carbon Steel Track Bolts and Nuts
A536-09	Standard Specification for Ductile Iron Castings
A733-03(2009)e1	Standard Specification for Welded and Seamless Carbon Steel and Austenitic Stainless Steel Pipe Nipples
B687-99(2005)e1	Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples

E. National Fire Protection Association (NFPA):

54-2009	National Fuel Gas Code

F. International Code Council

IPC 2009	International Plumbing Code
IFGC 2009	International Fuel Gas Code

G. International Association of Plumbing and Mechanical Officials (IAPMO):
Uniform Plumbing Code – 2009

IS6-06	Installation Standard

H. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):

SP-72-2010	Ball Valves with Flanged or Butt-Welding For General Service
SP-110-2010	Ball Valve Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends

F. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the work.
2. Supplement standard information to provide information specifically applicable to the work.

G. Office samples shall be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of the product, with integral related parts and attachment devices.
2. Full range of color, texture and pattern.

H. **HVAC ductwork shop drawings shall be prepared showing all conditions of installation coordinated with structure, lights, sprinklers, ceiling, etc. These shop drawings shall be prepared within 45 days of the award of the general contract for the project. Drawings shall be done at minimum 1/8 inch scale on 24 inch x 36 inch sheets.**

I. Equipment shop drawing shall be prepared by the contractor/supplier. These shop drawing shall include the manufacturer's performance data and installation manuals. In addition, the shop drawings shall show the installation specific to this project.

J. Assemble certificates, executed by each of the respective manufacturers, suppliers, and subcontractors.

K. All submittals shall be submitted prepaid and in ample time for review before installation.

L. Six (6) copies of each submittal shall be submitted to the Architect.

M. These shop drawings shall be supplied as part of this contractor's contract. Any drawings not approved shall be resubmitted until approved. **Submit all shop drawings at the same time. No separate items will be accepted (except in the case of the HVAC ductwork shop drawings).**

N. Time necessary for review of samples, certificates, test reports, and shop drawings is at least 30 calendar days after receipt of the item. All materials installed in the work shall match the reviewed submittals. After a submission has been reviewed, no substitutions will be permitted without written approval by the Architect.

O. The Architect's/Engineer's review of shop drawings shall not relieve the contractor from the responsibility of incorrectly figured dimensions or any other errors that may be contained in these drawings. The omission from the shop drawings or specifications, even though approved by the Architect, shall not relieve the contractor from furnishing and erecting same.

P. Any delays caused by contractor not submitting shop drawings within a timely manner shall be the problem of the responsible subcontractor and the General Contractor.

1.12 REPAIRING ROADWAYS AND WALKS

A. Where this contractor cuts or breaks roadways or walks to lay the piping, he shall repair or replace these sections to meet the Architect's approval. Repair of public roadways and highways shall be done as per the Federal, State of Local agencies having jurisdiction. Contractor shall obtain and pay for all permits.

1.13 MATERIALS

A. Work materials shall be new and the best of their respective kinds, and shall bear the label of NFPA, ASME Code, AGA, and UL where such standard has been established for the particular item of equipment used.

1.14 MATERIAL STORAGE

A. General: Provide space for storage of material and equipment at ground level. Roof surfaces shall not be used for storage of materials or equipment. Any storage within the building shall be approved by the Architect/Engineer prior to use of the space.

B. Exterior: Pipe, fitting, or other materials stored outside of building shall be set on wood or steel racks or platforms inside storage container units. All necessary provisions shall be made to keep water and debris away from such stored material. Ends of pipes and valves shall be kept sealed until used.

C. Warehousing: Equipment subject to rusting shall be kept warehoused until just prior to setting. If necessary the warehouse shall have climate controlled conditions.

D. Offsite warehousing shall be approved by the Architect and Owner only.

E. Any warehousing used shall be approved by the Owner and an insurance certificate naming the Owner as insured shall be provided to the Owner.

1.15 GROUNDS AND CHASES

A. Contractor shall see that all required chases, sleeves, grounds, holes and accessories necessary for the installation of his work are properly built in as the work progresses; otherwise he shall bear the cost of providing them.

1.16 MACHINERY GUARDS

A. Contractor shall provide v-belt guards for each v-belt drive or other hazardous drive. Guard shall enclose the drive entirely and shall have a hole for taking tachometer reading.

1.17 SPECIAL TOOLS

A. Special tools required for proper operation or maintenance of any mechanical equipment provided under this contract shall be delivered to the Owner at the completion of the project.

1.18 FILL AND CHARGES FOR EQUIPMENT

A. Fill and charge with materials or chemicals all devices or equipment as required to comply with the manufacturer's guarantee or as required for proper operation of the equipment.

B. This contractor shall flush systems as required per local and state jurisdictions and equipment/material manufacturer's guidelines (chlorination, chemical treatment, etc.).

1.19 EQUIPMENT ACCESS

A. Large equipment to be installed in building, which is too large to permit access through doorways, shall be brought to the job by the contractor and placed before enclosing structure. Equipment shall be cribbed up from the floor by the contractor and covered where necessary or directed.

1.20 EQUIPMENT IDENTIFICATION

A. Stenciling: All items of major mechanical equipment (pumps, AHUs, starters, valves, etc.) shall be neatly and clearly stenciled in letters not less than 1 inch high, with the same designation as appears on drawing. Location and color of such stenciling shall be appropriate for ready identification and/or as directed by the Architect. One set of compatible metal interlocking stencil letters and numbers shall be turned over to the Owner at the completion of the job. At contractor's option engraved plastic adhesive tags may be used. Tags used outdoors shall be listed for such use.

B. Pipe Coding: All piping, etc., both insulated and bare, shall be color coded with a general purpose pipe marker for interior locations and a 6 inch enamel painted ban for exterior locations, and stenciled as to service and characteristics on the 10 foot centers and/or as directed. Directional arrows not less than 1/2 inch wide and not less than 6 inches long shall be permanently stenciled on each line at each stencil location. Stenciling shall be located such that it is clearly visible from floor or adjacent service platform. Coding shall be as per schedule approved by Owner through submittal to Architect. At contractor's option, pre-manufactured vinyl pipe labels and directional arrows may be used but shall be banded on either end to secure to pipe.

C. Valve tags shall be installed on all valves controlling building zones, areas, or equipment. Valve tags shall be 2 inch diameter brass stenciled with valve number. A framed list of valves with associated numbers, sizes and locations shall be mounted in the building as directed by Architect.

1.21 TEMPORARY USE OF EQUIPMENT

A. The permanent equipment installation shall not be used for temporary purposes by the contractor for temporary conditioning of the building during construction. **Contractor shall provide temporary dehumidification and drying equipment as required to maintain clean, dry air during construction.**

B. Acceptable Use Without Specific Authorization: Temporary use shall not be construed to mean "bumping" of electric motors on equipment to verify rotation direction nor short time operation of systems for test purposes, operation of refrigeration and heating system for short periods to adjust controls and temperature regulation, or the operation of fans for air balance.

1.22 CLEANING AND ADJUSTING

A. Upon completion of his work, the contractor shall clean and adjust all equipment, controls, valves, etc. Clean all piping, ductwork, etc., and leave entire installation in good working order.

1.23 PAINTING

A. This contractor shall obtain the services of a painting sub-contractor as part of the contract with the General Contractor for all painting.

B. General: Except for standard factory finishes, all pipe, pipe covering, ducts, equipment, supports, hangers, etc., exposed inside and outside building or in equipment room shall be painted. This contractor shall prepare surface of material to receive first coat of paint. All subsequent coatings shall be prepared by Painting Subcontractor. Requirements covering paints, workmanship and preparation of surfaces as stated in Architectural Specifications shall govern. Color coding shall be approved by Architect (submit color sample). All submittals for review shall be through Architect.

C. Damage: Where standard equipment factory finishes have been damaged or scratched, the damaged area shall be repaired or replaced by the contractor to match the original finish.

D. Preparation: Thoroughly clean surfaces of all rust, scale, cement, and dirt from all equipment, piping or other work installed and leave ready for finish painting.

E. All exposed piping shall be painted. Paint with two (2) coats of paint. The color shall be industry standard color coding. Submit color code chart with sample color chips to Architect for review prior to starting work.

1.24 FIRESTOPPING

A. Penetrations through rated construction shall be sealed with a material capable of preventing the passage of flames and hot gases when tested in accordance with ASTM-EB14.

B. Notify Architect for inspection of all completed fire and/or smoke barrier walls before any construction is installed that may conceal the firestopping material installation.

C. Access to random selected areas may be required by the architect at the time of final inspection should notification not be given.

D. Provide detailed instructive cutsheets of fire penetration sealing system (firestopping) used to the architect at the time of inspection. Random selective sampling by the contractor will be observed by the architect and State Fire Marshal.

1.25 NOISE VIBRATION

A. General: Take the utmost precautions in the installation of the equipment, piping, and duct systems to prevent noise and vibration transmission. Noise levels determined by octave band analysis with all components of the mechanical system operating and the building completely furnished shall not exceed NC-35 in operations and office areas, and shall not exceed NC-45 in equipment areas. Where equipment and installations do not meet these limits, the contractor must provided necessary attenuation to reduce net noise levels to the above requirements.

B. Isolation of equipment: Equipment that would tend to cause noise or vibration shall be isolated to prevent noise transmission to the building or to other equipment.

C. Equipment Connections: Piping, conduit, or other connections to equipment shall be isolated. The contractor shall be responsible for the prevention of noise and vibration transmission through these connections to equipment.

1.26 PERMITS, INSPECTIONS AND TESTS

A. Contractor shall obtain and pay for permits, fees, etc., for the installation, inspection, service connections, verifying location or construction of the work which are required by any authority and/or agencies having jurisdiction.

B. Contractor shall arrange and pay for inspections, examinations and tests required to obtain complete and final acceptance of all mechanical systems. Contractor shall deliver certificates of all such inspections to the Architect.

C. Contractor shall notify Architect and local governing authorities before any tests are made and tests are not to be drawn off a line covered or insulated until examined and approved by the authorities. In the event defects are found, these shall be corrected and the work shall be retested.

D. Prior to requesting final inspection by the Architect, the contractor shall have a complete coordination and adjustment meeting of all of his subcontractors directly responsible for the operation of any portion of the system. At the time of this meeting, each and every sequence of operation shall be checked to assure proper operation. Notify the Architect in writing 10 days prior to this meeting instructing him of the time, date and whom you are requesting be present. This project shall not be accepted until the above provisions are met to the satisfaction of the Architect.

1.27 TRAINING OF MAINTENANCE PERSONNEL

A. Contractor shall provide on the job training for Owner's personnel upon completion of the work including testing and adjustment. Minimum 20 hours of onsite training shall include maintenance checks, lubrication of components, adjustment of control set points, and troubleshooting techniques of the air conditioning unit.

B. Contractor shall use factory start-up personnel to train the owner's maintenance personnel.

1.28 OPERATION AND MAINTENANCE INSTRUCTIONS

A. Provide Owner with four (4) copies of printed instructions indicating various pieces of equipment by name and model number complete with parts lists and maintenance and repair instructions. This information shall be bound in plastic covered notebooks. Submit the manuals to the Architect for approval.

B. Include all warranty certificates or statements in a separate section of the manuals. Provide all materials and test certificates for the final inspection.

C. Provide three (3) sets of DVDs of the operation and maintenance manuals.

1.29 GUARANTEE

A. Contractor shall guarantee all materials, equipment and workmanship for a period of one year from the date of final acceptance of the project. This guarantee shall include furnishing of all labor and material necessary to make any repairs, adjustments or replacement of any equipment, parts, etc., necessary to restore the project to first class condition. This guarantee shall exclude only the changing or cleaning of filters. Additional warranties beyond the above shall be furnished as specified elsewhere in these specifications.

B. If the contractor's office is in excess of a 50 mile radius of the project, he shall appoint a local qualified contractor to perform any emergency repairs or adjustments required during the guarantee period. The contractor appointed to provide emergency services shall be submitted to the Architect for his approval.

1.30 WARRANTIES

A. Assemble warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a table of contents.

B. Two (2) original signed copies of each warranty are required.

C. Provide complete information for each item including:

1. Product and work item.
2. Local supplying firm or manufacturer's dealer, with name of principal, address and telephone number.
3. Scope of warranty.
4. Date of beginning of warranty.
5. Duration of warranty.
6. Provide information for Owner:
   a. Proper procedure to evoke the warranty in case of failure.
   b. Instances which might affect the validity of the warranty.
7. Contractor, name of responsible principal, address and telephone number.
8. All contractors and manufacturers equipment warranties shall start at the acceptance of the project by the Owner.
9. Provide owner with contact information for warranties which extend beyond one year.

1.31 RECORD DRAWINGS

A. Contractor shall maintain two (2) sets of drawings of the original construction documents to utilize as markup sets to record field modifications from original construction documents. Once approval has been gained from the Architect, the contractor shall record these variances on the two (2) sets in a neat and readable manner. Noted shall be sizes, locations, changes in directions, etc. with distances dimensioned from columns, walls, inverts, etc. The maintenance and cost of these documents shall be the responsibility of the contractor.

1.32 DEMOLITION

A. This contractor shall do all demolition as shown on the plans. The contractor shall make the areas ready for the new construction work. All demolition debris, piping, equipment, etc., shall be removed from the site by this contractor. All demolition work shall be scheduled through the General Contractor to prevent interruption of any existing services. Do not start any demolition which would interrupt the building operation without scheduling with the Owner (schedule through the General Contractor).

B. The Owner shall retain first salvage rights to anything within the demolition area. If the Owner selected an item to be retained, then this contractor shall remove it with care and deliver the item to the Owner designated location on site. Anything not retained by the Owner shall become the property of the contractor and be removed from the site.

1.33 MATERIALS CONTAINING HAZARDOUS SUBSTANCES OR COMPONENTS

A. This contractor shall not provide any material or component of equipment which contains asbestos, lead based paint or PCBs. The contractor shall provide certificates or manufacturer's statements/letters to show that the products and/or building materials do not contain asbestos, lead based paint or PCBs.

B. If any product or building material is found to contain asbestos, lead based paint or PCBs, the contractor shall bear all cost for removal, abatement, and disposal of materials in accordance with all state and federal regulations. The contractor shall install replacement materials to the satisfaction of the Architect at no additional cost to the project.

C. During the construction, if the contractor suspects that any material in the building contains or is a hazard material (asbestos, lead, PCB, mercury, etc.) work shall be stopped to prevent disturbance and the Owner shall be notified immediately.

END OF SECTION 23 05 00

FORD FIELDS CONCESSION STAND
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SECTION 23 05 03 - BASIC MATERIALS AND METHODS FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. Type of piping for various systems shall be as specified herein.

B. All pipe shall be true and straight without sags or traps.

PART 2 - MATERIALS

2.1 REFRIGERANT PIPING/EQUIPMENT DRAIN PIPING

A. All refrigerant and equipment drain piping shall be government type "L" hard copper tube standard weight and thickness as made by Mueller, Chase, Anaconda or equivalent, unless indicated otherwise. Use Silfos 1000 degrees Fahrenheit solder on all joints.

B. Tubing shall be brought to the site with ends sealed.

2.2 A/C CONDENSATE DRAIN PIPING

A. All A/C condensate drain piping shall be government type "L" hard copper water tube of standard weight and thickness. Fittings shall be compatible with pipe. Use Silfos 1000 degrees Fahrenheit solder on all joints.

2.3 PIPE FITTINGS

A. All pipe fittings shall be same as piping specified unless indicated otherwise.

B. Fittings for refrigerant piping and other copper lines shall be solder type wrought copper, Nibco or equivalent.

2.4 PIPE SPECIALTIES

A. Dielectric unions shall be used between copper and iron pipe.

2.5 PIPE HANGERS AND SUPPORTS

A. This contractor shall furnish and install all foundations and supports required for his equipment unless indicated otherwise on the drawings.

B. This contractor shall furnish and install all escutcheons, inserts, thimbles, hangers, etc., required for the proper support and installation of his equipment and piping. Cooperate with other trades in locating and placing these items.

C. Provide sleeves for all pipes passing through walls, floors, beams, etc. Sleeves passing through structural members shall be of cast iron or Schedule 40 steel pipe. Sleeves passing through nonstructural walls or floors shall be of Schedule 10 galvanized iron. Joints between sleeves and pipes passing through floors shall be made watertight with plastic materials. Where pipes pass through floors shall be made watertight with plastic materials. Where pipes pass through waterproofing membrane, flashing sleeves shall be installed.

D. Provide malleable iron split ring hangers with rod supports throughout. Strap hangers or wire will not be accepted. Maximum spacing of hangers shall be 5 feet.

E. Provide galvanized iron shields between hangers and pipe covering.

F. Provide chrome plated brass escutcheons wherever pipes pass through floors, walls or ceilings in exposed or finished areas.

G. All piping projecting from chases shall be rigidly supported in the wall or chase. Loosely supported fixtures or accessories will not be accepted.

2.6 VALVES AND UNIONS

A. Furnish and install all valves, unions, stops, connections, etc., shown on plans and necessary to make a complete system in working order. Provide valves on inlet and outlet of all equipment and fixtures and on branch lines to fixtures or groups of fixtures, refer to Division 22.

2.7 MOTORS STARTERS AND ELECTRICAL WORK

A. The Mechanical Contractor shall furnish to Electrical Contractor for installation, all motor starters, start-stop push buttons and pilot lights for each piece of motor driven equipment unless shown otherwise.

B. The Electrical Contractor shall install all motor starters, start-stop push buttons and pilot lights as furnished by the Mechanical Contractor. The Electrical Contractor shall do all power wiring required for the installation of all mechanical equipment including equipment interlocking power wiring, etc. Temperature control wiring shall be furnished and installed by the Mechanical Contractor. All work shall be done in accordance with the National Electrical Code requirements and with wiring workmanship, etc., as called for in the Electrical Specifications. The Mechanical Contractor shall provide approved wiring diagrams of all equipment, controls, etc., to the Electrical Contractor for his installation. Coordinate all work to provide a complete system in working order. All wiring shall be plenum rated.

C. All motors for the mechanical equipment shall be of the 40 degrees Celsius rise type and shall be furnished and installed by the Mechanical Contractor. All motors shall be wound for +/- 10 percent of the specified voltage. Motors shall be voltages indicated on drawings. All motors shall have copper windings, Class F insulation and shall be rated for continuous duty service. All three-phase motors shall be inverter-duty type motors.

D. All electrical equipment shall have UL label or ETL label and shall meet the standards of the National Electrical Code and NEMA.

E. Starters for single phase motors 1/2 HP and below shall be furnished with pilot light and "hand-off-auto" selector switch where required.

F. Starters for three-phase, single speed motors shall be stepless solid state soft starter with "hand-off-auto" selector switch, three overload relays and auxiliary contacts as required. The starter shall operate at manufacturers ratings with 10 percent and -15 percent applied voltage tolerance and be capable of operating continuously under ambient temperatures of 0 to 50 degrees Celsius. The starter control circuitry shall be designed for current ramp operation and utilize current feedback for closed loop operation to minimize variation of acceleration time with varying load conditions. The starter shall use metal oxide varistors to clip transient voltage spikes on incoming power lines with protection to limit the rate of rise of voltage spikes to protect the SCR's from damage. The starter shall provide electronic motor overload protection. The starter shall shut down (or shall not start) to protect itself from either phase loss or phase rotation. The starter shall have adjustments for initial torque, pulse, ramp up time, ramp down time, and current limit. The starter shall have a main trip breaker to act as a disconnect and necessary contactors. The starter shall have contacts for remote starting from a building energy management system.

G. Mechanical contractor shall provide and install all smoke dampers and smoke or duct detectors. The electrical contractor shall provide and install all wiring/interlocks with fire alarm.

2.8 ACCESS PANELS

A. Furnish and install access panels where valves, dampers, etc., are concealed in wals, ceilings, floors or otherwise inaccessible. Panels shall be Milcor, Babcock, Larsen, MIFAB, Acudor, Nystrom or equivalent. All access panels shall be minimum 18 inches X 18 inches hinged with flush latch and lock. The panels shall be constructed of minimum 18 gauge stainless steel. Frame flange shall be minimum 1-1/2 inches wide. Rated panels shall have U.L. rating for type wall of ceiling where located.

B. Access panels located in rated walls, floors, or ceilings shall be so rated and installed per manufacturer's recommendations to maintain rated integrity.

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PART 3 - EXECUTION

3.1 PIPING

A. Perforated strap hangers shall not be allowed for any part of the hangers.

B. Mains, branches, and run outs: Piping shall be installed as indicated on the drawings. Pipe shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. Care shall be taken not to weaken structural portions of the building. Above ground piping shall be run parallel with the lines of the building unless otherwise shown or noted on the drawings. Branch pipes from service lines may be taken from top, bottom, side or main, using such crossover fittings as may be required by structural or installation conditions. Service pipes, valves, and fittings shall be kept a sufficient distance from other work and other services to permit not less than 1/2 inch between finished covering and other work and not 1/2 inch between finished covering on the different services. No water pipe shall be made with reducing fittings. Use of long screws and bushings will not be permitted. Slope water pipe 1 inch in 40 feet and arrange to drain at low point.

C. Expansion and contraction of piping: Allowance for expansion and contraction shall be made throughout. Sufficient flexibility shall be provided on all branch run outs from mains to risers to provide for expansion and contraction of piping. Flexibility shall be provided by installing one or more turns in the line so that the piping will spring enough to allow for expansion without straining.

D. Joints: Tubing shall be cut square, and butts shall be removed. Both inside of fittings and outside of tubing shall be well cleaned with steel wool before sweating. Care shall be taken to prevent annealing of fittings and hard drawn tubing when making connections. Installation shall be made by competent workmen in accordance with manufacturer's recommendation. Mitering of joints for elbows and notching of straight runs of pipe for tees will not be permitted. Joints for soldered fittings shall be made with a noncorrosive paste flux and solid string of wire solder. Cored solder will not be permitted.

E. Valves: Valves shall be provided on all supplies to fixtures as specified under type of fixture and fixture trimmings. Valves indicated in connection with run outs, risers, branches, and mains shall be in accordance with this specification. No valve shall be installed on any lines with its stem below the horizontal. All valves shall be gate valves unless otherwise specified or indicated. Provide drain valves at main shut-off valves, low points of piping and apparatus.

F. Pipe sleeve, hangers, and fixture supports: These items shall be furnished and set and the contractor shall be responsible for their proper and permanent location.

1. Pipe sleeves - Install sleeves for all pipes passing through footings, floors, and walls. Clearance between sleeves and pipe covering and/or pipes shall be approximately 1/4 inch. Construction shall not be cut except where approved by the Architect. Where cutting of construction is permitted, the construction shall be

repaired to match its original condition. Sleeves shall not be installed in structural members except where indicated. Sleeves are not required for wall hydrants.

a. Install sleeves for pipes that pass through walls. Sleeves that pass through walls shall be cut flush with surfaces. The space between sleeves and pipe or covering shall be sealed with graphite packing and synthetic rubber caulking compound.
b. Install sleeves where pipes pass through waterproofing membrane. The sleeves shall be provided with an integral flashing flange or a clamping device to which a 4 pound lead flashing shield shall be clamped or soldered. The shield shall extend 12 inches from the pipe and shall be thoroughly mopped into the membrane. The space between the sleeve and pipe shall be made watertight by inserting an oakum gasket, filling the remaining space with lead, and thoroughly caulking.

2. Threaded pipe - Support pipes at 4 foot intervals.
3. Copper tubing - Support tubing at not more than 5 foot intervals. Hangers for copper tubing except where protective shields are installed shall have proper size rings to suit outside diameter of tubing and the hangers or supports shall be copper or copper plated at contact surfaces.
4. Underground piping - Lay pipe on a firm bed for its entire length, except where support is otherwise provided.
5. Vertical piping - Supports shall be at each floor. Horizontal piping - Hangers and supports shall be installed at locations not more than 3 feet from the end of each run out. A hanger shall be installed not over 1 foot from each change in direction of piping.

G. Unions: Make connections to equipment and branch mains with unions. Provide nonconducting type connections wherever jointing dissimilar metals in open systems. Brass adapters and valves are acceptable.

H. Provide drain valves at main shutoff valves, low points of piping and apparatus.

I. Provide and install air vents with shutoff valve at all high points in the system.

J. Cleaning and Disinfectant: Domestic water piping system shall be cleaned and disinfected. All equipment, temporary piping and chemicals, as required shall be furnished by the contractor. All system piping and equipment shall be thoroughly and completely flushed with cold domestic water. Completely drain the systems and fill with a solution of Sodium or Calcium Hypochlorite, 100 parts per million, completely relieving the system of all air. Allow the solution to stand for eight hours and then drain and follow with clear water flush for a sufficient period of time to remove all traces of hypochlorite odor. Disinfecting chemicals shall not be introduced into existing piping systems.

END OF SECTION 23 05 03

FORD FIELDS CONCESSION STAND
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SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Division 23 Specification Sections, drawings, and general provisions of the contract apply to work of this section, as do other documents referred to in this section.

1.2 SCOPE OF WORK

A. The General Contractor shall obtain the services of an independent test and balance company which specializes in the testing and balancing of heating, ventilating and air conditioning (HVAC) systems to test, adjust and balance all HVAC systems in the building(s). These services shall not be provided by the installing mechanical contractor on the project but shall be a direct subcontractor of the general contractor.

1. Agency shall provide proof of having successfully completed at least five projects of similar size and scope. Work by this Agency shall be done under direct supervision of a qualified Heating and Ventilating Technician employed by Agency.
2. Instruments used by Agency shall be accurately calibrated and maintained in good working order.
3. If requested, conduct tests in presence of Engineer.
4. Agency shall be approved in writing by Engineer. Mechanical Contractor shall not be permitted to do this work. Submit qualifications for review.

B. The work included in this section consists of furnishing labor, instruments, and tools required in testing, adjusting and balancing the HVAC systems, as described in these Specifications or shown on accompanying drawings. Services shall include checking equipment performance, taking the specified measurements, and recording and reporting the results. Refer to Plumbing Division 22 for additional work required of Air System Test and Balance agency.

C. **Test and Balance agency shall be present for factory start-up of equipment when factory startup is required.**

D. Representatives of the test and balance company shall visit the job site at 60 percent and 90 percent completion of installation of the HVAC equipment, piping and ductwork to review the installation. After each site visit, the test and balance company shall report to the Architect any items that are not installed properly, are missing from the Contract Documents or items that are required to enable him to perform the testing and balancing of the HVAC systems as per normal standard practice. After review, the Architect shall instruct the contractor to implement the recommendations at no additional cost to the Owner if these items were specified in the original scope of the project.

E. Upon completion of the HVAC system installation, the test and balance company shall perform all testing and balancing with the full cooperation of the contractor and his

subcontractors. The contractor shall make changes and/or adjustments to the HVAC system components that are required by the test and balance company to accomplish proper balancing. The TAB agency shall not supply or install any materials or balancing devices such as pulleys, drives, belts, etc. All of this work by the contractor shall be performed at no additional cost to the Owner.

F. **Balancing agency shall be represented at final inspection meeting by qualified testing personnel with balancing equipment and two (2) copies of air balancing test report.**

G. Engineer will choose and direct spot balancing of one zone. Differences between the spot balance and test report will be justification for requiring repeat of testing and balancing for entire building.

1. Be prepared to spot smoke test one ducted system as directed by Architect's Engineer.
2. Rebalancing shall be done in presence of Architect and subject to his approval.
3. Spot balance and rebalance shall be performed at no additional cost to Owner.

H. The test and balance report shall be submitted to the Architect for review by his Mechanical Engineer. If the Mechanical Engineer agrees with the report, he shall sign it and return it to the Architect. If he does not concur with the report, he shall meet with the Test and Balance Company to determine what needs to be done to obtain a properly balanced system.

I. After the Mechanical Engineer signs the testing and balancing report, the Test and Balance Company shall supply four (4) copies of the final and complete report to the Architect for inclusion in the Operation and Maintenance Manuals.

1.3 The items requiring testing, adjusting, and balancing include (but are not restricted to) the following:

A. AIR SYSTEMS:
Air Handling Units
Fans
Zone Branch and Main Ducts
Diffusers, Registers, Grilles and Dampers
Coils (Air Temperatures)
Valves
Vibration Isolators
Duct Smoke/Pressure Leak Testing

1.4 SCHEDULING

A. General Contractor shall award test and balance contract to approved agency upon receipt of his contract to proceed to allow Agency to schedule this work in cooperation with other Sections involved and comply with completion date.

1.5 DEFINITIONS, REFERENCES, STANDARDS

A. All work shall be in accordance with the latest edition of the Associated Air Balance Council (AABC) National Standards or the latest standards of the National Environmental Balancing Bureau (NEBB). If these contract documents set forth more stringent requirements than the AABC National Standards or the NEBB Standards, these contract documents shall prevail.

1.6 QUALIFICATIONS

A. Agency Qualifications: The TAB agency shall be a current member of the AABC,NEBB or TABB.

B. Prior to working on this project, the technicians shall attend training provided by the manufacturer of the various equipment on this project on the specific aspects of balancing the equipment. Include letters or certificates from the manufacturer on attendance and satisfactory completion of the factory training. These certifications may be used for continuing education. At a minimum, the technicians shall receive training from the air distribution equipment manufacturer, air unit manufacturer, and temperature controls manufacturer. This should be done prior to any equipment start-ups.

1.7 SUBMITTALS

A. Qualifications: The TAB agency shall submit a company resume listing personnel and project experience in air and hydronic system balancing and a copy of the agency's test and balance engineer (TBE) or technician certificate.

B. Procedures and Agenda: The TAB agency shall submit the TAB procedures and agenda proposed to be used.

C. Sample Forms: The TAB agency shall submit sample forms, which shall include the minimum data required by the AABC National Standards or the NEBB Standards.

D. Submit continuing educations training on each lead technician working on the project.

1.8 TAB PREPARATION AND COORDINATION

A. Shop drawings, submittal data, up-to-date revisions, change orders, and other data required for planning, preparation, and execution of the TAB work shall be provided when available and no later than 30 days prior to the start of TAB work.

B. System installation and equipment startup shall be complete prior to the TAB agency's being notified to begin.

C. The building control system (BCS) contractor shall provide and install the control system, including all temperature, pressure and humidity sensors. These shall be calibrated for accurate control. If applicable, the BCS contractor shall install all

necessary computers and computer programs, and make these operational. Assistance shall be provided as required for reprogramming, coordination, and problem resolution. The BCA contractor shall provide all necessary software to the TAB Agency at no additional cost.

D. All test points, balancing devices, identification tags, etc., shall be accessible and clear of insulation and other obstructions that would impede TAB procedures.

E. Qualified installation or startup personnel shall be readily available for the operation and adjustment of the systems. Assistance shall be provided as required for coordination and problem resolution.

F. If, upon commencing the work, the TAB contractor finds that the systems are not ready, or if a dispute occurs as to the readiness of the systems, the TAB contractor may request an inspection to be made by the Designer's Mechanical Engineer. This inspection shall establish to the satisfaction of the represented parties whether or not the systems meet the basic requirements for testing and balancing. Items that are determined to be not ready for testing and balancing shall be completed by the Mechanical Contractor and placed in operational readiness before TAB services are again requested.

1.9 TAB REPORTS

A. Final TAB Report: The TAB agency shall submit the final TAB report for review by the Engineer. On plans provided, all outlets, devices, HVAC equipment, etc., shall be identified, along with a numbering system corresponding to report unit identification. The TAB agency shall submit an AABC or NEBB "National Project Performance Guaranty" assuring that the project systems were tested, adjusted and balanced in accordance with the project Specifications and AABC or NEBB National Standards.

B. Submit four (4) copies of the final TAB report to the Architect for inclusion in the Operation and Maintenance Manuals.

PART 2 - INSTRUMENTATION

2.1 All instruments used for measurements shall be accurate and calibrated. Calibration and maintenance of all instruments shall be in accordance with the requirements of AABC or NEBB National Standards.

PART 3 - EXECUTION

3.1 GENERAL

A. General Contractor with Mechanical Contractor shall put heating, ventilating, and cooling systems and equipment into full operation and continue their operation during each working day of testing and balancing.

B. Air Balance and Testing Agency shall perform tests specified, compile test data, and submit four (4) copies of complete test data to contractor for forwarding to Engineer for evaluation and approval.

1. Approved copies of report shall be bound in Operations and Maintenance manuals.

C. System shall be completely balanced and all reports submitted to Engineer prior to prefinal inspection.

D. The specified systems shall be reviewed and inspected for conformance to design documents. Testing, adjusting and balancing on each identified system shall be performed. The accuracy of measurements shall be in accordance with AABC or NEBB National Standards. Adjustment tolerances shall be + or -10 percent unless otherwise stated.

E. Equipment settings, including manual damper quadrant positions, valve indicators, fan speed control levers, and similar controls and devices shall be marked to show final settings.

F. All information necessary to complete a proper TAB project and report shall be per AABC or NEBB standards unless otherwise noted. The descriptions of work required, as listed in this section, are a guide to the minimum information needed.

G. TAB contractor shall cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. Upon completion, patch insulation, ductwork and housings using materials identical to those removed. Seal insulation to reestablish integrity of the vapor barrier.

H. TAB work shall include additional inspection and adjustment of components during the season following the initial balance to include re-balance of any items influenced by seasonal changes or as directed by the Owner.

3.2 AIR SYSTEMS

A. **TESTING PROCEDURE**
Air Balance and Testing Agency shall perform following tests and balance system in accordance with following requirements. Perform the following tests at high and low speeds of multi-speed systems and single speed system.

1. **Make periodic inspections of the installation of the systems. Provide reports of each inspection. Inspections should be monthly when ductwork installation begins. Coordinate and verify the installation of all balancing dampers, fire dampers, etc.**
2. Smoke test or pressure test each low pressure steel duct system to test for air tightness. Use zinc chloride smoke candles or titanium tetrachloride ampules (sticks) to generate smoke.

a. If ducted systems leak, do not continue with air balance. Report findings to Engineer in writing and begin testing again after Mechanical Contractor has repaired ducts or applied duct sealers.
b. If ducted systems appear air tight, proceed with air balance procedure as outlined below.
c. Include in air balance report a letter indicating smoke testing has been accomplished and a report of findings regarding airtightness of each ducted system.
d. Maximum leakage loss shall not exceed 2 percent. If losses are greater, the Mechanical Contractor shall correct the leakage, then the test and balance agency shall retest the ductwork.

3. Test and adjust blower rpm to design requirements.
4. Test and record motor full load amperes.
5. Make Pitot Tube traverse of main supply and return and obtain design cfm.
6. Test and record system static pressures, suction, and discharge.
7. Test and adjust system for design cfm air.
8. Test and adjust system for design cfm outside air.
9. Test and record entering air temperatures (db heating and cooling).
10. Test and record entering air temperatures (wb cooling).
11. Test and record leaving air temperatures (db heating and cooling).
12. Test and record leaving air temperatures (wb cooling).
13. Adjust main supply and return air ducts to proper design cfm.
14. Adjust zones to proper design cfm, supply and return.
15. Test and adjust each diffuser, grille, and register to within 10 percent of design requirements.
16. Identify each diffuser, grille, and register to location and area.
17. Identify and list size, type, and Manufacturer of diffusers, grilles, registers, and testing equipment. Use Manufacturer's rating on equipment to make required calculations.
18. In readings and tests of diffusers, grilles, and registers, include required fpm velocity and test fpm velocity and required cfm and test cfm after adjustments.
19. In cooperation with Mechanical Contractor, set adjustments of automatically operated dampers to operate as specified, indicated, or noted.
20. Adjust diffusers, grilles, and registers to minimize drafts.
21. Verify the calibration of temperature control devices, thermostats, etc.
22. Verify all control sequences with specifications.
23. Include manufacturer's performance data with reports.
24. Schedule three inspections to verify original test and balance of systems within 90 days of acceptance by Owner. Make opposite season adjustment and inspection of systems at one year after acceptance by Owner. Submit reports after each inspection. Submit schedule as part of initial report.

B. Where systems supplied to job site provides over 5 percent more air than schedule requirements, rooms supplied by that system shall have their supply air quantities increased by the ratio of the actual total air quantity supplied to the minimum air quantity required by the schedule.

C. The TAB agency shall verify that all ductwork, splitters, extractors, dampers, grilles, registers, and diffusers have been installed per design, are functional and set full open. Any leakage in the ductwork shall be repaired prior to the test. The TAB agency shall

perform the following TAB procedures in accordance with the AABC National Standards or NEBB Standards:

1. Fans
   a. Fan Speeds--Test and adjust fan RPM to achieve design cfm requirements.
   b. Current and Voltage--Test and record motor voltage and amperage, and compare data with the nameplate limits to ensure fan motor is not in or above the service factor.
   c. Pitot-Tube Traverse--Perform pitot-tube traverse of the main exhaust ducts to obtain total CFM. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet.
   d. Static Pressure--Test and record system static pressure, including the static pressure profile of each exhaust fan.
2. Zone, Branch, and Main Ducts
   a. Adjust ducts to within design cfm requirements. As applicable, at least one zone balancing damper shall be completely open. Multi-diffuser branch ducts shall have at least one outlet or inlet volume damper completely open.
3. Diffusers, Registers, and Grilles
   a. Tolerances--Test, adjust, and balance each diffuser, grille, and register to within 10 percent of design requirements. Minimize drafts.
   b. Identification--Identify the type, location, and size of each grille, diffuser and register. This information shall be recorded on air outlet data sheets.
4. Coils
   a. Air Temperature--Once air flow are set to acceptable limits, take wet bulb and dry bulb air temperatures on the entering and leaving side of each cooling coil. Dry bulb temperature shall be taken on the entering and leaving side of each heating coil.
5. Air Handling Units:
   a. Location, manufacturer, model number, serial number, motor manufacturer, fan and motor sheaves, belts. Required and test data with unit operating at full air flow conditions (all space thermostats calling for cooling) for each of following: total CFM, return and outside air CFM, total static pressure, suction and discharge static pressures across unit fan, HP, amperage, voltage, fan RPM. Verify performance of static pressure controls, vane operators, dampers and controls. Adjust and/or change pulleys and belts as required to obtain delivery of system specified or required full load air quantities.
6. Diffusers and Grilles:
   a. Space served; type and size of diffuser or grille, specified CFM, initial test CFM and final test CFM. Each air outlet shall be adjusted for +/- 5 percent of required quantity as shown on plans.
7. Control Systems:
   a. Verify all control sequences and calibration of all thermostats and sensors.
8. Equipment Start-up:
   a. The Test and Balance Contractor shall be on site to witness and record all factory start-up of mechanical equipment. Include start-up reports in final balancing report.
9. Plumbing:
   a. Refer to Plumbing Division 22 for additional work required by the Air System Testing and Balancing Agency.

3.3 INDOOR AIR QUALITY VERIFICATION:

A. The TAB agency shall take measurements at minimum outside air. It shall measure temperature and humidity uniformity throughout the space, check filter installation for proper fit, seal and operation and verify condensate drain operation. The TAB agency shall note any water damage or obvious contamination sources from inside or outside.

B. The TAB agency shall prepare a short report showing the results and location of each test, a summary of the HVAC operating conditions, and a listing of any discrepancies.

3.4 ADDITIONAL TAB SERVICES:

A. Job Site Inspections:
During construction, the TAB agency shall inspect the installation of pipe systems, sheet metal work, temperature controls, and other component parts of the HVAC systems. Inspections shall be conducted a minimum of two times. (Typically, these are performed when 60 percent of the total system is installed and again when 90 percent of the total system is installed, prior to insulation of the duct and piping.) The TAB agency shall submit a written report of each inspection to the Architect.

B. Duct Leakage Testing:
The Installing Contractor shall isolate and seal sections of ductwork for testing. The pressurization fan and test apparatus shall be connected to the test section and the test performed. The test pressure required and the amount of duct to be tested shall be described by the engineer in the appropriate duct classification section. All testing shall be based on one test per section.

C. Verification of HVAC Controls:

1. The TAB agency shall be assisted by the building control Systems Contractor in verifying the operation and calibration of all HVAC and temperature control systems. The following tests shall be conducted:
2. Verify that all control components are installed in accordance with project requirements and are functional, including all electrical interlocks, damper sequences, air and water resets, fire and freeze stats, and other safety devices.
3. Verify that all controlling instruments are calibrated and set for design operating conditions.

D. Temperature Testing:
To verify system control and operation, a series of three temperature tests shall be taken at approximately two hour intervals in each separately controlled zone. The resulting temperatures shall not vary more than 2 degrees Fahrenheit from the thermostat or control set point during the tests. Outside temperature and humidity shall also be recorded during the testing periods.

E. TAB Report Verification:
At the time of final inspection, the TAB agency may be required to recheck, in the presence of the Owner's representative, specific and random selections of data, air

quantities, and air motion recorded in the certified report. Points and areas for recheck shall be selected by the Owner's representative. Measurements and test procedures shall be the same as approved for the initial work for the certified report. Selections for recheck, specific plus random, will not exceed 10 percent of the total number tabulated in the report.

F. Kitchen Hood Testing:
The TAB agency shall test and adjust kitchen hood total air flow by duct pitot-tube traverse if applicable under local code. If a pitot-tube traverse is not practical, an explanation of why a traverse was not made must appear on the appropriate data sheet. All sealing of test holes in the exhaust duct to be by others per local code requirements. The TAB agency shall test and record face velocities in accordance with design requirements. It shall test and adjust makeup air flow (if included) to meet design face velocities and pressurization and to minimize turbulence.

G. Building/Zone Pressurization:
The TAB agency shall test and adjust building/zone pressurization by setting the design flows to meet the required flow direction and pressure differential. For positive pressure areas, it shall set the supply air to design flow, and gradually reduce the exhaust air rate to obtain the required flow or pressure difference. For negative pressure areas, it shall set the supply air to design flow, and gradually increase the exhaust air rate to obtain the required flow or pressure difference.

END OF SECTION 25 05 93

FORD FIELDS CONCESSION STAND
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SECTION 23 07 00 - MECHANICAL INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Pipe insulation installation shall not begin until all work has been tested and found to be tight. All insulation shall be UL listed and have a flame spread of less than 25 and a developed smoke rating less than 50. All insulation shall be banded with aluminum bands, three per section. All insulation shall be continuous through walls, floors, ceilings, etc.

PART 2 - MATERIALS

2.1 CONDENSATE DRAIN PIPING

A. Insulate condensate drain piping with 3/4 inch thick closed cell rubber type insulation.

2.2 REFRIGERANT LINES

A. Insulate all refrigerant suction lines with 1 inch thick closed cell rubber insulation. Apply two (2) coats of black mastic where the lines are exposed to the weather. Refrigerant piping below grade shall be installed in watertight PVC sleeve.

2.3 AIR CONDITIONING DUCTWORK

A. Insulate all ducts above ceiling with one layer of 3 inch thick, 3/4 pound density flexible Fiberglass duct insulation with aluminum foil facing. Duct insulation to be applied with 2 inches lap of facing sealed with tape and outward clinch staples. Seal all joints with 2 inch wide vapor barrier tape. An additional band of tape shall be applied between the circumferential joints for a maximum 2 foot spacing of taped bands.

B. The ductwrap shall have a minimum installed R-value of 8.5 and shall comply with Energy Code requirements..

2.4 HORIZONTAL WASTE PIPING

A. All horizontal waste lines and traps above first floor slab which receive condensate from air conditioning equipment, roof drain bodies, shall be insulated same with 2 inch thick, 3/4 pound density fiberglass insulation wth aluminum foil vapor barrier or closed cell rubber insulation.

2.5 KITCHEN HOOD EXHAUST DUCTWORK

A. Refer to Kitchen Hood specifications section.

2.6 INSULATION BANDS

A. All pipe insulation shall be banded with nylon tie-wrap bands, three to a section, and with one band on each side of each fitting, valve, etc.

2.7 FLANGES, VALVES AND FITTINGS

A. All flanges, valves and fittings shall be insulated with fabricated fiberglass molded fitting insulation, using factory fabricated fittings up to 3 inches and fabricated mitered segments of pipe insulation equal in thickness to the insulation to the adjoining pipe. All fabricated mitered segments shall be covered with matching embossed vapor barrier laminate.

PART 3 - INSTALLATION

3.1 Provide clearance for installation of insulation and for access to valves, air vents, drains and unions.

A. Insulation Installation:

1. Do not install covering before piping has been tested and approved.
2. Ensure piping surface is clean and dry prior to installation.
3. Ensure insulation is dry before and during application.
4. Insulation shall be continuous through walls, floors and ceiling. Pack around pipes with fire proof self-supporting insulation material, fully sealed.
5. Insulate fittings and valves. The end of the insulation shall be fitted with a metal escutcheon plate with set screw or taped neatly with pressure sensitive fiberglass reinforcing cloth.
6. All joints shall be sealed with 3 inch wide fiberglass reinforcing cloth with pressure sensitive adhesive.
7. Pipe insulation at Hangers and Supports: Pipe insulation at hanger and support shall be protected with a half circular shield of the size of the insulation and 12 inches long constructed from 20 gauge galvanized steel. The shield shall be held in place with the fiberglass reinforcing cloth and pressure sensitive adhesive. Where pipes pass through walls, ceiling and floor in finished areas, escutcheon plates shall be installed to encompass pipe and insulation. Escutcheon plates shall be chromed brass or stainless steel and shall be either solid or the clamp on split type.
8. Painting of fiberglass pipe jacket is not required. Piping shall be painted colors as standard in this facility.

END OF SECTION 23 07 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 09 00 - TEMPERATURE CONTROLS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Refer to Section 23 05 00, Section 23 05 03, Section 23 30 00 and Section 23 70 00, provisions of which apply to work under this Section.

B. All control systems shall be furnished complete and functioning.

C. Coordinate all control work with the mechanical and electrical contractors. Contact the Test and Balance Contractor and notify them as to when controls work shall be installed. Test and Balance controller shall verify controls systems installation and proper operations.

1.2 DESCRIPTION OF WORK

A. Provide a complete system of "hard-wired" automatic controls (wireless unacceptable) as indicated herein. Control system shall consist of all thermostats, sensors, actuators, operators, wiring, switches, relays and control panels necessary to accomplish the control sequence specified herein.

1.3 RELATED WORK IN OTHER SECTIONS

A. For extent of power wiring and connection to mechanical equipment under Electrical Work, refer to Division 26.

B. For control devices furnished with equipment, refer to equipment specifications and schedules. Any controls equipment not specifically called for elsewhere shall be provided by controls contractor. All control wiring shall be done by controls contractor.

C. All power for control devices such as actuators, operators, fire/smoke dampers, control dampers, etc. shall be furnished, installed and wired by the Controls Contractor. Controls Contractor may use 24 VAC or 120 VAC for the control system. The controls contractor shall be responsible for obtaining the necessary power and pay all costs associated with obtaining power to controls and controls equipment.

D. All interior control wiring shall be installed in galvanized EMT conduit. The last 6 inches at connection to equipment shall be flexible metal conduit. All control wiring on exterior of building shall be in Seal-Tite conduit and/ or Liquid Tight flexible conduit.

E. All control wiring shall be furnished and installed by this contractor.

1.4 SERVICE

A. Installing Contractor (Mechanical Contractor or subcontractor under the Mechanical Contractor) shall maintain adequate automatic control personnel on his payroll to provide back-up project control service on the automatic control system provided under this contract.

1.5 WARRANTY

A. Contractor shall warranty all work performed under this contract to be free of any defects in workmanship or material for a period of one year after final acceptance by the Owner's representative. The installing controls contractor shall include a second year of extended warranty to cover all parts and labor. The warranty and extended warranty shall include quarterly calibration and set-up checks of all controls. THIS WARRANTY DOES NOT START ON DATE THAT THE MECHANICAL EQUIPMENT IS STARTED.

1.6 SUBMITTAL

A. Submit shop drawings and product data sheets indicating configuration, general assembly, and materials used in fabrication.

B. Submit manufacturer's installation instructions. Instructions shall include complete wiring diagrams drawn specifically for this project.

1.7 OPERATION AND MAINTENANCE

A. Include manufacturer's descriptive literature, operating instructions, and maintenance data.

1.8 QUALITY ASSURANCE

A. Manufacturer shall be a company specializing in products of the type specified in this section. All components shall be Class A quality commercial or industrial grade for installation in locations or environments shown on plans.

1.9 SYSTEM RESPONSIBILITY

A. The entire control system, shall be furnished by a single source manufacturer who shall be responsible for the entire system. The installations shall be by technicians employed by the controls system manufacturer.

PART 2 - PRODUCTS

2.1 FIRESTATS AND SMOKE DETECTORS

A. Duct smoke detectors shall be furnished and installed by mechanical contractor. Install a smoke detector in the supply air section/duct and return air section/ duct of each unit delivering over 2000 cfm to stop the fan and close the outside air dampers in the event of excessive temperature or smoke. Firestats to be provided in the return air units of all units over 600 cfm.

B. Smoke detectors shall be addressable and compatible with the fire alarm system.

C. Where and when the building does not have a fire alarm system, provide a remote annunciator with remote reset for each detector.

D. All smoke detectors shall have remote reset.

2.2 TEMPERATURE CONTROLLER

A. Refer to Section 23 70 00, Packaged Outside Air Unit for controller.

2.3 WIRING

A. Factory mount and wire controls. Mount electrical components in control box with removable cover. Provide clearance for access to controls (36 inch clearance).

B. Provide terminal strip(s) for field wiring of thermostat, communications and power source. DO NOT USE WIRE NUTS IN JUNCTION BOX.

C. All wiring shall comply with local and national electric codes and the manufacturer's published installation manual.

D. Provide terminal strip(s) for field wiring of air conditioning unit input connections, duct temperature sensor, velocity sensor, static pressure sensor, communications, start/stop devices, VFD controls, time clock, bypass damper motor and power wiring, etc. Do not use wire nuts on loose wire. All wire shall be in conduit, flexible conduit or wiring harness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Division 26, ELECTRICAL, shall be responsible for point to point wiring of all starters and starting switches not factory installed in the HVAC equipment.

B. Install all components of control systems under this Section using experienced control mechanics, all in the regular employ of the Installing Contractor, or the apparatus manufacturer.

3.2 WIRING

A. Install all control, pilot circuit and interlock wiring, including wiring through interposed safety or other auxiliary control devices within the confines of the mechanical equipment only. Wiring of thermostats shall be by the Mechanical Contractor.

B. All wiring shall conform to the Local and National Electrical Codes.

C. All control and interlock wiring shall be fused at conductor capacity as shown in the National Electrical Code.

D. No splices will be allowed except at junction boxes and control centers.

E. All wires to each control device must be different colors. All wires to each device must be laced or tied at point of entry into control panel and tagged as to its point of origin.

F. All wires shall be run directly from controller or controlled device to control center. There shall be no looping of wires from one device to another external to the control centers.

G. Control voltage shall be a maximum of 120-volt, unless otherwise indicated herein.

H. Control or interlock wiring shall not be run in conduit with any power wiring other than that serving the equipment controlled.

I. Refer to Division 26, ELECTRICAL, for extent of work under that Division. Provide other wiring systems required to accomplish the work of this Section, following requirements of Division 26 for products and execution.

J. Wiring connection to terminal posts shall be made by means of compression type lugs. Wire splices shall be made with sketch locks.

K. Safety devices in motor control circuits shall be wired to interrupt the holding coil circuit regardless of the position of any selector switches in the circuit.

L. Control circuit conductors shall be sized for a maximum voltage drop of 10 percent of the circuit voltage.

M. All electrical power wiring shall conform in all respects with the provisions of the National Electrical Code and Division 26, ELECTRICAL, of the Specifications.

N. Provide all necessary contactors, switches, transformers to accomplish operating sequences.

3.3 SYSTEM CHECK-OUT

A. Check-out each system for control function through entire sequence, check calibration of instruments, reset instruments control points.

B. Owner maintenance personnel shall be made thoroughly familiar, by the contractor, with the operation and service of the project automatic temperature control circuits.

3.4 SOFTWARE FOR CONTROLS SYSTEMS

A. All software required for the operation of the temperature control system shall be furnished with the control system. The temperature controls manufacturer/contractor shall furnish the software plus two years of software updates.

B. The software shall be provided in original sealed packaging with all written/printed documentation to the Test and Balance Contractor for use in balancing the project. The temperature controls contractor shall turn the software over to the owner upon completion of the project.

END OF SECTION 23 09 00

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 28 13 - COMMERCIAL KITCHEN HOODS

PART 1 - GENERAL

1.1 GENERAL

A. The General Section the Mechanical Specification is a part of the Commercial Kitchen Hood Specification and applies same as if herein specified.

1.2 SCOPE OF WORK

A. Furnish and install all materials, labor, tools, equipment and working plans as required to install and place in operation the complete Kitchen Hood System.

1.3 WORK INCLUDED

A. The work shall include but not be limited to the following:

1. All exhaust/make-up air ductwork
2. Fan packages
3. Kitchen hoods (Existing)
4. Insulation and controls

1.4 PLANS AND DIAGRAM

A. Working plans (drawings) shall be prepared by the contractor before commencing hood installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

1. State Fire Marshal/AHJ

B. Drawings must first be submitted to the Mechanical Engineer (POR) for approval. POR will then forward the plans to the State Fire Marshal/AHJ. Drawings must be submitted in conjunction with hood Fire Suppression Drawings. Refer to the State Fire Marshal's website for all fees, checklists, forms and requirements for submittal.

1.5 PERMITS, INSPECTIONS AND TESTS

A. All permits, fees, etc., for the installation, inspection, review or construction of the work which are required by any authority and/or agencies having jurisdiction, shall be obtained and paid for by the contractor.

B. All inspections, examinations and tests required shall be arranged and paid for by the contractor as necessary to obtain complete and final acceptance.

PART 2 - MATERIALS

2.1 KITCHEN HOOD EXHAUST DUCTWORK

A. All kitchen hood exhaust ductwork shall be constructed of 16 gauge black iron with weld seams and joints. All seams and joints shall be liquid tight. All construction of ductwork shall be in compliance with NFPA 96.

B. Cover the kitchen exhaust with a flexible wrap system listed and labeled (labeling on scrim shall include product name and certification mark) by a NRTL, Nationally Recognized Testing Laboratory. System shall be tested per internal fire test ASTM E 2336 and per ASTM E 119 engulfment test and achieve a 2 hour fire resistance rating. Wrap system shall be fully encapsulated to resist moisture absorption. System shall provide zero clearance to combustible protection at all locations on the system surface. Access doors shall be installed per the manufacturer's instructions to comply with local code. A listed and labeled firestop system must be available to seal the opening where the protected grease duct penetrates a fire rated floor or wall. The field applied grease duct enclosure system must be mechanically attached to the duct using steel banding and/or weld pins per manufacturer's instructions. System shall be NFPA 96 approved. Material shall be Unifrax FryeWrap® Elite® 1.5 3M Fire Barrier 615+ or prior approved equivalent.

2.2 KITCHEN HOOD FAN PACKAGE

A. Provide roof top pre-engineered exhaust and supply fan package(s) in sizes and quantities as shown on plans. The fan packages shall be a complete system manufactured and assembled by Greenheck, (Accurex) or prior approved equal.

B. The exhaust fan shall be constructed of heavy gauge aluminum. The fan wheel and cone shall be aluminum and of the high performance, centrifugal blower type, statically and dynamically balanced. The exhaust fan shall be constructed as to include a built-in grease drain. Motor and drives shall be isolated from the exhaust airstream and shall be located in a chamber cooled by air brought in through a tube from a location free of discharge contaminates. The entire drive assembly and wheel as unit shall be serviceable and removable through the support structure without dismantling the fan housing. The wheel shaft shall be mounted in heavy duty ball bearings. Drives shall be sized for 165 percent of driven horsepower. Motor pulleys shall be of the adjustable type for final system balancing made of cast iron and be keyed to motor and wheel shafts. The entire drive assembly shall be mounted in rubber vibration isolators. The exhaust fan assembly shall also include a rigid bird screen mounted within the discharge perimeter and a thermal barrier insulating the wheel compartment from the drive compartment. The fan shall be AMCA approved for sound and air performance and also shall be U.L. listed for grease removal in accordance with Underwriters Laboratories standards.

C. The supply fan unit shall be of the belt-driven, double width, double inlet, forward curved centrifugal blower type. The blower assembly shall be mounted on vibration isolators. Drives shall be sized for a minimum of 165 percent of driven horsepower. All exterior housing components of the supply unit shall be constructed of minimum 18 gauge galvanized steel, painted with a weatherproof finish that has been baked for durability. Heavy gauge adjustable angle iron support legs shall be furnished as required. The inlet of the unit shall contain bird screen and a bank of washable, removable air filters. Filters shall be of 1 inch aluminum mesh type, coated with filter adhesive compound and shall be U.L. Classified. The total fan package shall be furnished with a pre-wired control center which shall include, but not be limited to, a master-fused disconnect for main power. Connection, magnetic motor starters with thermal overloads and manual reset, fused 24-volt control transformer and distribution terminal strip for control wiring connection. All electrical components shall be U.L. Listed, Approved or Classified where applicable and wired in compliance with the National Electrical Code. Wiring shall be complete, requiring only one-point field connection for power service (exception: electric heater) and one-point field connection for low-voltage control harness.

D. Furnish motorized backdraft damper as integral part of supply unit. Damper unit shall open upon energization of supply fan and close upon shut-off of supply fan.

E. Furnish pre-fabricated roof curbs constructed of minimum 18 gauge galvanized steel with integral wood nailer, run-off cant and 1 inch rigid insulation. Provide curb extensions as required for exhaust fan to meet N.F.P.A. requirements for discharge height.

2.3 KITCHEN HOOD

A. Kitchen hoods are existing. Installation of existing hoods shall be by Mechanical Contractor. Furnish all hangers and stainless steel wrappers for a complete installation.

B. Contractor shall submit hood shop drawings along with hood suppression system for submittal to the Fire Marshal. Contractor shall obtain a copy of the required checklist for all requirements and shall pay all fees required.

2.4 FIRE PROTECTION SYSTEM - KITCHEN HOODS

A. GENERAL

1. The General Section of the Mechanical Specifications is a part of the Fire Protection System Specification and applies same as if herein included.

B. SCOPE OF WORK

1. Furnish all materials, labor, tools, equipment and working plans to install and place in operation the complete Hood Fire Protection System for the kitchen hood as herein specified. The contractor shall be responsible for preparing the plans, calculations, fees and Fire Marshal review of the system layout.

C. WORK INCLUDED

1. The work shall include providing hood fire protection system and shall include but not be limited to the following: all piping and fittings; automatic systems; alarm system; testing and approval; and service fees and installation cost.

D. PLAN AND DIAGRAM

1. Working plans (drawings) shall be prepared by the contractor before commencing fire protection installation. The working drawings (plans) shall be detailed and submitted by the contractor to the following for approval:

   a. State Fire Marshal.

E. HOOD FIRE PROTECTION SYSTEM

1. Furnish and install a fire protection system for the commercial type cooking hood as listed in these specs. The system shall be installed to meet the requirements of NFPA 96, NFPA 17A and UL 300. The Installing Contractor shall also prepare shop drawings for submittal to the State Fire Marshal for review. The Installing Contractor shall be responsible for paying all fees required for submittal to the state and local review agencies. The system shall be installed by all licensed hood fire protection contractor. The Installing Contractor shall be responsible for providing all certificates for Owner's records. The Installing Contractor shall make two (2) inspections of the system during the first year after acceptance by the Owner.
2. The fire protection system shall utilize a wet type fire suppression agent. The liquid agent shall be a potassium carbonate-based solution designed to suppress fires by its saponifying and cooling effects. The agent shall not require periodic replacement. For rapid fire knockdown, the agent shall have an expansion ratio of approximately 2200 to 1. It shall not have an adverse effect on stainless steel appliance, hoods and ducts.
3. The cylinder shall be manufactured and tested in accordance with DOT specifications. It shall be under coated with zinc chromate or red oxide and over coated with white high gloss enamel. The cylinder shall be pressurized to 175 psi to ensure rapid discharge at temperatures as low as 1 degree Fahrenheit. A highly polished metal enclosure shall be provided to conceal the cylinder.
4. The valve shall be heavy duty forged brass, chrome-plated. It shall incorporate an oil-filled bourdon tube gauge to indicate cylinder pressure.
5. The nozzles shall be heavy duty brass, chrome-plated. It shall incorporate a stainless steel strainer to remove scale and foreign matter from pipe or stainless steel tubing. A pure tin foil seal shall protect the nozzle orifice from grease build up. This seal shall be kept tightly in position by a threaded nut to ensure its permanence through the continuous heating-cooling cycle.
6. The system shall be designed for automatic operation with provision for remote and/or local manual control(s). Automatic operation shall be initiated by fusible metallic links, glass bulb links, or electric detectors. The links and glass bulbs are to be utilized with stainless steel cable and corner pulleys employing stainless steel ball bearings. All cable and wiring shall be enclosed in conduit. Where used, the electric detectors are to be utilized with a control panel and an electro-thermal link

that are UL listed for use with the system. All electrical work shall comply with the National Electric Code.

7. Where gas-fired appliances exist, a gas shut-off valve of either the mechanical or electrical type shall be automatically closed upon system actuation. The mechanical type shall be shut-off though the mechanical actuator or a pneumatic release installed in the discharge line. The electric type shall be wired through a manual reset relay to either micro-switch or pressure switch wired through a magnetic contactor. All work shall comply with the National Electric Code.
8. Pipe shall be black steel, stainless steel, or brass standard weight (Schedule 40). Fittings shall be malleable, ductile, or cast iron, steel, stainless steel, or brass and may be standard weight. Stainless steel tubing incorporating bends or stainless steel fittings may also be used. Fittings may be chrome-plated and piping chrome-plated or sleeved. All pipe runs shall be rigidly secured with suitable straps or hangers. Wherever possible, multiple cylinder systems shall be manifolded to minimize pipe.
9. The system shall be installed by an authorized factory trained contractor. The Installing Contractor shall visit the project to take all field measurements and verify the conditions. The Installing Contractor shall acquire and submit all plans, permits and approvals necessary for proper installation and final acceptance. Upon completion, the Installing Contractor shall conduct any and all tests required. The installation shall comply with the manufacturer's installation manual, Underwriters Laboratories listing, National Fire Protection Association Pamphlets 96 and 17A and all applicable regulatory and insurance requirements.

PART 3 - INSTALLATION

3.1 DUCTS

A. Refer to specification section 23 30 00 for any additional comments regarding general duct construction or layout.

PART 4 - EXECUTION

4.1 INSTALLATION

A. The Installing Contractor shall install to meet the manufacturer's instructions.

END OF SECTION 23 28 13

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 23 30 00 - AIR DISTRIBUTION

PART 1 - GENERAL

1.1 GENERAL

A. Furnish and install all ducts for Air Conditioning, Heating, and Ventilating Systems as shown on the plans and as may be required to provide complete system. Ductwork shall be complete with grilles, vanes, flashings, hangers, flexible connections, splitters, manual dampers, fresh air inlets, louvers, reinforcing angles, etc. All ductwork shall be concealed and insulated as hereinafter specified.

1.2 COORDINATION

A. The General Contractor and Mechanical Contractor shall coordinate the space clearances required for ductwork with the structure, ceilings, lights, sprinklers, etc. In some cases, due to space limitations, it may be necessary to re-size ductwork to meet the conditions of the project. Any re-sizing required shall be part of this project and done without any additional cost to the project. DO NOT MAKE DUCTWORK WITHOUT COORDINATION.

1.3 DUCTWORK SHOP DRAWINGS

A. The Mechanical Contractor/ Sheetmetal Contractor shall prepare complete sheetmetal ductwork shop drawings showing coordination with all trades on the project. The shop drawings shall show all offsets, transitions, size changes to resolve conflict, dampers, fire dampers, grilles, air units, etc. These shop drawings shall be submitted prior to starting work and ductwork fabrication.

1.4 Sealing or flashing the building envelope due to penetrations in the building shall be the responsibility of the general contractor.

PART 2 - MATERIALS

2.1 DUCT HANGERS AND SUPPORTS

A. All ductwork shall be properly braced to prevent rattling, breathing, or other unnecessary noise. No sharp edges or obstructions shall project into air stream.

2.2 LOW PRESSURE DUCTWORK

A. All ductwork shall be galvanized steel and shall be of gauges and construction as recommended by ASHRAE Guide and Data Book and SMACNA guidelines. Gauges are as follows with longest side governing.

Dimension of longest side	Low Pressure Ductwork Sheet Metal Gauge
0"-12"	26 gauge
13"-30"	24 gauge
31"-54"	22 gauge
55"-84"	20 gauge

B. Low pressure ductwork shall be all exhaust ducts, return air ducts, fresh air ducts and supply ducts.

C. Joints and reinforcing shall be as per ASHRAE Guide and Data Book and all slips shall be installed without edge of internal part of slip facing downstream.

D. Construction standard of Article 110, of the National Board of Fire Underwriters Bulletin 90, latest edition, shall apply throughout.

E. Flashings shall be of sheet copper and shall be furnished and installed around all outside openings used for ducts of fans and wherever required. Roof flashings shall extend at least 8 inches above roof.

F. All ducts shall be straight and true and installed in a neat and workmanlike manner.

G. All edges shall be straight and true and all bends shall be made with veined turns. Where long radius turns cannot be used, the contractor shall use square turns and use air splitters spaced not more than 3 inches center to center, and of a length so air will be properly distributed over ducts.

H. All ducts shown are metal to metal dimensions.

I. Mastic shall be applied to both male and female connections (all seams and joints) to make all duct joints air tight (applies to all ductwork; round or rectangular). Surplus mastic shall be removed. Tape and re-mastic joints if necessary. Mastic (hard-cast or equivalent duct sealer : tape not acceptable) shall be applied to the joints during assembly so that sealant is on all mating surfaces of the joint.

2.3 DUCT LINERS

A. Low pressure rectangular supply ductwork shall not be lined. All supply and return air ductwork shall be wrapped with same insulation as specified for round ductwork. Exhaust ductwork shall not be insulated. LINED DUCTWORK IS NOT PERMITTED IN THIS PROJECT. WRAP ALL DUCTWORK.

2.4 FILTERS--PRIMARY

A. Units shall be equipped with low velocity filter section with 30 percent efficient 2 inches thick pleated type (Continental air filters "cono pleat" FARR 3030, American Air Filter or equal) throwaway filters.

B. Provide and install one set of filters as called for in these Specifications for initial testing and start-up and another complete set upon completion of the project.

2.5 DUCT ACCESSORIES

A. Dampers of the fusible link operated type shall be provided in all ductwork passing through floor or fire walls.

B. Provide quadrant or adjustable splitters and mark shaft to give position of splitter damper in duct.

C. Provide vanes behind every supply grille or diffuser. Splitters shall be provided where shown on plans and where located in concealed non-accessible space provided Young Regulators to operate splitter. Vanes shall be Tuttle and Bailey "Ducturns", Barber-Coleman, Uniflo, or equivalent. Shop fabricated vanes will be acceptable. All dampers shall be constructed of 14 gauge steel.

2.6 REGISTERS, GRILLES AND DIFFUSERS

A. Ceiling supply outlets, unless otherwise indicated on plans shall be Titus, Price, Nailor or approved equal. Outlets shall be mounted tight to the construction, and shall have frame suitable for type of ceiling used unless otherwise noted.

B. Return air grilles shall be as manufactured by Titus, Price, Nailor or approved equivalent and shall be of style called for on plans.

C. All supply outlets shall have sponge rubber gaskets.

D. All grilles, diffusers, and registers shall be of sizes indicated on plans or scheduled on drawings.

E. Unless otherwise shown on drawings, all grilles installed in the ceiling shall be furnished with white baked-on enamel finish.

2.7 FIRE DAMPERS

A. Furnish and install, at locations shown on plans, fire dampers constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 hour fire protection rating, 212 degrees Fahrenheit fusible link, and shall include a UL label in accordance with established UL labeling procedures. Damper manufacturer's literature

submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with AMCA Standard 500 and shall illustrate pressure drops for all sizes of dampers required at all anticipated air flow rates. Fire dampers shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing steel sleeves, angles, other materials, and practices required to provide an installation equivalent to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. Fire dampers shall be Ruskin type IBD, Arrow, Cesco, Pref-Co, or equal.

B. Fire dampers installed within 10 feet of the air handling unit or where velocities exceed 2000 fpm. Dampers shall be static type for systems with duct smoke detectors, dynamic for systems without duct detector fan shut down.

1. Furnish and install at locations within 10 feet of the air handling unit multi blade fire dampers constructed and tested in accordance with UL safety standard 555 (dynamic) that meet or exceed the following specifications:
   a. Frame shall be a minimum of 16 gauge galvanized (1.52) steel formed into a structural hat and tabbed with tabbed corners for reinforcement. The blades shall be air foil-shaped double skin with 14 gauge (1.90) equivalent thickness. Bearing shall be stainless steel sleeve turning in an extruded hole in the frame.
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in accordance with established labeling procedure.
   c. Damper manufacturers' literature submitted for approval prior to installation shall include comprehensive performance data developed from testing in accordance with the UL 555 standard.
   d. Fire dampers shall have been tested to close under dynamic air flow conditions with pressures up to 4 inches w.g. and to 4,000 fpm air velocity.
   e. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
   f. Fire dampers shall be installed in a wall or floor opening using steel sleeves, angles and other materials and practices required to provide an installation equivalent used by manufacturer when damper was tested at UL. Installation shall be in accordance with the damper manufacturers' instructions.

C. Fire dampers installed beyond 10 feet of the air handling unit and where velocities are under 2000 fpm.

1. Furnish and install at locations shown on plan fire dampers constructed and tested in accordance with UL safety standard 555.
   a. Fire dampers shall have been tested to close under dynamic air flow conditions and be labeled as a dynamic fire damper (static fire dampers are not allowed).
   b. Each fire damper shall have a 1-1/2 hour fire protected rating, 212 degree fusible link and shall include a UL label in this specification accordance with UL 555 standards, and a dynamic label that shall illustrate maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable cfm at 8 inches static pressure for in-duct mounted and maximum allowable at 4 inches static pressure for un-ducted, in-wall mounting.

c. Fire dampers shall be equipped for vertical or horizontal installation as required by location shown.
d. Fire dampers shall be installed in wall and floor openings using steel sleeves, angles and other materials and practices required to provide an installation equivalent to that used by the manufacturer when dampers were tested at UL. Installation shall be in accordance with damper manufacturers' instructions.

D. Round fire dampers: All systems with pressures to 6 inches w.q. and velocities to 4000 fpm.

1. Furnish and install at locations shown on plans, or as described in schedules, round fire dampers meeting or exceeding the following specifications.
   a. Frame shall be a minimum of 20 gauge galvanized steel and blade shall be two piece equivalent to 14 gauge minimum galvanized. Bearings shall be stainless steel sleeve with grooves to receive the 20 gauge retaining plate for damper mounting.
   b. Each round fire damper shall be 1-1/2 hour fire rated under UL standard 555, and bear a UL label attesting to same.
   c. Each round fire damper shall be equipped with a Fuse Link which shall activate at (specifier select one) 165 degrees, 212 degrees, causing damper to close in a locked position.
   d. Manufacturer must provide UL installation instructions for both masonry walls and metal stud drywall partitions.

2.8 PRE-INSULATED FLEXIBLE DUCT

A. Flexible duct shall be rated for a maximum pressure of 16 inches (4-10 inches I.D.) or 10 inches (12-16 inches I.D.) water column positive pressure and 2 inches water column maximum negative pressure and 6000 FPM maximum velocity and listed by Underwriters Laboratories, Inc. under UL Standard 181 as a Class 1 air duct complying with NFPA Standards 90A and 90B. Flexible air duct shall be factory-made and composed of an inner duct of woven and coated fiber glass fabric providing an air seal and permanently bonded to coated steel wire helix, a fiber glass insulating blanket with minimum R-8.0 value (minimum 2 inch thickness) and low permeability outer vapor barrier of fiberglass reinforced metalized film laminate. Flexible air ducts shall be Thermaflex M-KC or Flexmaster type 4M with minimum R-8.0 insulation to meet ASHRAE 90.1 energy code. Maximum installed length shall not exceed 3 feet-0 inches without approval.

PART 3 - INSTALLATION

3.1 DUCTS

A. Ductwork shall be constructed and installed as follows:

1. Straight and smooth on inside with joints neatly finished unless otherwise directed.

2. Duct panels through 48 inch dimension having acoustic duct liner need not be crossbroken or beaded.
3. Crossbreak unlined ducts and duct panels larger than 48 inches or bead 12 inches on center.
4. Securely anchor ducts to building structure with specified duct hangers attached with screws.
5. Brace and install ducts so they shall be free of vibration under all conditions of operation.
6. Ducts shall not bear on the top of structural member.
7. Make duct take-offs to branches, registers, grilles, and diffusers as detailed on Drawings.
8. Properly flash where ducts protrude above roof.
9. Install intemal ends of slip joints in direction of flow. Make joints air tight using specified duct sealer.

B. Install flexible duct connections to each air handling unit.

C. Provide each take-off with an adjustable volume damper to balance that branch.

1. Anchor dampers securely to duct.
2. Install dampers in main ducts within insulation.
3. Dampers in branch ducts shall fit against sheet metal walls, bottom and top of duct, and be securely fastened.
4. Where concealed ceiling damper regulators are installed, provide a cover plate.

D. Install grilles, registers, and diffusers.

3.2 AIR TURNS

A. Permanently installed, consisting of curved metal blades or vanes arranged to permit air to make abrupt turn without appreciable turbulence, in elbows of supply and above ground return ductwork.

B. Air turns shall be quiet and free from vibration when system is in operation.

END OF SECTION 23 30 00

FORD FIELDS CONCESSION STAND
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SECTION 23 70 00 - AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Air Conditioning System, in general, shall be for the entire building providing cooling and dehumidification in summer and heating in winter. A constant amount of fresh air shall be taken into the system and all air shall be filtered.

B. The General Contractor (Prime Contractor) who has the contracts with the Owner shall be responsible for installing the mechanical systems using qualified subcontractors and/or employees. Any incorrect or improper work shall be corrected by the General Contractor.

C. The General Contractor shall be the sole source responsible party to furnish and install the mechanical system. General Contractor shall be properly licensed to perform this work.

1.2 STANDARDS

A. All air conditioning equipment shall comply with the requirements of applicable ARI standards and shall be tested, rated, labeled, and listed accordingly.

1.3 SPACE REQUIREMENTS

A. General Contractor and Mechanical Contractor shall refer to architectural, structural and electrical drawings and install all equipment, piping, etc. to meet building and space requirements. No equipment shall be bid on or submitted for approval if it will not fit into the space provided or coordinate with other trades involved on the project.

1.4 COMPRESSOR WARRANTIES

A. On all packaged and/or split system DX equipment 5 tons and below, the manufacturer shall provide a full 10 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

B. On all packaged and/or split system DX equipment 6 tons and larger, the manufacturer shall provide a full 5 year labor and material warranty for any and all compressor failures during the warranty period. This warranty is for labor, materials and refrigerant for the compressor replacement.

C. The manufacturer shall warranty all parts, labor and refrigerant systems on the entire unit for the warranty period. In addition, annually, the manufacturer's service technicians

shall make a warranty check inspection of the unit with report to the Owner. This warranty shall not include any equipment maintenance; all equipment maintenance is the responsibility of the Owner. The manufacturer shall have full access to the units during the construction period.

D. If a longer warranty period is required elsewhere in these specs, the longer warranty period shall apply.

PART 2 - MATERIALS

2.1 PIPING

A. All piping shall be of materials as hereinbefore specified.

2.2 PACKAGED OUTSIDE AIR UNIT (100% OUTSIDE AIR)

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

1. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
2. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
3. Unit shall be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
4. Unit Energy Efficiency Ratio (EER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
5. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.
6. Unit shall be approved for use in and outside High Velocity Hurricane Zones (HVHZ) by the Florida Building Code (FL# 15031), when using the required steel rooftop curb and attachment methods. Maximum allowable lateral wind pressure is +100psf/-100psf. Maximum allowable uplift is +50psf/-50psf. Positive and negative required design pressures calculated for use with this system shall be determined by others on a job specific basis, in accordance with the governing code. Site specific pressures shall be less than or equal to the listed positive or negative allowable lateral wind design pressure and allowable uplift values for the product.

B. Manufacturer shall provide a limited "parts only" warranty for a period of 24 months from the date of equipment startup or 30 months from the date of original equipment shipment from the factory, whichever is less. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for Installation, Operation, and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and filters.

C. Products shall be provided by the following manufacturers:

1. AAON, Addison or approved Equal
2. Substitute equipment may be considered for approval that includes at a minimum:
   a. R-410A refrigerant
   b. Variable capacity compressor with 10-100% capacity control
   c. Direct drive supply fans
   d. Double wal cabinet construction
   e. Insulation with a minimum R-value of 13
   f. Stainless steel drain pans
   g. Hinged access doors with lockable handles
   h. All other provisions of the specifications must be satisfactorily addressed

D. General Description

1. Packaged rooftop unit shall include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, gas heaters, and unit controls.
2. Unit shall be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the service compartment's literature pocket.
3. Unit shall have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
4. Unit components shall be labeled, including refrigeration system components and electrical and controls components.
5. Estimated sound power levels (dB) shall be shown on the unit ratings sheet.
6. Installation, Operation, and Maintenance manual shall be supplied within the unit.
7. Laminated color-coded wiring diagram shall match factory installed wiring and shall be affixed to the interior of the control compartment's hinged access door.
8. Unit nameplate shall be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

E. Construction

1. All cabinet walls, access doors, and roof shall be fabricated of double wall, impact resistant, rigid polyurethane foam panels.
2. Unit insulation shall have a minimum thermal resistance R-value of 13. Foam insulation shall have a minimum density of 2 pounds/cubic foot and shall be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.
3. Unit construction shall be double wall with G90 galvanized steel on both sides and a thermal break. Double wall construction with a thermal break prevents moisture accumulation on the insulation, provides a cleanable interior, prevents heat transfer through the panel, and prevents exterior condensation on the panel.
4. Unit shall be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage shall not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel

deflection shall not exceed L/240 ratio at 125% of design static pressure, at a maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection shall be measured at the midpoint of the panel height and width. Continuous sealing shall be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels shall include sealing to reduce air leakage.

5. Roof of the air tunnel shall be sloped to provide complete drainage. Cabinet shall have rain break overhangs above access doors.
6. Access to filters, dampers, cooling coils, reheat coil, heaters, compressors, and electrical and controls components shall be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges shall be included on the doors.
7. Exterior paint finish shall be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
8. Units with cooling coils shall include double sloped 304 stainless steel drain pans.
9. Unit shall be provided with base discharge and return air openings. All openings through the base pan of the unit shall have upturned flanges of at least 1/2 inch in height around the opening.
10. Unit shall include lifting lugs on the top of the unit.
11. Unit base pan shall be provided with 1/2 inch thick foam insulation.

F. Electrical

1. Unit shall be provided with factory installed and factory wired, non-fused disconnect switch.
2. Unit shall be provided with a factory installed and factory wired 115V, 13 amp GFI outlet disconnect switch in the unit control panel.

G. Supply Fans

1. Unit shall include direct drive, unhoused, backward curved, plenum supply fans.
2. Blowers and motors shall be dynamically balance and mounted on rubber isolators.
3. Motors shall be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.
4. Variable frequency drives shall be factory wired and mounted in the unit. Fan motors shall be premium efficiency.

H. Cooling Coils

1. Evaporator Coils
   a. Coils shall be designed for use with R-410A refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design shall be sine wave rippled.
   b. Coils shall have interlaced circuitry and shall be 6 row high capacity.
   c. Coils shall be hydrogen or helium leak tested.
   d. Coils shall be furnished with factory installed expansion valves.

I. Refrigeration System

1. Unit shall be factory charged with R-410A refrigerant.
2. Compressors shall be scroll type with thermal overload protection and carry a 10 year non-prorated warranty, from the date of original equipment shipment from the factory.
3. Compressors shall be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors shall be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.
4. Compressors shall be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
5. Each refrigeration circuit shall be equipped with expansion valve type refrigerant flow control.
6. Each refrigeration circuit shall be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low pressure sides and a factory installed replaceable core liquid line filter driers.
7. Unit shall include a variable capacity scroll compressor on the lead refrigeration circuit which shall be capable of modulation from 10-100% of its capacity.
8. Lead refrigeration circuit shall be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
9. Each refrigeration circuit shall be equipped with a liquid line sight glass.
10. Each refrigeration circuit shall be equipped with suction and discharge compressor isolation valves.

J. Condensers

1. Air-Cooled Condenser
   a. Condenser fans shall be a vertical discharge, axial flow, direct drive fans.
   b. Coils shall be designed for use with R-410A refrigerant. Coils shall be multi-pass and fabricated from aluminum microchannel tubes.
   c. Coils shall be designed for a minimum of 10°F of refrigerant sub-cooling.
   d. Coils shall be hydrogen or helium leak tested.
   e. Condenser fans shall be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow shall continuously modulate based on head pressure and cooling operation shall be allowed down to 35°F with adjustable compressor lockout.

K. Gas Heating

1. Stainless steel heat exchanger furnace shall carry a 25 year non-prorated warranty, from the date of original equipment shipment from the factory.
2. Gas furnace shall consist of stainless steel heat exchangers with multiple concavities, an induced draft blower and an electronic pressure switch to lockout the gas valve until the combustion chamber is purged and combustion airflow is established.
3. Furnace shall include a gas ignition system consisting of an electronic igniter to a

pilot system, which will be continuous when the heater is operating, but will shut off the pilot when heating is not required.

4. Unit shall include a single gas connection and have gas supply piping entrances in the unit base for through-the-curb gas piping and in the outside cabinet wall for across the roof gas piping.
5. Natural gas furnace shall be equipped with modulating gas valves, adjustable speed combustion blowers, stainless steel tubular heat exchangers, and electronic controller. Combustion blowers and gas valves shall be capable of modulation. Electronic controller includes a factory wired, field installed supply air temperature sensor. Sensor shall be field installed in the supply air ductwork. Supply air temperature setpoint shall be adjustable on the electronic controller within the controls compartment.

L. Filters

1. Unit shall include 2 inch thick, pleated panel filters with an ASHRAE efficiency of 30% and MERV rating of 8, upstream of the cooling coil.
2. Unit shall include 1 inch aluminum mesh pre filters upstream of the outside air opening.

M. Outside Air/Economizer

1. Unit shall include 100% motor operated outside air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge and end seals. Damper blades shall be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers shall be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly shall be controlled by spring return, 2 position actuator. Unit shall include outside air opening bird screen and outside air hood.

N. Controls

1. Factory Installed and Factory Provided Controller
   a. Unit controller shall be capable of controlling all features and options of the unit. Controller shall be factory installed in the unit controls compartment and factory tested. Controller shall be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.
   b. Controller shall have an onboard clock and calendar functions that allow for occupancy scheduling.
   c. Controller shall include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.
   d. Makeup Air Controller
      1) Unit shall modulate cooling with constant airflow to meet ventilation outside air loads. Cooling capacity shall modulate based on supply air temperature.
      2) With modulating hot gas reheat, unit shall modulate cooling and hot gas reheat as efficiently as possible, to meet outside air humidity loads and prevent supply air temperature swings and overcooling of the space.

3) Unit shall modulate heating with constant airflow to meet ventilation outside air loads. Heating capacity shall modulate based on supply air temperature.

e. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling shall be accomplished with connection to interface module with LCD screen and input keypad, interface module with touch screen, or with connection to PC with free configuration software. Controller shall be capable of connection with other factory installed and factory provided unit controllers with individual unit configuration, setpoint adjustment, sensor status viewing, and occupancy scheduling available from a single unit. Connection between unit controllers shall be with a modular cable. Controller shall be capable of communicating and integrating with a LonWorks or BACnet network.

O. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit. Curb gasket shall be furnished within the control compartment of the rooftop unit to be mounted on the curb immediately before mounting of the rooftop unit.

P. Installation, Operation, and Maintenance manual shall be supplied with the unit. Installing contractor shall install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the unit.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install air conditioning systems in accordance with Section 23 05 00.

B. Mount equipment complete with piping system, roof curbs and air distribution system, and provide for power connection.

C. Complete structural, mechanical, and electrical connections in accordance with manufacturer's installation instructions.

3.2 TESTING

A. Refrigerant lines shall be tested under 200 psi carbon dioxide pressure for 5 hours using soap suds at joints to test for leaks. Evacuate system and charge with refrigerant.

B. All line testing shall be witnessed by the Test and Balance Agency (TAB). TAB Agency shall record results and include in final TAB report.

END OF SECTION 23 70 00

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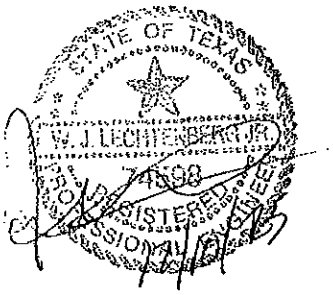

FORD FIELDS CONCESSION STAND
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SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THHN-2-THWN-2 , Type XHHW-2 and Type SO.

C. Multiconductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for metal-clad cable, Type MC and Type SO with ground wire.

2.2 CONNECTORS AND SPLICES

A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger, except VFC cable, which shall be extra flexible stranded.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Exposed Feeders: Type THHN-2-THWN-2, single conductors in raceway.

B. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

C. Feeders Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

D. Exposed Branch Circuits, Including in Crawlspaces: Type THHN-2-THWN-2, single conductors in raceway.

E. Branch Circuits Concealed in Ceilings, Walls, and Partitions: Type THHN-2-THWN-2, single conductors in raceway.

F. Branch Circuits Concealed, below Slabs-on-Grade, and Underground: Type THHN-2-THWN-2, single conductors in raceway.

G. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

H. Flexible Connections to Lighting Fixtures: Type MC cable with maximum length of six feet.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 FIRESTOPPING

A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

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3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.

   a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
   b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
   c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

B. Test and Inspection Reports: Prepare a written report to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

C. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

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SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy; Part of Hubbell Electrical Systems.
2. ERICO International Corporation.
3. ILSCO.
4. O-Z/Gedney; an EGS Electrical Group brand; an Emerson Industrial Automation business.

2.2 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.3 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.4 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.5 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.

1. Bury at least 24 inches below grade.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Pad-Mounted Transformers and Switches: Install two ground rods around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for taps to equipment grounding terminals.

3.4 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:

1. Feeders and branch circuits.
2. Lighting circuits.
3. Receptacle circuits.
4. Single-phase motor and appliance branch circuits.
5. Three-phase motor and appliance branch circuits.
6. Flexible raceway runs.

C. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

D. Water Heater: Install a separate insulated equipment grounding conductor to each electric water heater. Bond conductor to heater units, piping, connected equipment, and components.

3.5 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.

1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.

1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION 260526

FORD FIELDS CONCESSION STAND
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SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.2 PERFORMANCE REQUIREMENTS

A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
2. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

C. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Mechanical-Expansion Anchors: Insert-wedge-type, **[zinc-coated]** **[stainless]** steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT and RMC as scheduled in NECA 1, where its Table 1 lists maximum spacings less than stated in NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted or other support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Section 033000 "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.2 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. GRC: Comply with ANSI C80.1 and UL 6.

C. EMT: Comply with ANSI C80.3 and UL 797.

D. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

E. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.

1. Fittings for EMT:

a. Material: die cast.
b. Type: compression.

2. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

F. Joint Compound for GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

C. Continuous HDPE: Comply with UL 651B.

D. Fittings for RNC: Comply with NEMA TC 3; match to conduit type and material.

E. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.

1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.4 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5.

C. Tele-Power Poles:

1. Material: Aluminum with clear anodized finish.
2. Fittings and Accessories: Dividers, end caps, covers, cutouts, wiring harnesses, devices, mounting materials (top and bottom), and other fittings shall match and mate with tele-power pole as required for complete system. This project uses both sides for power raceways.

2.5 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Metal Floor Boxes:

1. Material: Cast metal.
2. Type: Fully adjustable.
3. Shape: Square.
4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

J. Device Box Dimensions: 4 inches square by 2-1/8 inches deep.

K. Gangable boxes are prohibited.

L. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

M. Cabinets:

1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed Conduit: GRC.
2. Concealed Conduit, Aboveground: GRC or RNC, Type EPC-40-PVC.
3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried or concrete encased.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

B. Indoors: Apply raceway products as specified below unless otherwise indicated.

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
6. Damp or Wet Locations: GRC.
7. Boxes and Enclosures: NEMA 250, Type 1.

C. Minimum Raceway Size: 3/4-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. EMT: Use compression, cast-metal fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install surface raceways only where indicated on Drawings.

F. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

D. Arrange stub-ups so curved portions of bends are not visible above finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

G. Support conduit within 12 inches of enclosures to which attached.

H. Raceways Shall not be Embedded in Slabs:

I. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

J. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

K. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

L. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

M. Surface Raceways:

1. Install surface raceway with a minimum 2-inchradius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

N. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.

O. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where an underground service raceway enters a building or structure.
3. Where otherwise required by NFPA 70.

P. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations subject to severe physical damage.
2. Use LFMC in damp or wet locations not subject to severe physical damage.

Q. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

R. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between the box and cover plate or the supported equipment and box.

S. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

T. Locate boxes so that cover or plate will not span different building finishes.

U. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

V. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

W. Set metal floor boxes level and flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Excavate trench bottom to provide firm and uniform support for conduit.
2. Install backfill as specified in Section 312000 "Earth Moving."

3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."
4. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
    b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install handholes with bottom below frost line.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.6 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Identification for conductors.
2. Warning labels and signs.
3. Equipment identification labels.
4. Miscellaneous identification products.

1.2 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

A. Comply with ANSI A13.1.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

2.2 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.3 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.4 EQUIPMENT IDENTIFICATION LABELS

A. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

2.5 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

B. Apply identification devices to surfaces that require finish after completing finish work.

C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

F. Painted Identification: Comply with requirements in painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the wiring system legend and system voltage. System legends shall be as follows:
1. Power.

B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
b. Colors for 208/120-V Circuits:

1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

C. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

a. Power transfer switches.
b. Controls with external control power connections.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer and load shedding.

K. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Unless otherwise indicated, provide a single line of text with 1/2-inch- high letters on 1-1/2-inch- high label; where two lines of text are required, use labels 2 inches high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION 260553

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Distribution, dry-type transformers rated 600 V and less, with capacities up to 1500 kVA.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings:

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Source quality-control reports.

B. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. General Electric Company.
2. Square D; by Schneider Electric.

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Transformers Rated 15 kVA and Larger: Comply with NEMA TP 1 energy-efficiency levels as verified by testing according to NEMA TP 2.

1. Coil Material: Copper.

D. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated.

2.3 DISTRIBUTION TRANSFORMERS

A. Comply with NFPA 70, and list and label as complying with UL 1561.

B. Cores: One leg per phase.

C. Enclosure: Ventilated.

1. NEMA 250, Type 3R: Core and coil shall be encapsulated within resin compound utilizing a vacuum pressure impregnation process to seal out moisture and air.

D. Transformer Enclosure Finish: Comply with NEMA 250.

1. Finish Color: NSF/ANSI 49 gray.

E. Taps for Transformers 3 kVA and Smaller: One 5 percent tap above normal full capacity.

F. Taps for Transformers 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity.

G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.

H. Insulation Class, Smaller than 30 kVA: 185 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

I. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 115-deg C rise above 40-deg C ambient temperature.

2.4 IDENTIFICATION DEVICES

A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical Systems."

2.5 SOURCE QUALITY CONTROL

A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from adjacent wall surface.

D. Construct concrete bases according to Section 033000 "Cast-in-Place Concrete" and anchor floor-mounted transformers according to manufacturer's written instructions and requirements in Section 260529 "Hangers and Supports for Electrical Systems."

1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

E. Secure transformer to concrete base according to manufacturer's written instructions.

F. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.

G. Remove shipping bolts, blocking, and wedges.

3.2 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS for dry-type, air-cooled, low-voltage transformers. Certify compliance with test parameters.

B. Remove and replace units that do not pass tests or inspections and retest as specified above.

C. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.

1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

3.4 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Connect buck-boost transformers to provide nameplate voltage of equipment being served, plus or minus 5 percent, at secondary terminals.

C. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 262200

FORD FIELDS CONCESSION STAND
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SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
6. Include wiring diagrams for power, signal, and control wiring.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

C. Field quality-control reports.

D. Panelboard schedules for installation in panelboards.

E. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NEMA PB 1.

C. Comply with NFPA 70.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

FORD FIELDS CONCESSION STAND
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PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.

a. Indoor Dry and Clean Locations: NEMA 250, Type 1 or Type 12. See drawings.
b. Outdoor Locations: NEMA 250, Type 3R.

2. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
3. Directory Card: Inside panelboard door, mounted in transparent card holder.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Mechanical type.
3. Ground Lugs and Bus Configured Terminators: Mechanical type.
4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, and listed and labeled for series-connected short-circuit rating by an NRTL.

H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Panelboards: NEMA PB **1**, power and feeder distribution type.

C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

D. Mains: Circuit breaker, as indicated on plans.

E. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

F. Branch Overcurrent Protective Devices: For Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schnelder Electric.

B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

C. Mains: Circuit breaker or lugs as indicated on plans.

D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, [provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Square D; a brand of Schneider Electric.

B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
3. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

a. Standard frame sizes, trip ratings, and number of poles.
b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
f. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
g. Handle Lock Device: Loose attachment, for holding circuit-breaker handle in on position.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Receive, inspect, handle, store and install panelboards and accessories according to NEMA PB 1.1.

B. Mount top of trim 90 inches above finished floor unless otherwise indicated.

C. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

D. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

E. Install filler plates in unused spaces.

F. Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future.

G. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

H. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260553 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads and incorporating Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262416

FORD FIELDS CONCESSION STAND
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SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:

1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.4 GFCI RECEPTACLES

A. General Description:

1. Straight blade, feed-through type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2.5 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Single Pole:

1) Cooper; AH1221.
2) Hubbell; HBL1221.
3) Leviton; 1221-2.
4) Pass & Seymour; CSB20AC1.

b. Two Pole:

1) Cooper; AH1222.
2) Hubbell; HBL1222.
3) Leviton; 1222-2.
4) Pass & Seymour; CSB20AC2.

c. Three Way:

1) Cooper; AH1223.
2) Hubbell; HBL1223.
3) Leviton; 1223-2.
4) Pass & Seymour; CSB20AC3.

d. Four Way:

1) Cooper; AH1224.
2) Hubbell; HBL1224.
3) Leviton; 1224-2.
4) Pass & Seymour; CSB20AC4.

C. Pilot-Light Switches, 20 A:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Cooper Wiring Devices, Inc.
b. Hubbell.
c. Leviton Manufacturing Co., Inc.

2. Description: Single pole, with neon-lighted handle, illuminated when switch is "on."

2.6 WALL-BOX DIMMERS

A. Dimmer Switches: Modular, full-wave, solid-state units with integral, quiet on-off switches, with audible frequency and EMI/RFI suppression filters.

B. Control: Continuously adjustable slider; with single-pole or three-way switching. Comply with UL 1472.

C. Fluorescent Lamp and LED Dimmer Switches: Modular; compatible with dimmer ballasts; trim potentiometer to adjust low-end dimming; dimmer-ballast combination capable of consistent dimming with low end not greater than 5 percent of full brightness.

2.7 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with in-use, lockable cover.

2.8 FINISHES

A. Device Color:

1. Wiring Devices Connected to Normal Power System: As selected by Architect on a room by room basis unless otherwise indicated or required by NFPA 70 or device listing.
2. Wiring Devices Connected to Emergency Power System: Red.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.

B. Coordination with Other Trades:

1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

C. Conductors:

1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Dimmers:

1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

H. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

FORD FIELDS CONCESSION STAND
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SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cartridge fuses rated 600 V ac and less for use in the following:

a. Control circuits.
b. Enclosed switches.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Bussmann; a division of Cooper Industries.
2. Edison; a brand of Cooper Bussmann; a division of Cooper Industries.
3. Littelfuse, Inc.

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, current-limiting, nonrenewable cartridge fuses with voltage ratings consistent with circuit voltages.

1. Type RK-1: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
2. Type RK-5: 250 or 600-V, zero- to 600-A rating, 200 kAIC, time delay.
3. Type J: 600-V, zero- to 600-A rating, 200 kAIC, time delay.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with NFPA 70.

E. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install fuses in fusible devices. Arrange fuses so rating information is readable without removing fuse.

B. Fuse rating shall be in accordance with equipment nameplate.

3.2 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems" and indicating fuse replacement information inside of door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

FORD FIELDS CONCESSION STAND
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SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fusible switches.
2. Nonfusible switches.
3. Molded-case circuit breakers (MCCBs).
4. Enclosures.

1.2 DEFINITIONS

A. NC: Normally closed.

B. NO: Normally open.

C. SPDT: Single pole, double throw.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated.

B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate indicated fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Class R Fuse Kit: Provides rejection of other fuse types when Class R fuses are specified.
4. Lugs: Suitable for number, size, and conductor material.

2.2 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Lugs: Suitable for number, size, and conductor material.

2.3 MOLDED-CASE CIRCUIT BREAKERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

B. General Requirements: Comply with UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents.

C. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.

D. Features and Accessories:

1. Standard frame sizes, trip ratings, and number of poles.
2. Lugs: Suitable for number, size, trip ratings, and conductor material.
3. Ground-Fault Protection: Comply with UL 1053; integrally mounted, self-powered type with mechanical ground-fault indicator; relay with adjustable pickup and time-delay settings, push-to-test feature, internal memory, and shunt trip unit; and three-phase, zero-sequence current transformer/sensor.
4. Shunt Trip: Trip coil energized from separate circuit, with coil-clearing contact.

2.4 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.

B. Install fuses in fusible devices. Verify exact fuse rating with equipment nameplate.

C. Comply with NECA 1.

3.2 IDENTIFICATION

A. Comply with requirements in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies enclosed switches and circuit breakers and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION 262816

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 262913 - ENCLOSED CONTROLLERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following enclosed controllers rated 600 V and less:

1. Full-voltage manual.
2. Full-voltage magnetic.

1.2 DEFINITIONS

A. CPT: Control power transformer.

B. MCCB: Molded-case circuit breaker.

C. MCP: Motor circuit protector.

D. N.C.: Normally closed.

E. N.O.: Normally open.

F. OCPD: Overcurrent protective device.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of enclosed controller.

B. Shop Drawings: For each enclosed controller. Include dimensioned plans, elevations, sections, details, and required clearances and service spaces around controller enclosures.

1. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 FULL-VOLTAGE CONTROLLERS

A. General Requirements for Full-Voltage Controllers: Comply with NEMA ICS 2, general purpose, Class A.

B. Motor-Starting Switches: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off or on.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Nonreversing.
3. Surface mounting.
4. Pilot light.

C. Fractional Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Eaton Electrical Sector; Eaton Corporation.
b. General Electric Company.
c. Square D.

2. Configuration: Two speed.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters matched to nameplate full-load current of actual protected motor; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

D. Integral Horsepower Manual Controllers: "Quick-make, quick-break" toggle or push-button action; marked to show whether unit is off, on, or tripped.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Overload Relays: Inverse-time-current characteristics; NEMA ICS 2, Class 10 tripping characteristics; heaters and sensors in each phase, matched to nameplate full-load current of actual protected motor and having appropriate adjustment for duty cycle; external reset push button; bimetallic type.
4. Surface mounting.
5. Pilot light.

E. Magnetic Controllers: Full voltage, across the line, electrically held.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Eaton Electrical Sector; Eaton Corporation.
    b. General Electric Company.
    c. Square D.

2. Configuration: Nonreversing.
3. Contactor Coils: Pressure-encapsulated type.

    a. Operating Voltage: Depending on contactor NEMA size and line-voltage rating, manufacturer's standard matching control power or line voltage.

4. Power Contacts: Totally enclosed, double-break, silver-cadmium oxide; assembled to allow inspection and replacement without disturbing line or load wiring.
5. Control Circuits: 120-V ac; obtained from integral CPT, with primary and secondary fuses, with CPT of sufficient capacity to operate integral devices and remotely located pilot, indicating, and control devices. (100VA extra minimum.)

6. Solid-State Overload Relay:

    a. Switch or dial selectable for motor running overload protection.
    b. Sensors in each phase.
    c. Class 10/20 selectable tripping characteristic selected to protect motor against voltage and current unbalance and single phasing.

7. External overload reset push button.

F. Combination Magnetic Controller: Factory-assembled combination of magnetic controller, OCPD, and disconnecting means.

G. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Sector; Eaton Corporation.
2. General Electric Company.
3. Square D.

4. MCP Disconnecting Means:

   a. UL 489, NEMA AB 1, and NEMA AB 3, with interrupting capacity to comply with available fault currents, instantaneous-only circuit breaker with front-mounted, field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.
   b. Lockable Handle: Accepts three padlocks and interlocks with cover in closed position.
   c. Auxiliary contacts "a" arranged to activate with MCP handle.

2.2 ENCLOSURES

A. Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.

1. Dry and Clean Indoor Locations: Type 1.
2. Outdoor Locations: Type 3R.

2.3 ACCESSORIES

A. Push Buttons, Pilot Lights, and Selector Switches: NEMA ICS 5; heavy-duty type; factory installed in controller enclosure cover unless otherwise indicated. (Start-Stop, HOA, Red Pilot Light)

B. Control Relays: Auxiliary and adjustable time-delay relays.

C. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays: Solid-state sensing circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage, overvoltage, and time-delay settings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Wall-Mounted Controllers: Install enclosed controllers on walls with tops at uniform height, and with disconnect operating handles not higher than 79 inches above finished floor, unless otherwise indicated, and by bolting units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not at walls, provide freestanding racks complying with Section 260529 "Hangers and Supports for Electrical Systems."

B. Install fuses in each fusible-switch enclosed controller.

C. Install fuses in control circuits if not factory installed. Comply with requirements in Section 262813 "Fuses."

D. Install heaters in thermal overload relays. Select heaters based on actual nameplate full-load amperes after motors have been installed.

E. Comply with NECA 1.

3.2 IDENTIFICATION

A. Identify enclosed controllers, components, and control wiring. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each enclosure with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

3.3 CONTROL WIRING INSTALLATION

A. Install wiring between enclosed controllers and remote devices and facility's central control system. Comply with requirements in Section 260523 "Control-Voltage Electrical Power Cables."

B. Bundle, train, and support wiring in enclosures.

C. Connect selector switches and other automatic-control selection devices where applicable.

1. Connect selector switches to bypass only those manual- and automatic-control devices that have no safety functions when switch is in manual-control position.
2. Connect selector switches with enclosed-controller circuit in both manual and automatic positions for safety-type control devices such as low- and high-pressure cutouts, high-temperature cutouts, and motor overload protectors.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Acceptance Testing Preparation:

1. Test insulation resistance for each enclosed controller, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

C. Tests and Inspections:

1. Inspect controllers, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
2. Test insulation resistance for each enclosed-controller element, component, connecting motor supply, feeder, and control circuits.
3. Test continuity of each circuit.
4. Verify that voltages at controller locations are within plus or minus 10 percent of motor nameplate rated voltages. If outside this range for any motor, notify Engineer before starting the motor(s).
5. Test each motor for proper phase rotation.
6. Perform each electrical test and visual and mechanical inspection stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Enclosed controllers will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Set field-adjustable switches and overload-relay pickup and trip ranges.

B. Adjust the trip settings of MCPs and thermal-magnetic circuit breakers with adjustable instantaneous trip elements. Initially adjust to six times the motor nameplate full-load ampere ratings and attempt to start motors several times, allowing for motor cooldown between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed eight times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Engineer before increasing settings.

3.6 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain enclosed controllers.

END OF SECTION 262913

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 264313 - SURGE PROTECTION FOR LOW-VOLTAGE POWER CIRCUITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes field-mounted SPDs for low-voltage (120 to 600 V) power distribution and control equipment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
2. Copy of UL Category Code VZCA certification, as a minimum, listing the tested values for VPRs, Inominal ratings, MCOVs, type designations, OCPD requirements, model numbers, system voltages, and modes of protection.

1.3 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranty: For manufacturer's special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to replace or replace SPDs that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL SPD REQUIREMENTS

A. SPD with Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with NFPA 70.

C. Comply with UL 1449.

D. MCOV of the SPD shall be the nominal system voltage.

2.2 PANEL SUPPRESSORS

A. SPDs: Comply with UL 1449, Type 2.

1. Include LED indicator lights for power and protection status.
2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.

B. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 100 kA. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

C. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:

1. Line to Neutral: 700 V for 208Y/120 V.
2. Line to Ground: 700 V for 208Y/120 V.
3. Neutral to Ground: 700 V for 208Y/120 V.
4. Line to Line: 1200 V for 208Y/120 V

D. SCCR: Equal or exceed 100 kA.

E. Inominal Rating: 20 kA.

2.3 ENCLOSURES

A. Indoor Enclosures: NEMA 250, Type 1.

B. Outdoor Enclosures: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install an OCPD or disconnect as required to comply with the UL listing of the SPD.

C. Install SPDs with conductors between suppressor and points of attachment as short and straight as possible, and adjust circuit-breaker positions to achieve shortest and straightest leads. Do not splice and extend SPD leads unless specifically permitted by manufacturer. Do not exceed manufacturer's recommended lead length. Do not bond neutral and ground.

D. Use crimped connectors and splices only. Wire nuts are unacceptable.

E. Complete startup checks according to manufacturer's written instructions. Energize SPDs after power system has been energized, stabilized, and tested.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative.

1. Compare equipment nameplate data for compliance with Drawings and Specifications.
2. Inspect anchorage, alignment, grounding, and clearances.
3. Verify that electrical wiring installation complies with manufacturer's written installation requirements.

B. An SPD will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

3.3 DEMONSTRATION

A. Train Owner's maintenance personnel to operate and maintain SPDs.

END OF SECTION 264313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior solid-state luminaires that use LED technology.
2. Lighting fixture supports.

1.2 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. LED: Light-emitting diode.

F. Lumen: Measured output of lamp and luminaire, or both.

G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product, arranged by designation.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires and lamps. See Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of luminaire.

B. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

B. Warranty Period: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Recessed Fixtures: Comply with NEMA LE 4.

C. CRI of minimum 80. CCT of 4100 K.

D. Rated lamp life of 50,000 hours.

E. Lamps dimmable from 100 percent to 0 percent of maximum light output.

F. Internal driver.

G. Nominal Operating Voltage: 120 V ac or 277 V ac. See Drawings.

1. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

H. Housings:

1. Extruded-aluminum housing and heat sink.
2. White, painted finish.

2.2 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging

B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools.

Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

C. Diffusers, and Globes:

1. Clear, UV-stabilized acrylic.
2. Acrylic: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

D. Housings:

1. Extruded-aluminum housing and heat sink.
2. Clear per plan, powder-coat finish.

2.3 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.4 LUMINAIRE SUPPORT COMPONENTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage.

D. Rod Hangers: 3/16-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with NECA 1.

B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

C. Install lamps in each luminaire.

D. Supports: Sized and rated for luminaire weight.

E. Flush-Mounted Luminaire Support: Secured to outlet box.

F. Wall-Mounted Luminaire Support:

1. Attached to structural members in walls.
2. Do not attach luminaires directly to gypsum board.

G. Ceiling-Mounted Luminaire Support:

1. Ceiling mount with two 5/32-inch diameter aircraft cable supports adjustable to 120 inches in length.

H. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure luminaire using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

I. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" for wiring connections.

J. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.

B. Luminaire will be considered defective if it does not pass operation tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 265119

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Addressable interface device.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Locate detectors according to manufacturer's written recommendations.

12. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

a. Trained and certified by manufacturer in fire-alarm system design.
b. NICET-certified, fire-alarm technician; Level III minimum.
c. Licensed or certified by authorities having jurisdiction.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

C. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment.
d. Riser diagram.
e. Record copy of site-specific software.
f. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

g. Manufacturer's required maintenance related to system warranty requirements.
h. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Fire-extinguishing system operation.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
5. Record events in the system memory.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, or remote annunciator.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 FIRE-ALARM CONTROL UNIT

A. The Fire Alarm Control Unit is an existing system and this project shall provide the additional components to expand system to include the new facility..

2.4 MANUAL FIRE-ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38.

1. Dual-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.

2.5 SYSTEM SMOKE DETECTORS

A. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F per minute.
    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F.
    c. Multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels based on time of day.

B. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.

b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

C. Ionization Smoke Detector:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.6 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

B. Heat Detector, Combination Type: Actuated by either a fixed temperature or a rate of rise.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.

2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.7 NOTIFICATION APPLIANCES

A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

B. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464.

C. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- high letters on the lens.

1. Mounting: Wall mounted unless otherwise indicated.
2. Flashing shall be in a temporal pattern, synchronized with other units.
3. Strobe Leads: Factory connected to screw terminals.
4. Mounting Faceplate: Factory finished, red.

2.8 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.9 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.

2. Store an internal identifying code for control panel use to identify the module type.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, NFPA 101, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.

C. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

D. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

E. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

G. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

H. Audible Alarm-Indicating Devices: Install not less than 6 inches below the ceiling. Install horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

I. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches below the ceiling. Install all devices at the same height unless otherwise indicated.

J. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.2 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches above the floor shall be installed in EMT.

2. Exposed pathways conductors shall be red.

B. Pathways shall be installed in EMT.

C. Exposed EMT junction boxes shall be painted red enamel.

3.3 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Smoke dampers in air ducts of designated HVAC duct systems.
2. Magnetically held-open doors.
3. Electronically locked doors and access gates.
4. Alarm-initiating connection to elevator recall system and components.
5. Supervisory connections at valve supervisory switches.
6. Supervisory connections at elevator shunt-trip breaker.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

3.5 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Architect and authorities having jurisdiction.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Inspection shall be based on completed record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter.
b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

D. Fire-alarm system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

G. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.7 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.8 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 310000 - GEO-TECHNICAL INVESTIGATION REPORTS

GENERAL

A. The report reproduced on the following pages is an exact copy of the original Subsurface Investigation Report for the Ford Park Multi-Sports Facility, Beaumont, Texas, prepared by Science Engineering, Inc.

B. Procedures and precautions recommended in the following Subsurface Investigation Report and attachments are to be strictly followed by the contractor. Where the technical sections of these specifications differ from the recommendations of the Subsurface Investigation Report, the more stringent requirement shall govern.

C. The Contractor is responsible for examining the site and determining the nature of the materials to be excavated.

D. Contractor shall be responsible for paying for all failed tests. Geo-Technical inspection service will bill all failed tests directly to the Contractor. Evidence of payment shall be a requirement for substantial completion.

SUBSURFACE SOILS INVESTIGATION REPORT FOLLOWS IN ITS ENTIRETY AND COMPLETES SECTION 310000.

SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

GEOTECHNICAL INVESTIGATION

FOR

FORD PARK MULTI-SPORTS FACILITY

IN

BEAUMONT, TEXAS

REPORT NUMBER 14260

REPORTED TO:

AMERICAN BUILDERS
9405 COLLEGE STREET
BEAUMONT, TEXAS 77707

NOVEMBER 2014

PREPARED BY:
SCIENCE ENGINEERING, LTD.

P.O. Box 2048 / Nederland, Texas 77627 / Tel.:(409) 982-0686 or (409)727-2218
Fax: (409) 982-0619 / E-Mail: yousef@science-engineer.com

GEOTECHNICAL INVESTIGATION
Multi-Sports Facility
Beaumont, Texas

INTRODUCTION

The study reported herein is a preliminary investigation of subsurface conditions for the new Ford Park Multi-Sports Facility in Beaumont, Texas.

AUTHORIZATION

This investigation was authorized by Mr. Don King, P.E. by e-mail dated November 5, 2014.

SUBSURFACE EXPLORATION

The subsurface exploration at the site was accomplished by means of two (2) undisturbed sample core borings drilled to depths of approximately twenty (20) feet below existing ground surface. Approximate locations of the borings are shown on the attached boring plan.

SUBSURFACE INVESTIGATION

The subsurface investigation consisted of drilling three-inch nominal diameter core borings. Undisturbed samples of the cohesive soils were obtained from the borings by means of thin-wall, seamless steel Shelby tube samplers, in accordance with the ASTM D-1587 method. The shear strength of the cohesive soil samples was estimated by hand pentrometer in the field.

All undisturbed samples were extracted mechanically from the core barrels in the field, classified, wrapped in aluminum foil, and sealed in airtight plastic bags to prevent moisture loss and disturbance. The samples were transported to our laboratory for testing and further study.

LABORATORY INVESTIGATIONS

All samples from borings were examined and classified in the laboratory by a soil engineer, according to procedures outlined in ASTM D-2488. Laboratory tests were performed on selected soil samples in order to evaluate the engineering properties of the soil in accordance with the indicated standard procedures.

LABORATORY TESTS	STANDARD TESTS
Atterberg Limits (L.L., P. L., P.I.)	ASTM D-4318
Soil Moisture Content	ASTM D-2216
Unconfined Compressive Strength	ASTM D-2266
Soils Classification	ASTM D-2487

Undrained shear strength of selective cohesive soils was determined by unconfined compression tests. Water content and dry unit weight of the foundation soils were determined as routine parts of the unconfined compression tests. Atterberg limits tests were performed on appropriate cohesive samples. The results of these tests are shown on the attached boring logs.

SUBSURFACE CONDITIONS

Specific types and depths of subsurface strata encountered on the site are shown on the attached boring logs. Review of the boring logs indicates that generalized stratography is approximately as follows:

Stratum No.	Average Depth, feet	Description of Strata
I	0.00 - 6.00	Dark Gray CLAY (CH)
II	6.00 - 17.00	Tan and Gray CLAY (CH) with ferrous nodules and slickensides
III	17.00 - 20.00	Tan and Gray SANDY CLAY (CL)

The near surface soils are "CH" type soils when classified by the unified soils classification system. This type soil normally exhibits high swell potential during seasonal moisture variations.

Hydrostatic water was not encountered at the time of drilling.

CONSTRUCTION VARIATIONS

The information contained in this report summarizes conditions found on the date that the borings was drilled. The depth to the static water table may be expected to vary with the environmental variations, such as frequency and magnitude of precipitation and the time of year that construction begins.

DESIGN ANALYSIS AND RECOMMENDATIONS

Information available to this office indicates that the proposed construction at the site will consist of a new multi-sports facility.

DRILLED FOOTINGS (UNDERREAMS)

From analysis of the borings logs and laboratory tests results, it is recommended that the structural loads be transmitted to the foundation soils by the use of drilled and underreamed type footings. Footings should extend to a depth of nine feet (9') below existing ground surface to be located in Tan and Gray Clay. Utilizing a minimum factor of safety of three for dead load, or a minimum factor of two for total load, the allowable bearing capacity of the foundation soils for circular type footings is given as follows. 2,500 Pounds per square foot (PSF) for dead load, plus long term live loads and 3,700 PSF for total load. Whichever is critical should be used. The allowable loads given can be increased by thirty percent (30%) for wind or temporary lateral loading.

Due to the presence of slickensides at the recommended depth, we suggest that the bell to shaft ratio for the footings be limited to one to two (1:2).

There is potential for upward movement of the plastic clays in contact with the sides of the piers; the pier shafts should be well reinforced throughout their length resist tensional force.

STRUCTURE FOUNDATION

Each footing excavation should be inspected by the project's Engineer, Architect or Owner's representative prior to placing concrete to insure that (a) the footing has been constructed at the correct depth and the correct formation established by previously mentioned criteria, (b) the footing is concentric with the pier shaft or column, and (c) excessive cuttings, build-up or any soft-compressible material(s) have been removed from the bottom of the excavation.

Placement of concrete should be accomplished as soon as possible to prevent changes in the state of stress and the caving of the foundation soils. No footings should be poured without the prior approval of the projects' Engineer, Architect or Owner's representative.

FOUNDATION SETTLEMENT

A detailed settlement analysis was not within the scope of this study. It is anticipated that the footings designed, using the recommended allowable bearing pressures, will experience small settlements that will be well within the tolerable limit for the proposed structure.

FLOOR SLABS AND GRADE BEAMS

Review of the Atterberg Limits determinations indicates that the surface soils are "CH" type soils, with high plasticity, which may exhibit expansion during seasonal wetting and drying cycles. We believe that conventional "slab-on-fill" construction may be used for the interior portion of the structures built at the site. Select fill, a minimum of thirty-six-inch (36") thickness should be used to bring the structure to grade.

Prior to placement of select fill, strip site sufficiently to remove all topsoil, existing vegetation and roots larger than ½" in diameter to an approximate depth of twelve (12) inches. Then scarify the subgrade, add moisture, if necessary, and recompact to 95% of the maximum dry density as determined by ASTM D-698 (Standard Proctor). The moisture content at the time of compaction of subgrade soils should be within +1 to +3% of the proctor optimum value.

Select fill should then be placed, under laboratory control, in no greater than eight-inch (8") loose layers, and compacted to a minimum of 95% of the maximum dry unit weight, as obtained in the laboratory by means ASTM D-698 procedure. Moisture content of ±2% optimum should be maintained during placement of the select fill material. A vapor barrier consisting of six (6) mil Polyethylene shall be placed between the select fill and concrete slab.

The material used as select fill should consist of a non-active sandy clay or clayey sand type substance, having a Liquid Limit of 36 or less and Plasticity Index (P.I.) varying from 10 to 20.

SITE PREPARATION

In order to remedy construction problems, which may develop if attempts are made to work the surface materials following prolonged periods of rainfall which are common to this area, it is recommended that prior to starting any work at the site that proper construction drainage is to be provided to maintain a relatively dry construction site. (Use a minimum slope of 5% within 10 feet of the foundation).

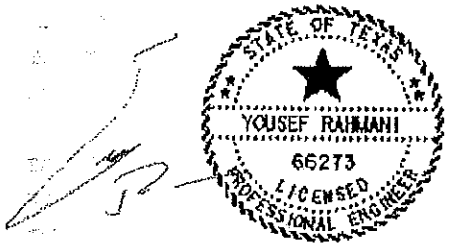
LIMITATIONS

The conclusions and recommendations given in this report are based on the analysis of the data collected for this project. Additive conclusions or recommendations made from this data by others are their responsibility.

Our study is based on the data obtained from soil borings made at the locations shown on borings plan. The nature and extent of variations between borings may become evident during construction. We should be requested to observe exposed conditions. After making these observations, and noting the engineering significance of variations, we will advise you of any changes in recommendations believed appropriate.

We appreciate this opportunity to provide our services to this project. Please let us know if you require additional information. Thank you.

Respectfully submitted for the firm,
TBPE Registration No. 4060



Yousef Rahmani, P.E.
President

Encl.: Boring Plan
Boring Logs 1 and 2
Geotechnical Chart/Symbols

Copies: 2 – Client
1- Fittz & Shipman, Inc.
1- SEL File 14260

YR/nb

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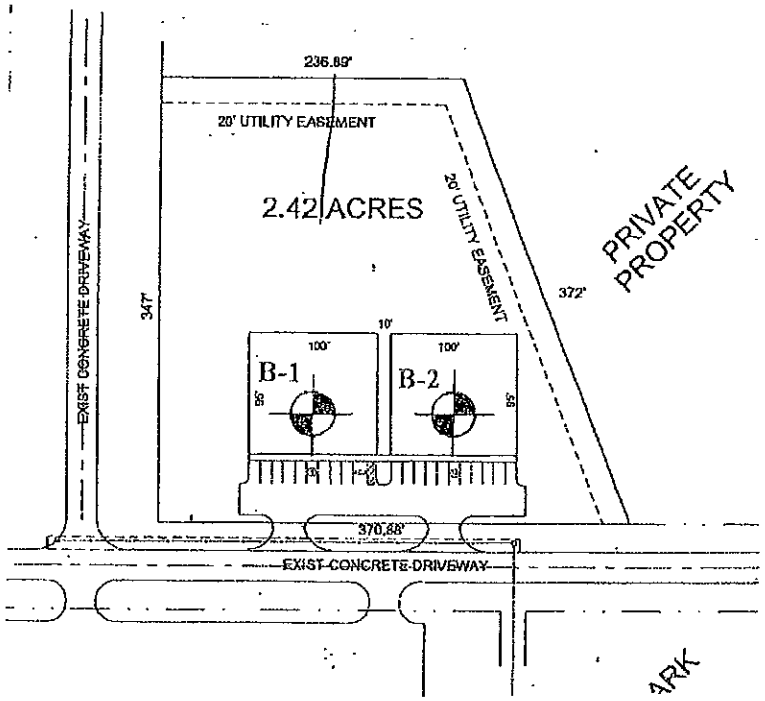
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

Report Number 14260



FORD PARK MULTI-SPORTS FACILTIY
BEAUMONT, TEXAS

BORING PLAN

NOVEMBER 2014

NOT TO SCALE

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GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Boring Number: B-1
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY								
							71	26	45		0.75	
											0.25	
5				CH	33	80	91	32	59		0.25	0.30
				Gray and Tan CLAY with ferrous nodules								
											0.25	
				_ tan and gray with slickensides	36	89	90	31	59		0.75	0.90
10												
					38	78	109	36	73		0.75	0.43
					42	81	112	40	72		0.75	0.51
15												
				CH								
				Gray SANDY CLAY								
				CL	22	99	39	19	20		0.50	0.30
20												
				Bottom at 20 feet								
				1. Water was not encountered during drilling.								
				2. Bore hole dry upon completion.								

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SCIENCE ENGINEERING, LTD.

GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

LOG OF BORING

Project: Ford Park Multi-Sports Facility
Beaumont, Texas

Project No: 14260
Date of Report: 11/13/2014
Date of Boring: 11/11/2014
Authorization: Mr. Don King, P.E.

Boring Number: B-2
Location: See Boring Plan
Dry Auger: 0 to 20 Feet

DEPTH, FEET	SYMBOL	SAMPLE	BLOWS PER FOOT	STRATUM DESCRIPTION	WATER CONTENT (%)	DRY DENSITY (PCF)	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	PERCENT PASSING NO. 200 SIEVE	SHEAR STRENGTH: POCKET PENETROMETER (TSF)	SHEAR STRENGTH: UNCONFINED COMPRESSIVE STRENGTH (TSF)
				Dark Gray CLAY							0.50	
					34	85	100	33	67		0.25	0.37
5				CH							0.25	
				Tan and Gray CLAY with ferrous nodules and slickensides	32	91	87	26	61		0.35	0.40
					29	88					0.65	0.60
10												
					39	78	108	34	74		0.75	0.50
15				CH								
				Tan and Gray SANDY CLAY								
				CL	22	107					1.00	0.85
20				Bottom at 20 feet								

1. Water was not encountered during drilling.
2. Bore hole dry upon completion.

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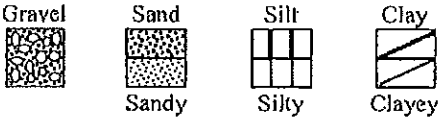
GEOTECHNICAL, ENVIRONMENTAL, MATERIALS TESTING

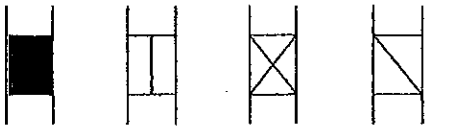
KEY TO SOIL CLASSIFICATION AND SYMBOLS

SOIL TYPE



Predominant type shown heavy

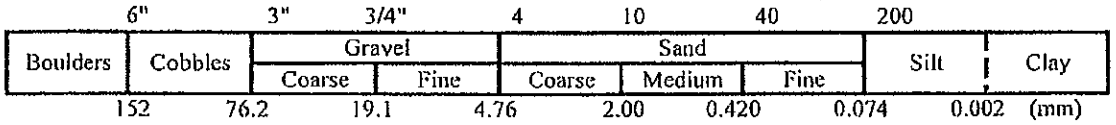
SAMPLE TYPE



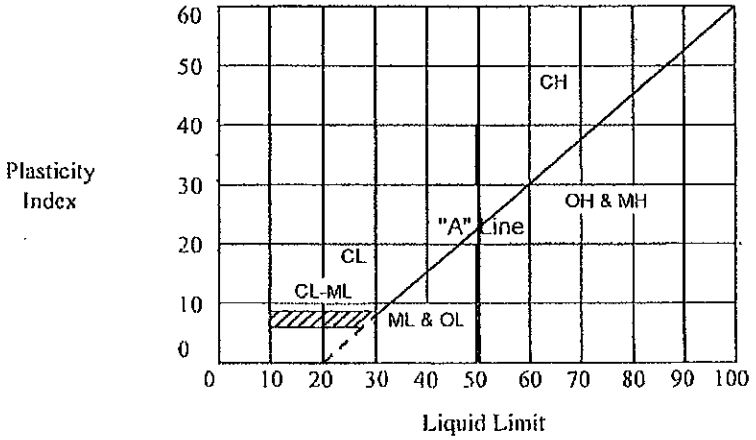
Un-Disturbed | Rock Core | Split Spoon | No Recovery

SOIL GRAIN SIZE

U.S. Standard Sieve



PLASTICITY CHART



CONSISTENCY OF COHESIVE SOILS

Penetration Resistance, blows per foot	Consistency	Cohesion TSF	Plasticity Index	Degree of Plasticity
0 - 2	Very Soft	0 - 0.125	0 - 5	None
2 - 4	Soft	0.125 - 0.25	5 - 10	Low
4 - 8	Firm	0.25 - 0.5	10 - 20	Moderate
8 - 15	Stiff	0.5 - 1.0	20 - 40	Plastic
15 -30	Very Stiff	1.0 - 2.0	> 40	Highly Plastic
> 30	Hard	> 2.0		

RELATIVE DENSITY OF COHESIONLESS SOILS

Penetration Resistance, blows per foot	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
> 50	Very Dense

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FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing site utilities.
7. Temporary erosion- and sedimentation-control measures.

1.2 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.3 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Division 31 Section "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection."

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Architect.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

C. Removal of underground utilities is included in Division 22 and Division 26 Sections.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
2. Use only hand methods for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

FORD FIELDS CONCESSION STAND
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SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses and.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Subbase course for concrete walks, pavements.
5. Excavating and backfilling for utility trenches.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.3 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of [washed]crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing." during earthwork operations.

3.2 EXCAVATION

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit or as indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Division 03 Section "Cast-in-Place Concrete".

D. Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches (100 mm) of concrete before backfilling or placing roadway subbase.

E. Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under lawn or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).
3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES

A. Place subbase and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase and base course under pavements and walks as follows:

1. Shape subbase and base course to required crown elevations and cross-slope grades.
2. Compact subbase and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 DRAINAGE COURSE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

FORD FIELDS CONCESSION STAND
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SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Soil treatment with termiticide.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include the EPA-Registered Label.

B. Product certificates.

C. Soil Treatment Application Report: Include the following:

1. Date and time of application.
2. Moisture content of soil before application.
3. Brand name and manufacturer of termiticide.
4. Quantity of undiluted termiticide used.
5. Dilutions, methods, volumes, and rates of application used.
6. Areas of application.
7. Water source for application.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.

B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

1. Warranty Period: Five years from date of Substantial Completion.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Termiticides:

a. Aventis Environmental Science USA LP; Termidor.
b. Bayer Corporation; Premise 75.
c. Dow AgroSciences LLC; Dursban TC.
d. FMC Corporation, Agricultural Products Group; Prevail FT.
e. Syngenta; Demon TC.

2.2 SOIL TREATMENT

A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.

B. Soil Treatment Preparation: Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.

3.2 APPLYING SOIL TREATMENT

A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.

1. Slabs-on-Grade: Underground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
2. Foundations: Adjacent soil including soil along the entire inside perimeter of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating the slab, and around interior column footers, piers, and chimney bases; also along the entire outside perimeter, from grade to bottom of footing. Avoid soil washout around footings.
3. Penetrations: At expansion joints, control joints, and areas where slabs will be penetrated.

B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.

C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.

D. Post warning signs in areas of application.

E. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

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SECTION 316329 - DRILLED CONCRETE PIERS AND SHAFTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes dry-installed drilled piers.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture.

C. Shop Drawings: For concrete reinforcement.

D. Welding certificates.

E. Material certificates & test reports.

1.3 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.4, "Structural Welding Code - Reinforcing Steel."

B. Drilled-Pier Standard: Comply with ACI 336.1 unless modified in this Section.

1.4 PROJECT CONDITIONS

A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by geotechnical engineer. Owner will not be responsible for interpretations or conclusions drawn from this data.

1. Make additional test borings and conduct other exploratory operations necessary for drilled piers.
2. The geotechnical report is included in Section 310000 – Geotechnical Investigation elsewhere in the Project Manual.

B. Survey Work: Engage a qualified land surveyor or professional engineer to perform surveys, layouts, and measurements for drilled piers. Before excavating, lay out each drilled pier to lines and levels required. Record actual measurements of each drilled

pier's location, shaft diameter, bottom and top elevations, deviations from specified tolerances, and other specified data.

1. Record and maintain information pertinent to each drilled pier and cooperate with Owner's testing and inspecting agency to provide data for required reports.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type I. Supplement with the following:

a. Fly Ash: ASTM C 618, Class C or F.

B. Normal-Weight Aggregate: ASTM C 33, graded, 1-inch nominal maximum coarse-aggregate size.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94 and potable.

D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
3. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
4. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

2.3 CONCRETE MIXTURES AND MIXING

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 limits as if concrete were exposed to deicing chemicals.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Proportion normal-weight concrete mixture as follows:

1. Compressive Strength (28 Days): 3000 psi.
2. Air Content: Do not air entrain concrete.

E. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 EXCAVATION

A. Classified Excavation: Excavation is classified as standard excavation, special excavation, and obstruction removal and includes excavation to bearing elevations as follows:

1. Standard excavation includes excavation accomplished with conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work.
2. Special excavation includes excavation that requires special equipment or procedures above or below indicated depth of drilled piers where drilled-pier excavation equipment used in standard excavation, operating at maximum power, torque, and downthrust, cannot advance the shaft.
3. Obstructions: Payment for removing unanticipated boulders, concrete, masonry, or other subsurface obstructions that cannot be removed by conventional augers fitted with soil or rock teeth, drilling buckets, or underreaming tools attached to drilling equipment of size, power, torque, and downthrust necessary for the Work will be according to Contract provisions for changes in the Work.

B. Excavate shafts for drilled piers to indicated elevations. Remove loose material from bottom of excavation.

C. Notify and allow testing and inspecting agency to test and inspect bottom of excavation. If unsuitable bearing stratum is encountered, make adjustments to drilled piers as determined by Architect.

1. Do not excavate shafts deeper than elevations indicated unless approved by Architect.
2. Payment for additional authorized excavation will be according to Contract provisions for changes in the Work.

D. Temporary Casings: Install watertight steel casings of sufficient length and thickness to prevent water seepage into shaft; to withstand compressive, displacement, and withdrawal stresses; and to maintain stability of shaft walls.

1. Remove temporary casings, maintained in plumb position, during concrete placement and before initial set of concrete.

E. Bells: Excavate bells for drilled piers to shape, base thickness, and slope angle indicated. Excavate bottom of bells to level plane and remove loose material before placing concrete.

F. Tolerances: Construct drilled piers to remain within ACI 336.1 tolerances.

3.2 INSTALLATION

A. Comply with recommendations in CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Place concrete in continuous operation and without segregation immediately after inspection and approval of shaft by Owner's independent testing and inspecting agency.

C. Place concrete to fall vertically down the center of drilled pier without striking sides of shaft or steel reinforcement. Vibrate top 60 inches of concrete.

D. Coordinate withdrawal of temporary casings with concrete placement to maintain at least a 60-inch head of concrete above bottom of casing. Vibrate top 60 inches of concrete after withdrawal of temporary casing.

3.3 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Drilled piers.
2. Excavation.
3. Concrete.
4. Steel reinforcement welding.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Drilled-Pier Tests and Inspections: For each drilled pier, before concrete placement.

1. Soil Testing: Bottom elevations, bearing capacities, and lengths of drilled piers indicated have been estimated from available soil data. Actual elevations and drilled-pier lengths and bearing capacities will be determined by testing and inspecting agency. Final evaluations and approval of data will be determined by Architect.

D. Concrete Tests and Inspections: ACI 301.

END OF SECTION 316329

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SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes exterior cement concrete pavement for the following:

1. Driveways and roadways.
2. Walkways.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete pavement mixture.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products who complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. ACI Publications: Comply with ACI 301, "Specification for Structural Concrete," unless modified by requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.

C. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

D. Plain Steel Wire: ASTM A 82, as drawn.

E. Deformed-Steel Wire: ASTM A 496.

F. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice."

2.2 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout the Project:

1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:]

a. Fly Ash: ASTM C 618, Class C or F.
b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33, uniformly graded, from a single source coarse aggregate, uniformly graded. Provide aggregates from a single source.

C. Water: ASTM C 94/C 94M.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: ASTM C 494/C 494M, of type suitable for application, certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.

2.3 FIBER REINFORCEMENT

A. Synthetic Fiber: Monofilament or fibrillated polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

D. Evaporation Retarder: Waterborne, monomolecular film forming; manufactured for application to fresh concrete.

E. Clear Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. White Waterborne Membrane-Forming Curing Compound: ASTM C 309, Type 2, Class B.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.6 CONCRETE MIXTURES

A. Prepare design mixtures, proportioned according to ACI 301, with the following properties:

1. Compressive Strength (28 Days): 3000 psi (20.7 MPa).
2. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.45.
3. Slump Limit: 4 inches (100 mm) plus or minus 1 inch (25 mm).
4. Air Content: 4-1/2 percent plus or minus 1.5 percent.

B. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd. (0.60 kg/cu. m).

C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions.

2.7 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M and ASTM C 1116. Furnish batch certificates for each batch discharged and used in the Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.

3.2 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for pavement to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.4 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edgings true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline, unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of pavement and at locations where pavement operations are stopped for more than one-half hour unless pavement terminates at isolation joints.

C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness to match jointing of existing adjacent concrete pavement.

E. Edging: Tool edges of pavement, gutters, curbs, and joints in concrete after initial floating with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes. Eliminate tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed.

B. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

D. Screed pavement surfaces with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Burlap Finish: Drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture.
2. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
3. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch (1.6 to 3 mm) deep with a stiff-bristled broom, perpendicular to line of traffic.

C. Slip-Resistive Aggregate Finish: Before final floating, spread slip-resistive aggregate finish on pavement surface according to manufacturer's written instructions.

1. Cure concrete with curing compound recommended by slip-resistive aggregate manufacturer. Apply curing compound immediately after final finishing.
2. After curing, lightly work surface with a steel wire brush or abrasive stone and water to expose nonslip aggregate.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Comply with ACI 306.1 for cold-weather protection.

C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these methods.

3.8 PAVEMENT TOLERANCES

A. Comply with tolerances of ACI 117 and as follows:

1. Elevation: 1/4 inch (6 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-foot- (3-m-) long, unleveled straightedge not to exceed 1/4 inch (6 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

B. wheel stop.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete pavement that is broken, damaged, or defective or that does not comply with requirements in this Section.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

C. Maintain concrete pavement free of stains, discoloration, dirt, and other foreign material. Sweep concrete pavement not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Expansion and contraction joints within cement concrete pavement.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For each type and color of joint sealant required.

C. Product certificates & test reports.

D. Compatibility and Adhesion Test Reports: From sealant manufacturer.

1.3 QUALITY ASSURANCE

A. Preconstruction Compatibility and Adhesion Testing: Submit samples of materials that will contact or affect joint sealants to joint-sealant manufacturers for testing according to ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.

1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

A. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete: Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.

1. Products:

a. Sonneborn, Div. of ChemRex, Inc.; Sonomeric SL-1.

2.4 JOINT-SEALANT BACKER MATERIALS

A. General: Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience.

C. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

D. Install backer materials to support sealants during application and at position required to produce optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.

E. Install sealants at the same time backings are installed to completely fill recesses provided for each joint configuration and to produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

G. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 321373

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes the following:
   1. Chain-Link Fences: Industrial
   2. Gates: Motor operated, horizontal slide (two required)

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate framework shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to ASCE/SEI 7:

   1. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified and on the following:

      a. Wind Loads: 120 MPH.
      b. Fence Height: to match existing.
      c. Material Group: IA, ASTM F 1043, Schedule 40 steel pipe.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

   1. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

C. Product Certificates: For each type of chain-link fence and gate, from manufacturer.

D. Product Test Reports: For framing strength according to ASTM F 1043.

E. Operation and maintenance data.

1.4 QUALITY INSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70. Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. UL Standard: Provide gate operators that comply with UL 325.

C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators serving as a required means of access.

1.5 WARRANTY

F. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: to match existing w/ inserts.
2. Steel Wire Fabric: 0.148 inch (3.76 mm)

a. Mesh Size: 2 inches (50 mm).

b. Zinc-Coated Fabric: ASTM A 392, Type II

3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

1. Fence Height: to match existing.

2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

   a. Line Post: 2.25 by 1.70 inches..
   b. End, Corner and Pull Post: 2.375 inches in diameter.

3. Horizontal Framework Members: Top and bottom rails complying with ASTM F 1043.

4. Horizontal-Slide Gate Post: According to ASTM F 1184.
5. Brace Rails: Comply with ASTM F 1043.
6. Metallic Coating for Steel Framing:

   a. Type B zinc with organic overcoat.

2.3 TENSION WIRE

A. Metallic-Coated Steel Wire: 0.177-inch- (4.5-mm-) diameter, marcelled tension wire complying with ASTM A 817 and ASTM A 824, with the following metallic coating:

1. Type III, Zn-5-Al-MM alloy with minimum coating weight matching chain-link fabric coating weight

2.4 INDUSTRIAL HORIZONTAL-SLIDE GATES

A. General: Comply with ASTM F 1184 for single slide gated types (two required)
   1. Classification: Type II Cantilever Slide, Class 1 with external roller assemblies.
   2. Metal Pipe and Tubing: Galvanized steel. Comply with ASTM F 1184 for materials and protective coatings.
   3. Metal Pipe and Tubing Aluminum. Comply with ASTM F 699 for materials and protective coatings.

B. Frames and Bracing: Fabricate members from round, aluminum tubing with outside dimension and weight according to ASTM F 1184 and the following:
   1. Gate Fabric Height: As indicated.
   2. Gate Opening Width: As indicated.
   3. Frame Members:
      a) Tubular Aluminum: 2 inches rectangular.

   4. Bracing Members:
      a.) Tubular Aluminum: 2 inches rectangular.

C. Frame Corner Construction:
   1. Welded frame with panels assembled with bolted or riveted corner

Fitting and 5/16" diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain-link fabric at both ends of gate frame as indicated as required to attach barbed wire assemblies.
E. Overhead Track Assembly: Manufacture's standard track, with overhead framing supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.
F. Roller Guards: As required per ASTM F 1184 for Type II, Class 2 gates.
G. Hardware: Latches permitting operation from both sides of gate, locking devices, hangers, roller assemblies and stops fabricated from mill-finished Grade 319 aluminum-alloy casting with stainless-steel fastners.

2.4 FITTINGS

A. General: Comply with ASTM F 626.

B. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. (366 g /sq. m) zinc.

a. Polymer coating over metallic coating.

2. Aluminum: Mill finish.

2.5 BARBED WIRE

A. Steel Barbed Wire: Comply with ASTM A 121, for two-strand barbed wire, 0.099-inch- (2.51-mm-) diameter line wire with 0.080-inch- (2.03-mm-) diameter, four-point round barbs spaced not more than 5 inches (127 mm) o.c.

1. Zinc Coating: Type Z, Class 3.

2.6 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at

Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

2.7 GATE OPERATORS

A. General: Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
   1. Provide HySecurity, Model 222 E-ST (02827 HYS), Extra Duty Slide Gate Operator with Smart Touch Controller.

B. Comply with NFPA 70.

C. Motor Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, within installed environment, with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG-1 and the following:

   1. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
   2. Horsepower: 1 HP.
   3. Phase: One.

D. Gate Operators: Concrete base/pad mounted and as follows:

   1. Hydraulic Slide Gate Operators:

      a. Duty: Heavy-duty, commercial/industrial.

E. Remote Controls: Electric controls separated from gate and motor and drive mechanism, with enclosure and with space for additional optional equipment. Provide station remote-control device(s).

F. Vehicle Detector: Exit Gate Only, (east gate). Presence system including automatic closing timer with adjustable time delay before closing and timer cut-off switch; designed to open and close gate.

G. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.

H. Accessories:

   1. Warning Module: Audio/Visual, ADA-compliant, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.

2. Battery Backup System: Battery-powered drive and access control system, independent of primary drive system.
3. Intercom System:
4. Instructional, Safety, and Warning Labels and Signs: According to UL 325.

I. Tie Wires: Attach wire per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothinh.

J. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

K. Barbed Wire: Uniformly spaced, angled toward security side of fence. Pull wire taut and install securely to extension arms and secure to end post or terminal arms.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a verified survey of property lines and legal boundaries, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

D. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

E. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

F. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

G. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment.

H. Line Posts: Space line posts uniformly at 10 feet o.c.

I. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing.

J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1 inch between finish grade or surface and bottom selvage unless otherwise indicated.

K. Barbed Wire: Install barbed wire uniformly spaced, angled toward security side of fence. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.

L. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

M. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 323113

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, SETEX Construction Corp.

as PRINCIPAL, AND Philadelphia Indemnity Insurance Company,

as SURETY are held and firmly bound unto Commissioners' Court of Jefferson County hereinafter called the "Owner," in the penal sum of Five Percent (5%) of Total Amount Bid Dollars, ($ 5%), lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas the Principal has submitted the Accompanying Bid, dated February 16, 20 16, for FORD FIELDS CONCESSION STAND, BEAUMONT, TEXAS.

NOW, THEREFORE, if the Principal shall not withdraw said Bid within the period specified therein after the opening of the same, or, if no period be specified, within thirty (30) days after the said opening, and shall within the period specified therefore, or if no period be specified, within ten (10) days after the prescribed forms are presented to him for signature, enter into a written Contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract; or in the event of the withdrawal of said Bid within the period specified, or the failure to enter into such Contract and give such bond within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work or supplies or both, if the latter be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

IN WITNESS THEREOF, the above-bounded parties have executed this instrument under their several seals this 16th day of February, 2016, the name and corporate seal of each corporate party being hereto affixed and these present signed by its undersigned representative, pursuant to authority of its governing body.

_____ (SEAL)

_____

_____ _____ (SEAL)

_____

Attest: By: _____

_____ _____

SETEX Construction Corp.

FORD FIELDS CONCESSION STAND
BEAUMONT, TEXAS

Attest:

By: _____ Affix Corporate Seal
Nathan Rivers, President

Philadelphia Indemnity Insurance Company

By: _____ Affix Corporate Seal
Mary Catherine Turner, Attorney-in-Fact

Countersigned

by _____
Mary Catherine Turner, Attorney-in-Fact

*Attorney-in-Fact, State of Louisiana

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, Nathan Rivers, certify that I am the President,

_____, Secretary of the Corporation named as

Principal in the within bond; that Nathan Rivers,
who signed the said bond on behalf of the Principal was then President of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

(Corporate Seal)

Title President

* Power-of-attorney for person signing for surety company must be attached to bond.

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PHILADELPHIA INDEMNITY INSURANCE COMPANY
One Bala Plaza, Suite 100
Bala Cynwyd, PA 19004-0950

Power of Attorney

KNOW ALL PERSONS BY THESE PRESENTS: That **PHILADELPHIA INDEMNITY INSURANCE COMPANY** (the Company), a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, does hereby constitute and appoint **Garrett Turner, Mary Catherine Turner, Meghann Catherine Turner & Ronald T. Turner of Surety Bond Brokers of LA, Inc.**, its true and lawful Attorney-in-fact with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business and to bind the Company thereby, in an amount not to exceed **$25,000,000.00.**

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of PHILADELPHIA INDEMNITY INSURANCE COMPANY at a meeting duly called the 1st day of July, 2011.

RESOLVED: That the Board of Directors hereby authorizes the President or any Vice President of the Company to: (1) Appoint Attorney(s) in Fact and authorize the Attorney(s) in Fact to execute on behalf of the Company bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof and to attach the seal of the Company thereto; and (2) to remove, at any time, any such Attorney-in-Fact and revoke the authority given. And, be it

FURTHER RESOLVED: That the signatures of such officers and the seal of the Company may be affixed to any such Power of Attorney or certificate relating thereto by facsimile, and any such Power of Attorney so executed and certified by facsimile signatures and facsimile seal shall be valid and biding upon the Company in the future with the respect to any bond or undertaking to which it is attached.

IN TESTIMONY WHEREOF, PHILADELPHIA INDEMNITY INSURANCE COMPANY HAS CAUSED THIS INSTRUMENT TO BE SIGNED AND ITS CORPORATE SEALTO BE AFFIXED BY ITS AUTHORIZED OFFICE THIS 10TH DAY OF JUNE 2013.

(Seal)

Robert D. O'Leary Jr., President & CEO
Philadelphia Indemnity Insurance Company

On this 10th day of June 2013, before me came the individual who executed the preceding instrument, to me personally known, and being by me duly sworn said that he is the therein described and authorized officer of the **PHILADELPHIA INDEMNITY INSURANCE COMPANY**; that the seal affixed to said instrument is the Corporate seal of said Company; that the said Corporate Seal and his signature were duly affixed.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Kimberly A. Kessleski, Notary Public
Lower Merion Twp. Montgomery County
My Commission Expires Dec. 18, 2016
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Notary Public: _____

residing at: Bala Cynwyd, PA

(Notary Seal)

My commission expires: December 18, 2016

I, Edward Sayago, Corporate Secretary of PHILADELPHIA INDEMNITY INSURANCE COMPANY, do herby certify that the foregoing resolution of the Board of Directors and this Power of Attorney issued pursuant thereto on this 10TH day of June 2013 true and correct and are still in full force and effect. I do further certify that Robert D. O'Leary Jr., who executed the Power of Attorney as President, was on the date of execution of the attached Power of Attorney the duly elected President of PHILADELPHIA INDEMNITY INSURANCE COMPANY,

In Testimony Whereof I have subscribed my name and affixed the facsimile seal of each Company this 16th day of February, 2016

Edward Sayago, Corporate Secretary
PHILADELPHIA INDEMNITY INSURANCE COMPANY

Sealed Proposal For:

Ford Fields Concession Stand
Bid No.: IFB 16-002/JW

RECEIVED 10:57 AM FEB 16 2016

To:

SETEX CONSTRUCTION CORP.

P.O. BOX 20678 • BEAUMONT, TX 77720-0678

TO:
Purchasing Agent
Jefferson County Purchasing Dept.
1001 Pearl Street, 3rd Floor
Beaumont, TX 77701

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): 1, _____, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

C & I Oil Company Inc.
Company Name

6050 College St.
Address

Beaumont Tx. 77707
City State Zip

Signature of Person Authorized to Sign

GENE E. BATES
Printed Name

President
Title

For clarification of this offer, contact:

Steve Stokes
Name

(409) 833-6331 (409) 833-5063
Phone Fax

Steve@cioil.com
E-mail

Bidder Shall Return Completed Form with Offer.

Acceptance of Offer

The Offer is hereby accepted for the following items: Term Contract for Motor Fuel for Jefferson County, Contract Term: One (1) year from date of award with an option to renew for four (4) additional years.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as Contract No. IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

Countersigned:

Jeff R. Branick
County Judge

Date

Attest:

Carolyn L. Guidry
County Clerk

Bidder Shall Return Completed Form with Offer.

Bid Form

Note to bidders: Minimum order bids are not acceptable.

Item	Estimated Quantity (gallons)	Description	Brand	+/- Factor	Unit Price	Total Price
1	170,841	Unleaded Gasoline Regular Grade 87 Octane	unbranded	.2600	$ 1.109	$ 1.369
2	38,297	Unleaded Gasoline Medium Grade 89 Octane	unbranded	.2600	$ 1.347	$ 1.607
3	102,917	Unleaded Gasoline Premium Grade ~~93~~ 91 Octane	unbranded	.2600	$ 1.585	$ 1.845
4	67,416	No. 2 Diesel	Citgo Unbranded	.2600	$ 1.028	$ 1.288

* Bidder will supply the quantity of the requested item required to meet the specifications.

Gasoline is Ethanol Free / Pulled from Placid Refining, Westlake La.
Diesel is Citgo Unbranded / Pulled from Westlake La.

Acknowledgment of Addenda (if any):

Addendum 1 ✓ Date Received 2-12-16

Addendum 2 _____ Date Received _____

Addendum 3 _____ Date Received _____

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: Jefferson County DD #3

Address: 24420 Hwy 124 Hamshire Tx 77662

Contact Person and Title: Fred

Phone: 409-243-3495 Fax: _____

Contract Period: _____ Scope of Work: Fuel & Lubricants

REFERENCE TWO

Government/Company Name: Jefferson County, Marine Motor Fuels

Address: 1149 Pearl St & 5950 S. 1ST Ave, Sabine Pass 77655

Contact Person and Title: Keysha

Phone: 409-726-2951 Fax: _____

Contract Period: _____ Scope of Work: Fuel & Lubricants

REFERENCE THREE

Government/Company Name: Mason Construction

Address: 6285 Walden Rd. Beaumont Tx. 77707

Contact Person and Title: Jeremy Mason

Phone: 409-658-0493 Fax: _____

Contract Period: _____ Scope of Work: Fuel & Lubricants

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** [X] **No** [ ]

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

C+I Oil Company Inc.
Bidder (Entity Name)

6050 College St. PO box 2702
Street & Mailing Address

Beaumont Tx. 77707
City, State & Zip

409-833-6331
Telephone Number

info@CIOIL.com
E-mail Address

Signature

GENE E. BATES
Print Name

2-15-16
Date Signed

409-833-5063
Fax Number

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY
Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

Signature of vendor doing business with the governmental entity

2-15-16

Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☐ Yes ☐ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☐ Yes ☐ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☐ Yes ☐ No 3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☐ Yes ☐ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?

☐ Yes ☐ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☐ Yes ☐ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid. If necessary, please use a separate sheet to answer the above questions.

GENE E. BATES
Printed Name of Authorized Representative

Signature

PRESIDENT
Title

2-15-16
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: N/A HUB: p Yes p No

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____

Prime Contract Amount: $ _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

GENE E. BATES	[signature]	2-15-16
Printed Name of Contractor Representative	Signature of Representative	Date
_____	_____	_____
Printed Name of HUB	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Prime Contractor: N/A HUB: ☐ Yes ☐ No

HUB Status (Gender & Ethnicity): _____

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____ IFB/RFP No.: _____

Total Contract: $ _____ Total HUB Subcontract(s): $ _____

Construction HUB Goals: 12.8% MBE:: _____ % 12.6% WBE: _____ %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American.
Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: N/A

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: N/A

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

HUB Subcontractor Name: N/A

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☒ Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required.** I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): GENE E. BATES

Title: President

Signature: [signature]

Date: 2-15-16

E-mail address: EDDIE@CIOIL.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): _____

Title: _____

Date: _____

E-mail address: _____

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that C+I Oil Company Inc. [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	74-2203249
Company Name submitting bid/proposal:	
Mailing address:	
If you are an individual, list the names and addresses of any partnership of which you are a general partner: GEB Family Limited Partnership	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
#56587	6050 College St. Beaumont Tx.
#13671	1393 Broadway St. Beaumont Tx.
#56592	College St. Beaumont Tx.

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

2621

WWW.COMPUCHECKS.COM 888.356.5581

25389

ı Getz Jefferson Cnty Tax Assessor 2016-01-29 25389

	Invoice Date	Amount Due	Applied					
17762-875 lan...	2016-01-29	6,367.38	0	6,367.38				
⊱17761-6050 c...	2016-01-29	2,422.01	0	2,422.01				
⊱17760-52 7 t...	2016-01-29	3,933.91	0	3,933.91				
17759-201 ml ...	2016-01-29	756.12	0	756.12				
17758-langham st	2016-01-29	128.96	0	128.96				
17757-6050 co...	2016-01-29	6,547.68	0	6,547.68	Invoice #	Invoice Date	Amount Due	Applied
⊱17756-6050 c...	2016-01-29	7,768.46	0	7,768.46				
17754-875 lan...	2016-01-29	749.51	0	749.51				
⊱17753-875 la...	2016-01-29	103.11	0	103.11				
⊱17752-1376 l...	2016-01-29	1,010.45	0	1,010.45				
17751-1390 li...	2016-01-29	155.35	0	155.35				
17750-1393 br...	2016-01-29	1,102.84	0	1,102.84				
17749-broadwa...	2016-01-29	155.35	0	155.35				

–31,201.13–

762-875 langham for Allison Nathan Getz Jefferson Cnty Tax Assessor (875 langham Personal property tax)

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of _____,

on this day personally appeared Michael Allen Gary (name), who

after being by me duly sworn, did depose and say:

"I, Gene E. Bates (name) am a duly authorized officer of/agent

for C+I Oil Company Inc. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said C+I Oil Company Inc. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: C+I Oil Company Inc.

Fax: 409-833-5063 Telephone# 409-833-6331

by: GENE E. BATES (print name) Title: President

Signature: [signature]

SUBSCRIBED AND SWORN to before me by the above-named

_____ on

this the 15th day of February 2016.

MICHAEL ALLEN GARY
Notary Public, State Of Texas
My Commission Expires
03-25-2017

[signature]
Notary Public in and for
the State of TEXAS

Bidder Shall Return Completed Form with Offer.

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT
1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593

ADDENDUM TO IFB

IFB Number:	IFB 16-001/YS
IFB Title:	Term Contract for Motor Fuel for Jefferson County
IFB Due:	Tuesday, February 16, 2016, 11:00 a m CDT
Addendum No.:	1
Issued (Date):	February 3, 2016

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – including all addenda. For purposes of clarification, receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal. If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reasons for Issuance of this addendum: (1) Relocation of bid opening to 1149 Pearl Street, 5th Floor, Beaumont TX 77701, Engineering Conference Room, and (2) changes to delivery locations (page 17).

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Steve Stokes
Witness

Witness

Approved by ____ Date: _____

Authorized Signature (Bidder)

PRESIDENT
Title of Person Signing Above

GENE E. BATES
Typed Name of Business or Individual

6050 College St,
Address BEAUMONT TX. 77707

Purchasing Agent

Jefferson County Purchasing Dept.
1149 Pearl Street
Beaumont Tx. 77701

Term Contract for Motor Fuel for Jeff. Co
IFB 16-001/YS

RECEIVED 09:26 AM FEB 16 2016

Mansfield
Energy. Simplified.

ORIGINAL

February 12, 2016

Jefferson County Engineering Department
Attn: Deborah L. Clark, Purchasing Agent
Purchasing Department
1149 Pearl Street 5th Floor
Beaumont, Texas 77701

Dear Ms. Clark:

Mansfield Oil Company appreciates the opportunity to participate in your current bid: IFB# 16-001/YS Term Contract for Motor Fuel for Jefferson County to Supply and Deliver Unleaded Gasoline and #2 ULSD Fuel to Jefferson County, TX.

The prices quoted will be plus or minus the GROSS OPIS Daily Average for Beaumont, TX. as indicated in the bid documents.

Pricing is based on NET 30 as indicated in the bid documents. Normal delivery after receipt of order is within 24 hours.

Should you have any questions, feel free to call Deborah Lavoie at 1-800-255-6699, Ext. 2055.

Again, thank you for the opportunity to respond to your invitation to bid.

Best Regards,

David Zarfoss
Director of Government Pricing

Mansfield
Energy. Simplified.

INFORMATION ABOUT MANSFIELD OIL COMPANY

Mansfield Oil is a national fuel supply, distribution and logistics company focused on improving efficiencies in the downstream petroleum supply chain. We help our customers optimize and control fuel-related costs with local service, nationwide. We offer secure and reliable fuel supply from over 900 supply points in 50 states and Canada. Our service offering includes most varieties of fuel (diesel/gas/biofuel/ethanol/CNG), credit card/fleet card transaction processing, DEF supply and logistics, fuel and DEF systems design, environmental compliance, ERP integration, tax exempt transaction processing, and fuel systems (tank) monitoring. Mansfield's corporate headquarters is located in Gainesville, GA, **for 58 years**, with seven (7) regional service centers located in Loma Linda, CA, Chicago, IL, Denver, CO, Detroit, MI, St. Paul/Minneapolis, MN, Houston, TX and Calgary, AB and 4 alternative fuel centers in Bloomington, MN, Sioux Center, IA, Charlottesville, VA and Ontario, CA .

We develop our own information technology systems and utilize third party integration tools to facilitate the unimpeded flow of information between our suppliers, carriers, ourselves and our customers. Mansfield's unique and industry leading electronic interface continues to make our customers daily operations more manageable and measureable, key components of successful operations. We own and manage a fleet of over 70 transport trucks in Atlanta, GA, N. Augusta, SC, Charlotte, NC, Chicago, IL and Orlando, FL from our office which gives us valuable insight into the trends and dynamics of our transportation partners.

Mansfield Oil maintains market strength through optimization of volume, financial strength, and successful relationships with our customers. Currently Mansfield Oil is 41st ranked in the Top 50 Forbes List of Privately Held Companies, was a multiple finalist in the 2010, 2011 and 2012 Platts Global Energy Awards, and is rated 5A2 with Dun and Bradstreet indicating significant financial strength and credit worthiness. Mansfield has achieved double digit growth for the past three decades with revenues of over $5.2 billion in 2015.

Some of Mansfield's current government customers include:

- **Federal** - AAFES, NAVY, DESC/DLA, AMTRAK
- **States/DOT** - Georgia, New York, North Carolina, Pennsylvania, West Virginia
- **County** - Hillsborough, FL, Henrico County Coop, VA (3 counties), Dallas, TX, Salt Lake, UT
- **City** – Philadelphia, PA, Jacksonville, FL, Chesapeake, VA, Cleveland, OH
- **Transit Agencies** - KCATA (Kansas City, MO), CTA (Chicago, IL), Denver RTD, WMATA (Washington, D.C.)

Some of Mansfield's commercial customers include:

National, regional and local truck load and less than truck load carriers
- Distribution centers for various retailers and wholesalers
- Most major package delivery companies
- Aggregate companies

JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, County Purchasing Agent

1149 Pearl Street, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

LEGAL NOTICE

Advertisement for Invitation for Bids

January 19, 2016

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County. **Specifications for this project may be obtained from the Jefferson County website, http://www.co.jefferson.tx.us/Purchasing/main.htm or by calling 409-835-8593.**

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Commissioners' Courtroom at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**Term Contract for Motor Fuel for Jefferson County**
BID NO:	**IFB 16-001/YS**
DUE DATE/TIME:	**11:00 AM CDT, Tuesday, February 16, 2016**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department 1149 Pearl Street Beaumont, Texas 77701**

Any questions relating to these requirements should be directed to Yea-Mei Sauer, Contract Specialist, at 409-835-8593.

Jefferson County encourages Disadvantaged Business Enterprises to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provisions of services. Individuals requiring special accommodations are requested to contact our office at 409-835-8593 to make arrangements no later than seven (7) calendar days prior to the submittal deadline. Jefferson County reserves the right to accept or reject any or all proposals, to waive technicalities and to take whatever action is in the best interest of Jefferson County.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.

RESPONDENTS ARE STRONGLY ENCOURAGED TO CAREFULLY READ THE ENTIRE INVITATION.

Deborah Clark

Deborah L. Clark
Purchasing Agent
Jefferson County, Texas
Publish: Beaumont Enterprise & Port Arthur News – January 20 & January 27, 2016

IFB 16-001/YS
Term Contract for Motor Fuel for Jefferson County
Bids due: 11:00 AM CDT, Tuesday, February 16, 2016

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BIDDER IS RESPONSIBLE FOR RETURNING ALL REQUIRED PAGES (MARKED WITH AN "X" ABOVE) WITH THE BID. ADDITIONALLY, BIDDER MUST MONITOR THE PURCHASING WEB SITE (HTTP://WWW.CO.JEFFERSON.TX.US/PURCHASING/MAIN.HTM) TO SEE IF ADDENDA OR ADDITIONAL INSTRUCTIONS HAVE BEEN POSTED. FAILURE TO RETURN ALL REQUIRED FORMS COULD RESULT IN A BID BEING DECLARED AS NON-RESPONSIVE.

Instructions to Bidders

1. Bid Submission

Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1149 Pearl Street
Beaumont, TX 77701

Bids will be accepted at the above address until the time and date specified herein, and immediately after will be publicly opened and read aloud.

All bids shall be tightly sealed in an opaque envelope and plainly marked with the Bid Number, Bid Name, Bid Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

Late bids will not be accepted and will be returned unopened to the bidder.

All bids submitted in response to this invitation shall become the property of Jefferson County and will be a matter of public record available for review.

2. Courthouse Security

Bidders are advised that all visitors to the Courthouse must pass through Security. **Bidders planning to hand deliver bids must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal.** Mondays and Tuesdays are particularly heavy days. Bidders are strongly urged to plan accordingly.

3. Preparation of Bids

The bid shall be legibly printed in ink or typed.

If a unit price or extension already entered is to be altered, it shall be crossed out and initialed in ink by the bidder.

The bid shall be legally signed and shall include the complete address of the bidder.

Jefferson County is exempt from Federal and State Sales Taxes, and such taxes shall not be included in bid prices.

4. Signatures

All bids, notifications, claims, and statements must be signed by an individual authorized to bind the bidder. The individual signing certifies, under penalty of perjury, that he or she has the legal authorization to bind the bidder.

5. County Holidays – 2016:

January 1	Friday	New Year's Day
January 18	Monday	Martin Luther King, Jr. Day
February 15	Monday	President's Day
March 25	Friday	Good Friday
May 30	Monday	Memorial Day
July 4	Monday	Independence Day
September 5	Monday	Labor Day
November 11	Friday	Veterans Day
November 24 & 25	Thursday & Friday	Thanksgiving
December 26-27	Monday & Tuesday	Christmas

6. Rejection or Withdrawal

Submission of additional terms, conditions or agreements with the bid document are grounds for deeming a bid non-responsive and may result in bid rejection. Jefferson County reserves the right to reject any and all bids and to waive any informalities and minor irregularities or defects in bids. Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the time set for receipt of bids. Bids are an irrevocable offer and may not be withdrawn within 90 days after opening date.

7. Emergency/Declared Disaster Requirements

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s). Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

8. Award

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected. Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial nonconformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment. In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

Jefferson County reserves the right to award this contract on the basis of **lowest and best bid** in accordance with the laws of the State of Texas, to waive any formality or irregularity, to make awards to more than one offeror, and/or to reject any or all bids. In the event the lowest dollar offeror meeting specifications is not a awarded a contract, Offeror may appear before the Commissioners' Court and present evidence concerning Offeror responsibility after officially notifying the Office of the Purchasing Agent of Offeror's intent to appear.

9. Contract

A response to an IFB is an offer to contract with Jefferson County based upon the terms, conditions, and specifications contained in the IFB. Bids do not become contracts unless and until they are executed by Jefferson County, eliminating a formal signing of a separate contract. For that reason, all of the terms and conditions of the contract are contained in the IFB, unless any of the terms and conditions is modified by an IFB Amendment, a Contract Amendment, or by mutually agreed terms and conditions in the contract documents.

10. Waiver of Subrogation

Bidder and bidder's insurance carrier waive any and all rights whatsoever with regard to subrogation against Jefferson County as an indirect party to any suit arising out of personal or property damages resulting from bidder's performance under this agreement.

11. Fiscal Funding

A multi-year contract (if requested by the specifications) continuing as a result of an extension option must include fiscal funding out. If, for any reason, funds are not appropriated to continue the contract, said contract shall become null and void.

12. Bid Results

Bid results are not provided in response to telephone inquiries. A preliminary tabulation of bids received will be posted on the Purchasing web page (http://co.jefferson.tx.us/ purchasing/main.htm) as soon as possible following bid opening. A final tabulation will be posted following bid award, and will also be available for review in the Purchasing Department.

13. Changes and Addenda to Bid Documents

Each change or addendum issued in relation to this IFB document will be on file in the Office of the Purchasing Agent, and will be posted on the Purchasing web site as soon as possible. It shall be the bidder's responsibility to make inquiry as to change or addenda issued, and to monitor the web site. All such changes or addenda shall become part of the contract and all bidders shall be bound by such addenda. Information on all changes or addenda issued will be available at the Office of the County Purchasing Agent.

14. Specifications

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid. Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

15. Delivery

Bids shall include all charges for delivery, packing, crating, containers, etc. Unless otherwise stated by the bidder (in writing on the included Bid Form), prices bid will be considered as being based on F.O.B. destination/delivered freight included.

16. Interpretation of Bid and/or Contract Documents

All inquiries shall be made within a reasonable time prior to the date and time fixed for the bid opening, in order that a written response in the form of an addendum, if required, can be processed before the bids are opened. Inquiries received that are not made in a timely fashion may or may not be considered.

17. Currency

Prices calculated by the bidder shall be stated in U.S. dollars.

18. Pricing

Prices shall be stated in units of quantity specified in the bid documents. In case of discrepancy in computing the amount of the bid, the unit price shall govern.

19. Notice to Proceed/Purchase Order

The successful bidder may not commence work under this contract until authorized to do so by the Purchasing Agent.

20. Certification

By signing the offer section of the Offer and Acceptance page, bidder certifies:

- The submission of the offer did not involve collusion or other anti-competitive practices.

- The bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.
- The bidder hereby certifies that the individual signing the bid is an authorized agent for the bidder and has the authority to bind the bidder to the contract.

21. Definitions

"County" – Jefferson County, Texas.

"Contractor" – The bidder whose proposal is accepted by Jefferson County.

22. Minority-Women Business Enterprise Participation

It is the desire of Jefferson County to increase the participation of Minority (MBE) and women-owned (WBE) businesses in its contracting and procurement programs. While the County does not have any preference or set aside programs in place, it is committed to a policy of equitable participation for these firms.

General Conditions of Bidding and Terms of Contract

By execution of this document, the vendor accepts all general and special conditions of the contract as outlined below and in the specifications and plans.

1. Bidding

1.1 Bids. All bids must be submitted on the bid form furnished in this package.

1.2 Authorized Signatures. The bid must be executed personally by the vendor, duly authorized partner of the partnership, or duly authorized officer of the corporation. If executed by an agent, a power of attorney or other evidence of authority to act on behalf of the vendor shall accompany the bid to become a valid bid.

1.3 Late Bids. Bids must be in the office of the Jefferson County Purchasing Agent before or at the specified time and date bids are due. Bids received after the submission deadline shall be rejected as non-responsive and returned unopened.

1.4 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 Withdrawal of Bids after Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

1.6 Bid Amounts. Bids shall show net prices, extensions where applicable and net total. In case of conflict between unit price and extension, the unit price will govern. Any ambiguity in the bid as a result of omission, error, unintelligible or illegible wording shall be interpreted in the favor of Jefferson County.

1.7 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Vendors taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section provided. If bid is made on an article other than the one specified, which a bidder considers comparable, the name and grade of said article must be specified in the bid and sufficient specifications and descriptive data must accompany same to permit thorough evaluation. The absence of stated exceptions and/or substitutions shall indicate that the vendor has not taken any exceptions to the specifications and shall be responsible to perform in strict accordance with the specifications. As a matter of practice, Jefferson County rejects exception(s) and /or substitutions as non-responsive but reserves the right to accept any and/or all of the exception(s) and/or substitution(s) deemed to be in the best interest of Jefferson County.

1.8 Alternates. The Invitation for Bid and/or specifications may expressly allow bidder to submit an alternate bid. Presence of such an offer shall not be considered an indication of non-responsiveness.

1.9 Descriptions. Unless otherwise specified, any reference to make, manufacturer and/or model used in the bid specifications is merely descriptive and not restrictive, and is used only to indicate type, style, or quality of material desired.

1.10 Bid Alterations. Bids cannot be altered or amended after submission deadline. Any interlineations, alterations, or erasures made before opening time must be initialed by the signer of the bid, guaranteeing authenticity.

1.11 Tax Exempt Status. Jefferson County is exempt from federal excise tax and state sales tax. Unless the bid form or specifications specifically indicate otherwise, the bid price must be net, exclusive of above-mentioned taxes and will be so construed. Therefore, the bid price shall not include taxes.

1.12 Quantities. Quantities indicated are estimated quantities only and are not a commitment to buy. Approximate usage does not constitute an order, but only implies the probable quantity that will be used. Commodities will be ordered on an as-needed basis. Bidder is responsible for accurate final counts.

1.13 Bid Award. Award of contract shall be made to the most responsible, responsive bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended. Jefferson County reserves the right to accept or reject in part or in whole any bid submitted, and to waive any technicalities or informalities for the best interest of the County. Jefferson County reserves the right to award based upon individual line items, sections or total bid.

1.14 Silence of Specifications for Complete Units. All materials, equipment and/or parts that will become a portion of the completed work, including items not specifically stated herein but, necessary to render the service(s) complete and operational per the specifications, are to be included in the bid price. Vendor may be required to furnish evidence that the service, as bid, will meet or exceed these requirements.

1.15 Addenda. Any interpretations, corrections or changes to the specifications and plans will be made by addenda no later than forty-eight (48) hours prior to the bid opening. Addenda will be posted on the Purchasing web site. Vendors are responsible for monitoring the web site in order to remain informed on addenda. Vendors shall acknowledge receipt of all addenda with submission of bid.

1.16 General Bid Bond/Surety Requirements. Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.17 General Insurance Requirements. Failure to furnish Affidavit of Insurance, if required in these specifications, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

1.18 Responsiveness. A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 Responsible Standing of Bidder. To be considered for award, bidder must at least: have the ability to obtain adequate financial resources, be able to comply with required or proposed delivery/completion schedule, have a satisfactory record of performance; have a satisfactory record of integrity and ethics, and be otherwise qualified and eligible to receive award.

1.20 Proprietary Data. Bidder may, by written request, indicate as confidential any portion(s) of a bid that contain proprietary information, including manufacturing and/or design processes exclusive to the vendor. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.

1.21 Public Bid Opening. Bidders are invited to be present at the opening of bids. After the official opening of bids, a period of not less than one week is necessary to evaluate bids. The amount of time necessary for bid evaluation may vary and is determined solely by the County. Following the bid evaluation, all bids submitted are available for public review.

2. Performance

2.1 Design, Strength, and Quality. Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be

regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 Age and Manufacture. All tangible goods being bid must be new and unused, unless otherwise specified, in first-class condition, of current manufacture, and furnished ready to use. All items not specifically mentioned that are required for a complete unit shall be furnished.

2.3 Delivery Location. All deliveries will be made to the address(es) specified on the purchase order during normal working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO shall be stated in the space, if provided, on the bid form.

2.5 Delivery Charges. All delivery and freight charges, F.O.B. destination shown on Jefferson County purchase order, as necessary to perform contract are to be included in the bid price.

2.6 Installation Charges. All charges for assembly, installation and set-up shall be included in the bid price. Unless otherwise stated, assembly, installation and set-up will be required.

2.7 Operating Instructions and Training. Clear and concise operating instructions and descriptive literature will be provided in English, if requested. On-site detailed training in the safe and efficient use and general maintenance of item(s) purchased shall be provided as needed at the request of Jefferson County. Instructions and training shall be at no additional cost to the County.

2.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.

2.9 Compliance with Federal, State, County, and Local Laws. Bids must comply with all federal, state, county and local laws, including, but not limited to, all applicable standard safety, emission, and noise control requirements. Any vehicles or equipment shall contain all standard safety, emission, and noise control requirements required for the types and sizes of equipment at the time of their manufacture. The contractor agrees, during the performance of work or service, to comply with all applicable codes and ordinances of Jefferson County or the State of Texas as they may apply, as these laws may now read, or as they may hereafter be changed or amended.

2.10 OSHA. The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with federal and State of Texas OSHA standards. The successful bidder will agree to indemnify and hold harmless Jefferson County for any and all damages that may be assessed against the County.

2.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

2.12 Samples, Demonstrations and Testing. At Jefferson County's request and direction, bidder shall provide product samples and/or testing of items bid to ensure compliance with specifications. Samples, demonstrations and/or testing may be requested at any point prior to or following bid award. Samples, demonstrations and/or testing may be requested upon delivery and/or any point during the term of resulting contract. All samples (including return thereof), demonstrations, and/or testing shall be at the expense of the bidder/vendor.

2.13 Acceptability. All articles enumerated in the bid shall be subject to inspection by an officer designated for that purpose by Jefferson County. If found inferior to the quality called for, or not equal in value to the specifications, deficient in workmanship or otherwise, this fact shall be certified to the Purchasing Agent, who shall have the right to reject the whole or any part of the same. Items and/or work determined to be contrary to specifications must be replaced at the vendor's expense. Inferior items not retrieved by the vendor within thirty (30) calendar days, or an otherwise agreed upon time, shall become the property of the County. If disposal of such items warrants an expense, an amount equal to the disposal expense will be deducted from amounts payable to the vendor.

2.14 Maintenance. Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on

the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced accordingly.

2.15 Material Safety Data Sheets. Under the "Hazardous Communications Act," common known as the "Texas Right to Know Act," a bidder must provide the user department, with each delivery, material safety data sheets which are applicable to hazardous substances defined in the Act. Failure of the bidder to furnish this documentation, will be cause to reject any bid applying thereto.

2.16 Evaluation. Evaluation shall be used as a determinant as to which services are the most efficient and/or most economical for the County. It shall be based on all factors having a bearing on price and performance of the items in the user environment. All bids are subject to tabulation by the Jefferson County Purchasing Department and recommendation to Jefferson County Commissioners' Court. Compliance with all bid requirements and needs of the using department are considered in evaluating bids. Pricing is not the only criteria for making a recommendation. The Jefferson County Purchasing Department reserves to right to contact any bidder, at any time, to clarify, verify or requirement information with regard to this bid.

3. Purchase Orders and Payment

3.1 Purchase Orders. A purchase order(s) shall be generated by the Jefferson County Purchasing Agent to the successful vendor. The purchase order number must appear on all itemized invoices and packing slips. The County will not be held responsible for any work orders placed and/or performed without a valid current purchase order number. Payment will be made for all services rendered and accepted by the contract administrator for which a valid invoice has been received.

3.2 Invoices. All invoices shall reference the Purchase Order number. Invoices shall reference the bid item number or a detailed description for each item invoiced. If an item purchased and itemized on the invoice does not correspond to an item in any of the categories awarded to the vendor, invoice shall reference the item as "N/C" to indicate that it is a non-contract item. This requirement is to assist the County in verifying contract pricing on all invoices. Payment will be made under terms of net thirty (30) days unless otherwise agreed upon by seller and the purchasing department.

3.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receive and acceptance by the County of the merchandise ordered and of a valid invoice. Successful bidder(s) is required to pay subcontractors within ten (10) days after the successful bidder receives payment from the County.

3.4 Funding. Jefferson County is operated and funded on an October 1 to September 30 basis; accordingly, the County reserves the right to terminate, without liability to the County, any contract for which funding is not available.

4. Contract

4.1 Contract Definition. The General Conditions of Bidding and Terms of Contract, Specifications, Plans, Bidding Forms, Addenda, and any other documents made a part of this bid shall constitute the complete bid. This bid, when duly accepted by Jefferson County, shall constitute a contract equally binding between the successful bidder and Jefferson County.

4.2 Contract Agreement. Once a contract is awarded, the unit prices offered by the successful bidder shall remain firm for the term of the contract. Contract shall commence on date of award and, upon agreement between vendor(s) and Jefferson County, may be renewed annually for up to four (4) additional years.

4.3 Change Order. No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.4 Price Re-determination. A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The bidder's past experience of honoring contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.5 Termination. Jefferson County reserves the right to terminate the contract for default if the bidder breached any of the terms therein, including warranties of bidder or if the bidder becomes insolvent or commits acts of bankruptcy. Such right of termination is in addition to and not in lieu of any other remedies which Jefferson County may have in law or equity. Default may be construed as, but not limited to, failure to deliver the proper goods and/or service within the proper amount of time, and/or to properly perform any and all services required to Jefferson County's satisfaction and/or to meet all other obligations and requirements. Contracts may be terminated without cause upon thirty (30) days' written notice to either party unless otherwise specified. Jefferson County reserves the right to award canceled contract to the next lowest bidder. Bidder, in submitting this bid, agrees that Jefferson County shall not be liable to prosecution for damages in the event that the County declares the bidder in default.

4.6 Conflict of Interest. Employees of the County are not permitted to maintain financial interest in, or receive payment, directly or indirectly, borrow from, lend to, invest in, or engage in any substantial financial transaction with any individual, organization, supplier, or subcontractor who does business with the County without disclosure. When conflict of interest is discovered, it shall be grounds for termination of contract.

4.7 Injuries or Damages Resulting from Negligence. Successful vendor shall defend, indemnify and save harmless Jefferson County and all its officers, agents and employees from all suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the successful vendor, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful vendor shall pay any judgment with cost which may be obtained against Jefferson County growing out of such injury or damages.

4.8 Interest by Public Officials. No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.9 Warranty. The successful vendor shall warrant that all materials utilized in the performance of this contract shall conform to the proposed specifications and/or all warranties as stated in the Uniform Commercial Code and be free from all defects in material, workmanship and title.

4.10 Uniform Commercial Code. The successful vendor and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code.

4.11 Venue. This agreement will be governed and construed according to the laws of the State of Texas. This agreement is performable in the County of Jefferson, Texas.

4.12 Sale, Assignment, or Transfer of Contract. The successful vendor shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.

4.13 Silence of Specifications. The apparent silence of these specifications as to any detailed description concerning any point, shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications shall be made on the basis of this statement.

Special Requirements/Instructions

The following requirements and instructions supersede General Requirements where applicable.

1. Bid Requirement

Each bidder shall insure that all parts of the bid are **completed and returned.** The Table of Contents indicates specifically which pages need to be returned; these pages shall constitute the vendor's bid. Vendor shall use an opaque envelope, clearly indicating on the outside the **Bid Number, Bid Description, and marked "SEALED BID"**. Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB. All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court. **Bidders** shall submit one(1) original, and two (2) copies of the bid.

2. Vendor Registration: SAM (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov

Bid Respondents are highly encouraged to check their firm's SAM (System for Award Management) status prior to Bid Submission; as it is a requirement for vendors doing business with Jefferson County to be registered.

3. Awarded Vendor(s): Submission of FORM 1295 (Texas Ethics Commission)

As of January 1, 2016, per House Bill 1295, the Texas Ethics Commission (TEC) requires **all awarded vendors** to complete a Certificate of Interested Parties (FORM 1295) at time of notification of award. **Awarded Vendors** must visit the TEC website link below, enter the required information on Form 1295, and print a copy of the completed form. The form will include a certification of filing that will contain a unique certification number.

At the time of award, the Jefferson County Purchasing Department will submit a request to the Awarded Vendor to both:

1. Submit FORM 1295 online via the Texas Ethics Commission website link below.

2. Submit a printed copy of FORM 1295, signed by an Authorized Agent of the Awarded Vendor and notarized to the Jefferson County Purchasing Department.

FORM 1295, Completion Instructions, and Login Instructions are available via the Texas Ethics Commission Website at:https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

4. Multiple Vendor Award

Jefferson County reserves the right to award this contract to more than one vendor at the County's discretion.

5. Delivery

If delivery is required, all items must be packaged so as to be protected from damage during shipping and handling. Any item(s) damaged in shipping must be replaced in kind, or repaired, by the contractor, at the discretion of, and at no additional charge to, Jefferson County.

6. Payment

Jefferson County will pay original invoices that clearly itemize the goods and/or services provided as to quantity, part number, description, price, applicable discount (if any), labor charges showing time differential, if applicable and if previously agreed to, and delivery, installation, and set-up costs, if applicable and if previously agreed to. Only charges as stated on the Bid Form(s) submitted as a part of the bid will be considered.

Invoices must indicate Jefferson County as applicable, the address to which the product(s) and/or service(s) were delivered, and the applicable purchase order number. Invoices will be matched to delivery tickets prior to payment; therefore, all delivery tickets should have an accurate description of the product(s) and/or service(s).

Invoices shall be submitted to: Jefferson County Auditing Department, Attention: Accounts Payable, 1149 Pearl Street, 7th floor, Beaumont, TX 77701.

7. Usage Reports

Jefferson County reserves the right to request, and receive at no additional cost, up to two (2) times during the contract period, a usage report detailing the products and/or services furnished to date under a contract resulting from this IFB. The reports must be furnished no later than five (5) working days after written request and itemize all purchases to date by Jefferson County department, description of each item purchased, including manufacturer, quantity of each item purchased, per unit and extended price of each item purchased, and total amount and price of all items purchased.

8. Insurance

The contractor (including any and all subcontractors as defined in Section 7.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the contractor. These requirements do not establish limits of the contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured.

All insurance must be written by an insurer licensed to conduct business in the State of Texas.

Minimum Insurance Requirements

Public Liability	$1,000,000.00
Excess Liability	$1,000,000.00

Property Insurance (policy below that is applicable to this project):

Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)
Builder's Risk Policy: Structural Coverage for Construction Projects
Installation Floater Policy: Improvements/Alterations to Existing Structure

Workers' Compensation	Statutory Coverage (see attached)

9. Workers' Compensation Insurance

9.1 Definitions:

9.1.1 **Certificate of coverage ("Certificate")** – A copy of a certificate of insurance, a certificate of authority to self-insure issued by the commission, or a coverage agreement, DWC-81, DWC-82, DWC-83, or DWC-84 showing statutory workers' compensation insurance coverage for the person's or entity's employees providing services on a project, for the duration of the project.

9.1.2 **Duration of the project** – Includes the time from the beginning of the work on the project until the contractor's/person's work on the project has been completed and accepted by the governmental entity.

9.1.3 **Persons providing services on the project ("subcontractor") in article 406.096** – Includes all persons or entities performing all or part of the services under the contractor has undertaken to perform on the project, regardless of whether that person contracted directly with the contractor and regardless of whether that person has employees. This includes, without limitation, independent contractors, subcontractor, leasing companies, motor carriers, owner-operators, employees of any such entity, or employees of any entity which furnishes persons to provide services on the project. "Services" includes, without limitation, providing, hauling or delivering equipment or materials, or providing labor, transportation, or other service related to a project. "Services" does not include activities unrelated to the project, such as food/beverage vendors, office supply deliveries, and delivery of portable toilets.

9.2 The Contractor shall provide coverage, based on proper reporting of classification code and payroll amounts and filing any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all employees of the contractor providing services on the project, for the duration of the project.

9.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – refer to Section 6 above.

9.4 If the coverage period shown on the Contractor's current certificate of coverage ends during the duration of the project, the Contractor must, prior to the end of the coverage period, file a new certificate of coverage with the governmental entity showing that coverage has been extended.

9.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:

9.5.1 A certificate of coverage, prior to that person beginning work on the project, so the governmental entity will have on file certificates of coverage showing coverage for all persons providing services on the project; and

9.5.2 No later than seven (7) days after receipt by the Contractor, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate ends during the duration of the project.

9.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.

9.7 The Contractor shall notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the contractor knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project.

9.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Department of Workers' Compensation, informing all persons providing services on the project that they are required to be covered, and stating how a person may verify coverage and report lack of coverage.

9.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:

9.9.1 Provide coverage, based on reporting of classification codes and payroll amounts and filing of any coverage agreements, which meets the statutory requirements of Texas Labor Code, Section 401.011(44) for all its employees providing services on the project, for the duration of the project.

9.9.2 Provide to the Contractor, prior to that person beginning work on the project a certificate of coverage showing that coverage is being provided for all employees of the person providing services on the project, for the duration of the project.

9.9.3 Provide the Contractor, prior to the end of coverage period, a new certificate of coverage showing extension of coverage, if the coverage period shown on the current certificate of coverage ends during the duration of the project.

9.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:

9.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and

9.9.4.2 the coverage period, if the coverage period shown on the current certificate of a new certificate of coverage showing extension of coverage, prior to the end of coverage ends during the duration of the project.

9.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

9.9.6 Notify the governmental entity in writing by certified mail or personal delivery, within ten (10) days after the person knew or should have known, of any change that materially affects the provision of coverage of any person providing services on the project; and

9.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs 9.1. – 9.7., with the certificates of coverage to be provided to the person for whom they are providing services.

9.10 By signing this contract or providing or causing to be provided a certificate of coverage, the Contractor is representing to the governmental entity that all employees of the contractor who will provide services of the project will be covered by workers' compensation coverage for the duration of the project, that the coverage will be based on proper reporting of classification codes and payroll amounts, and that all coverage agreements will be filed with the appropriate insurance carrier or, in the case of a self-insured, with the commission's Division of Self-Insurance Regulation. Providing false or misleading information may subject the contractor to administrative penalties, criminal penalties, civil penalties, or other civil actions.

9.11 The Contractor's failure to comply with any of these provisions is a breach of contract by the Contractor which entitles the governmental entity to declare the contract void if the Contractor does not remedy the breach within ten (10) days after receipt of notice of breach from the governmental entity.

Minimum Specifications

The following requirements and specifications supersede General Requirements where applicable. Contact Yea-Mei Sauer, Contract Specialist (e-mail: ysauer@co.jefferson.tx.us; phone: 409-835-8593), regarding any questions or comments. Please reference bid number IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County.

Scope

Vendor shall provide motor fuel for Jefferson County for daily business, and in times of Emergency or Natural Disaster subject to the terms and conditions stated herein for a period of one year beginning on or about Date of Award.

The County shall reserve the right to award to one successful bidder for tankwagon loads. Partial bids will not be considered.

Bidder shall include brand names or trade names of products offered on the bid blank.

Delivery

Delivery of motor fuel shall be to storage tanks located throughout Jefferson County, with delivery prepaid and allowed, and unloading charges for the account of the seller. Delivery locations are listed on page 16 of these specifications.

Taxes/Fees

Jefferson County does not pay federal tax on gasoline.

The County is subject to State Gasoline Tax and the Petroleum Product Delivery Fees.

Petroleum Product Delivery Fee Schedule

Gasoline		Diesel	
0-2499 gallons	$25.00	0-2499 gallons	$25.00
2500-4999 gallons	$50.00	2500-4999 gallons	$50.00
5000-6999 gallons	$75.00	5000-7999 gallons	$75.00
7000-10,000 gallons	$100.00	8000-10,000 gallons	$100.00

Bidders are reminded to list the fee as a separate line item charge and to identify it on the invoice as "Reimbursement for Petroleum Delivery Fee." Invoice the taxes and fees as separate items. **Do not include tax/fee in your bid.** Successful bidder shall negotiate a 6416 agreement whereby the bidder will not charge the County for federal excise tax and the County will allow the bidder to collect a refund from the Internal Revenue Service. **Therefore, do not bid federal excise tax.**

Approximate Annual Usage

Items listed on page 17 indicate our approximate annual usage. No promise is made or implied that these quantities will be purchased. Orders will be placed on an **as-needed basis**, delivered to various locations in Jefferson County, for the duration of the contract. Purchase Orders will be released to the successful bidder(s) as required. **Minimum Orders Are Not Acceptable.**

Contract

This bid, when properly accepted by Jefferson County Commissioners' Court, shall constitute a contract equally binding between the successful bidder and Jefferson County. No different or additional terms will become a part of this contract.

General Specification

1. It is understood and agreed that independent laboratory tests and analysis may be required under the following conditions:

   a. Independent laboratory test may be made from samples taken at destination. The County shall select the testing laboratory.

   b. If the results of such test and analysis reveal the samples submitted meet the technical specifications below, Jefferson County will bear the cost of such test and analysis.

   c. If the results of such test and analysis reveal the samples submitted do not meet the technical specifications below, the cost of such tests and analysis shall be for the successful bidder's account, and the successful bidder shall make satisfactory adjustment for all product delivered which does not comply with the County's technical specifications.

   d. The results of the foregoing tests and analysis shall be furnished to the successful bidder and to Jefferson County.

2. The Contractor shall make adjustment and allowance in gallonage of gasoline to compensate for change in temperature of gasoline, i.e., Contractor must show temperature of gasoline at loading point at the time the gasoline was unloaded onto the transport and must show the correction and adjustment made in gallonage delivered to the County using 60 degrees F as normal temperature reading. **Such corrections and adjustment will be shown on 5,000 gallons or more on invoice billing to the County.**

3. The successful bidder shall exercise extreme care at all time during delivery to ensure all safety precautions are met.

4. The official reference for prices for fuel delivered under this specification shall be **the Oil Price Information Service (OPIS) PADD 3 REPORT,** published weekly by United Communications Group, 4550 Montgomery Avenue, Suite 700, N. Bethesda, MD 20814. This publication lists weekly and daily average prices, in cents per gallon, F.O.B. Beaumont, TX, excluding taxes, for the three grades of motor fuel listed in the Technical Specification below.

5. **Prices bid shall be expressed as equal to or a differential of, in cents per gallon, either more or less, the OPIS PADD 3 report daily average prices published for Beaumont, TX. RACK PRICES ARE NOT ACCEPTABLE.**

6. Deliveries will not be made unless a purchase order has been issued by the Jefferson County Purchasing Department. The weekly prices for these orders shall be on the following basis:

   a. OPIS averages are published daily.

   b. The reports are normally available the following business day.

c. The prior days report will be the reference for prices for all purchases made.

7. Prices quotes shall be for tankwagon loads delivered to the following County locations:

Item	Delivery Locations	Tank Capacity (gallons)
1	Jefferson County Correctional Facility (Diesel/Below Ground) 5030 Highway 69 South, Beaumont TX 77705	2,500
2	Jefferson County Correctional Facility (Unleaded Gasoline/Below Ground) 5030 Highway 69 South, Beaumont TX 77705	6,000
3	Jack Brooks Regional Airport (Diesel/Above Ground) 5000 Jerry Ware Drive, Beaumont TX 77705	400
4	Road & Bridge, Precinct 1 (Diesel/Above Ground) 1290 Highway 90, Beaumont TX 77713	2,000
5	Road & Bridge, Precinct 1 (Unleaded Gasoline/Above Ground) 1290 Highway 90, Beaumont TX 77713	2,000
6	Road & Bridge, Precinct 2 (Diesel/Above Ground) 7759 Viterbo Road, Beaumont TX 77705	2,000
7	Road & Bridge, Precinct 2 (Unleaded Gasoline/Above Ground) 7759 Viterbo Road, Beaumont TX 77705	2,000
8	Road & Bridge, Precinct 3 (Diesel/Above Ground) Highway 124 Stockpile, Hamshire TX 77622	1,000
9	Road & Bridge, Precinct 3 (Diesel/Above Ground) 5700 Jade Avenue, Port Arthur TX 77640	5,000
10	Road & Bridge, Precinct 3 (Unleaded Gasoline/Above Ground) 5700 Jade Avenue, Port Arthur TX 77640	3,000
11	Road & Bridge, Precinct 4 (Diesel/Above Ground) 7780 Boyt Road, Beaumont TX 77713	2,000
12	Road & Bridge, Precinct 4 (Diesel/Above Ground) 7780 Boyt Road, Beaumont TX 77713	2,000
13	Jefferson County Service Center (Unleaded Gasoline/Above Ground) 7789 Viterbo Road, Nederland TX 77627	12,000
14	Sheriff's Department Commissary (JCCF) (Diesel/Above Ground) 5030 Highway 69 South, Beaumont TX 77705	500
15	Sheriff's Department Marine Division (Unleaded Gasoline/Above Ground) Port of Beaumont, Beaumont TX 77701	1,000
16	Sheriff's Department Marine Division (Unleaded Gasoline/Above Ground) 5950 South 1st Avenue, Sabine Pass TX 77655	8,000
17	Jefferson County Subcourthouse (Unleaded Gasoline/Above Ground) 525 Lakeshore Drive, Port Arthur TX 77640	2,000

The County can furnish the successful bidder copies of the underground storage tank requirements for the applicable tanks.

8. **Successful bidder shall make deliveries within 24 hours of order.** Transport delivery vehicles shall be equipped with meters capable of printing registrations on the invoice before and after delivery. The amount delivered shall be so recorded on each delivery ticket.

   If delivery truck is not equipped with a meter, the driver shall notify a representative of Jefferson County at the delivery location upon arrival. The Jefferson County representative shall measure the level of fuel in the tank before and after the deliver is made, to ensure that an accurate delivery amount is recorded. Both measurements, as well as the signatures of the driver and the Jefferson County representative, shall be recorded on the bill of lading or delivery ticket.

9. **Estimated consumption of tankwagon delivery product is as follows:**

Unleaded gasoline, 87 octane	170,841 gallons
Unleaded gasoline, 89 octane	38,297 gallons
Unleaded gasoline, 93 octane	102,917 gallons
No. 2 Diesel	67,416 gallons

   These figures are estimates only. No promise is made or implied that these quantities will be purchased.

10. **Technical Specification**

Gasoline: Gasoline shall be petroleum motor fuels satisfactory for use in gasoline-powered internal combustion engines.

Grades of gasoline shall conform to the following formulas:

Item 1.	Unleaded Gasoline, Regular Grade Minimum Octane Rating R+M/2=87
Item 2.	Unleaded Gasoline, Medium Grade Minimum Octane Rating R+M/2=89
Item 3.	Unleaded Gasoline, Premium Grade Minimum Octane Rating R+M/2=93
Item 4.	No. 2 Diesel Fuel

Diesel fuel shall be petroleum fuel for use in Diesel internal combustion engines. Fuel supplied under this specification shall meet minimum standards prescribed by the American Society of Testing and Materials for number 2-4 fuel (ASTM D-975) and shall meet or exceed the following minimum criteria:

API specific gravity	30 min
Flash point, PM	125 degrees F min
Viscosity CST @ 104 degrees F (40 degrees C)	1.9 – 3.4
Color, ASTM	2.0 max
Cloud point	0 – 16 degrees F
Sulfur, by percentage weight	0.5% max
Cetane index	40 minimum
Water & sediment, percentage by volume	0.05%
Distillation temperature	
10% point	470 degrees F max
50% point	540 degrees F max
90% point	640 degrees F max
End point	675 degrees F max
Copper strip corrosion 3 hrs. @ 122 degrees F	1 B max
Carbon residue	0.35 max

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): #1 , _____, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

Mansfield Oil Company of Gainesville, Inc.
Company Name

1025 Airport Parkway, SW
Address

Gainesville | GA | 30501-6813
City | State | Zip

Signature of Person Authorized to Sign

David Zarfoss
Printed Name

Director of Government Pricing
Title

For clarification of this offer, contact:

David Zarfoss
Name

(800) 255-6699 | (678) 450-2242
Phone | Fax

mocbids@mansfieldoil.com
E-mail

Bidder Shall Return Completed Form with Offer.

Acceptance of Offer

The Offer is hereby accepted for the following items: Term Contract for Motor Fuel for Jefferson County, Contract Term: One (1) year from date of award with an option to renew for four (4) additional years.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as Contract No. IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

Countersigned:

Jeff R. Branick
County Judge

Date

Attest:

Carolyn L. Guidry
County Clerk

Bidder Shall Return Completed Form with Offer.

Bid Form

Note to bidders: Minimum order bids are not acceptable.

Item	Estimated Quantity (gallons)	Description	Brand	+/- Factor
1	170,841	Unleaded Gasoline Regular Grade 87 Octane	Various	$ 0.2488
2	38,297	Unleaded Gasoline Medium Grade 89 Octane	Various	$ 0.2488
3	102,917	Unleaded Gasoline Premium Grade 93 Octane	Various	$ 0.2488
4	67,416	No. 2 Diesel	Various	$ 0.3872

* Bidder will supply the quantity of the requested item required to meet the specifications.

See attached Tax Cahart

Acknowledgment of Addenda (if any):

Addendum 1 __X__ Date Received 2/3/2016

Addendum 2 __X__ Date Received 2/12/2016

Addendum 3 _____ Date Received _____

Bidder Shall Return Completed Form with Offer.

SHELD OIL CO.
PORT PKWY
LE, GA. 30501

Mansfield Fuels. Simplified.

OPIS Contract | Gross

BEAUMONT, TX

Prices for: 2/10/2016

Product	Average	Low	High
BEAUMONT, TX			
GAS			
MID W/10% ETH	1.0067	0.9147	1.0400
PRM 93 W/10%ETH	1.2090	1.0703	1.2445
PRM93 RFG 10%ET	1.3290	1.3000	1.3539
QCBOB MID E10 9	1.0067	0.9147	1.0400
QCBOB PRM E10 9	1.2090	1.0703	1.2445
QCBOB REG E10 9	0.8824	0.8285	0.9090
UNL W/10% ETH	0.8824	0.8285	0.9090
DIESEL			
TXLED ULSD CLR	1.0050	0.9780	1.0168
ULSD DYE LED	1.0034	0.9815	1.0205

Mansfield
Fuels. Simplified.

OPIS Contract | Gross

LAKE CHARLES,LA

Prices for: 2/10/2016

Product	Average	Low	High
LAKE CHARLES,LA			
GAS			
MID W/10% ETH	1.0476	0.9985	1.1547
MIDGRADE 89 OCT	1.3437	1.3370	1.3504
NO LEAD 87 OCT	1.1005	1.0765	1.1181
PREMIUM 93 OCT	1.5681	1.5140	1.6232
PRM 93 W/10%ETH	1.3741	1.2847	1.4670
QCBOB MID E10 9	1.0476	0.9985	1.1547
QCBOB PRM E10 9	1.3741	1.2847	1.4670
QCBOB REG E10 9	0.9054	0.8650	0.9303
UNL W/10% ETH	0.9054	0.8650	0.9303
DIESEL			
JET FUEL	1.1321	1.1321	1.1321
TXLED ULSD CLR	1.0019	0.9940	1.0130
ULS KERO CLR	1.3813	1.2755	1.4870
ULSD CLEAR	0.9734	0.9601	0.9826
ULSD DYE LED	1.0014	0.9990	1.0061
ULSD DYED	0.9760	0.9651	0.9870

Mansfield
Energy. Simplified.

Jefferson County, TX
IFB: 16-001/YS
Tax Chart

The following taxes/fees are not included in the price differential

	UNLEADED GASOLINE	ULSD TXLED CLEAR
Federal LUST	$ .001/gallon	$ .001/gallon
Federal Oil Spill	$ .0019/gallon	$ .0019/gallon
TX Motor Fuel Tax	$ .20/gallon	$ .20/gallon

Effective Sept. 1, 2015, the following rates apply:

Gallons Delivered (All Petroleum Products)	Fee
Less than 2,500	$ 1.70
2,500 but less than 5,000	$ 3.45
*5,000 but less than 8,000	$ 5.45
*8,000 but less than 10,000	$ 6.95
10,000 or more, per 5,000 gallon increment	$ 3.45

*For gasoline deliveries of at least 7,000 but less than 8,000 gallons (whether single product type or split load), special rules continue to apply:

- If the gasoline portion of the delivery is less than 7,000 gallons, the fee is $ 5.45.
- If the gasoline portion of the delivery is at least 7,000 gallons, the fee is $ 6.95.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: Texas Association of School Boards (TASB)

Address: 12007 Research Blvd #100, Austin TX 78759

Contact Person and Title: Jason Turner, Division Director of Energy Services

Phone: (512) 467-0222 Ext 2045 ~~Fax:~~ E-mail: jason.turner @tasb.org

Contract Period: 03-01-2015 to 02-28-2017 Scope of Work: Supply and Delivery of petroleum products

REFERENCE TWO

Government/Company Name: City of Dallas

Address: 1500 Marilla Street, Dallas TX 75201

Contact Person and Title: Michelle Charnoski

Phone: (214) 670-0160 Fax: (214) 670-0160

Contract Period: 05-01-2014 to 04-30-2017 Scope of Work: Supply and Delivery of petroleum products

REFERENCE THREE

Government/Company Name: Kansas City Area Transit Authority (KCATA)

Address: 1350 E. 17th Street, Kansas City, MO 64108

Contact Person and Title: John Hays, Procurement

Phone: (816) 346-0321 ~~Fax:~~ E-mail: jhays@kcata.org

Contract Period: 01-30-2008 to Present Scope of Work: Supply and Delivery of petroleum products

Bidder Shall Return Completed Form with Offer.

Signature Page

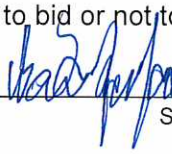
As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? Upon mutual agreement. **Yes** [X] **No** [ ]

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

Mansfield Oil Company of Gainesville, Inc. Bidder (Entity Name)	 Signature
1025 Airport Parkway, SW Street & Mailing Address	David Zarfoss, Director of Government Pricing Print Name
Gainesville, GA 30501-6813 City, State & Zip	February 12, 2016 Date Signed
(800) 255-6699 Telephone Number	(678) 450-2242 Fax Number
mocbids@mansfieldoil.com E-mail Address	

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

NOT APPLICABLE

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

NOT APPLICABLE

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

Signature of vendor doing business with the governmental entity

February 12, 2016

Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . . NOT APPLICABLE

☐ Yes ☐ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☐ Yes ☐ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☐ Yes ☐ No 3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☐ Yes ☐ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?

☐ Yes ☐ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☐ Yes ☐ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid. If necessary, please use a separate sheet to answer the above questions.

David Zarfoss
Printed Name of Authorized Representative

Signature

Director of Government Pricing
Title

February 12, 2016
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: Mansfield Oil Company of Gainesville, Inc. HUB: p Yes p(No)

Address: 1025 Airport Parkway, SW (Street) Gainesville (City) GA (State) 30501-6813 (Zip)

Phone (with area code): (800) 255-6699 Fax (with area code): (678) 450-2242

Project Title & No.: IFB 16-001/YS Term Contract for Motor Fuel for Jefferson County

Prime Contract Amount: $ TBD

HUB Subcontractor Name: NOT APPLICABLE

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____ (Street) _____ (City) _____ (State) _____ (Zip)

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Printed Name of Contractor Representative	Signature of Representative	Date
		February 12, 2016
Printed Name of HUB	**Signature of Representative**	**Date**

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PAGE 1 OF 4

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☒ Yes ☐ No

Prime Contractor: Mansfield Oil Company of Gainesville, Inc. HUB: ☐ Yes ☒ No

HUB Status (Gender & Ethnicity): _____

Address: 10205 Airport Parkway, SW (Street) Gainesville (City) GA (State) 30501-6813 (Zip)

Phone (with area code): (800) 255-6699 Fax (with area code): (678) 450-2242

Project Title & No.: Term Contract for Motor Fuel for Jefferson County IFB/RFP No.: 16-001/YS

Total Contract: $ TBD Total HUB Subcontract(s): $ N/A

Construction HUB Goals: 12.8% MBE:: _____ % 12.6% WBE: _____ %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American. Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: NOT APPLICABLE

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____ (Street) _____ (City) _____ (State) _____ (Zip)

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: NOT APPLICABLE

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- [X] All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- [ ] HUBs were solicited but did not respond.
- [ ] HUBs solicited were not competitive.
- [ ] HUBs were unavailable for the following trade(s):
- [ ] Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? [ ] Yes [ ] No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: On -Site Fuel

Address: 3315 Carr Street (Street) Houston (City) TX (State) 77026 (Zip)

Contact person: Mara Robinson mara@onsitefuelservice.com Title: Director of Strategic Partnerships

Phone (with area code): (800) 753-4142 Fax (with area code): _____

Proposed Subcontract Amount: $ TBD Percentage of Prime Contract: TBD %

Description of Subcontract Work to be Performed: Petroleum Delivery

Subcontractor Name: _____

Address: _____ (Street) _____ (City) _____ (State) _____ (Zip)

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: NOT APPLICABLE

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required**. I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): Mansfield Oil Company of Gainesville, Inc.

Title: Director of Government Pricing

Signature: _____

Date: February 12, 2016

E-mail address: mocbids@mansfieldoil.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Kim Bennett

Title: Government Account Coordinator

Date: February 12, 2016

E-mail address: govtops@mansfieldoil.com

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☐ I certify that _____ [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☒ I certify that Mansfield Oil Company of Gainesville, Inc. [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is Gainesville Georgia, 30501-6813 (city and state).

Taxpayer Identification Number (T.I.N.):	58-1091383
Company Name submitting bid/proposal:	Mansfield Oil Company of Gainesville
Mailing address:	1025 Airport Parkway, SW Gainesville GA 30501-6813
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
	NOT APPLICABLE

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Georgia COUNTY OF Hall

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Georgia,

on this day personally appeared David Zarfoss (name), who

after being by me duly sworn, did depose and say:

"I, David Zarfoss (name) am a duly authorized officer of/agent

for Mansfield Oil Company of Gainesville, Inc. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said Mansfield Oil Company of Gainesville, Inc. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: Mansfield Oil Company of Gainesville, Inc.

1025 Airport Parkway, Sw Gainesville GA 30501-6813

Fax: (678) 450-2242 Telephone# (800) 255-6699

by: David Zarfoss (print name) Title: Director of Government Pricing

Signature: [signature]

SUBSCRIBED AND SWORN to before me by the above-named David Zarfoss on

this the 12th day of February, 2016.

[signature]
Notary Public in and for
the State of Georgia

JULIE TITTLE NOTARY PUBLIC HALL COUNTY, GEORGIA MY COMMISSION EXPIRES NOVEMBER 11, 2018

Bidder Shall Return Completed Form with Offer.

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593

ADDENDUM TO IFB

IFB Number:	IFB 16-001/YS
IFB Title:	Term Contract for Motor Fuel for Jefferson County
IFB Due:	**Tuesday, February 16, 2016, 11:00 am CDT**
Addendum No.:	1
Issued (Date):	February 3, 2016

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reasons for Issuance of this addendum: (1) Relocation of bid opening to 1149 Pearl Street, 5th Floor, Beaumont TX 77701, Engineering Conference Room, and (2) changes to delivery locations (page 17).

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Julie Tittle
Witness — Julie Tittle, Bid Contract Supervisor

Deborah Lavoie
Witness — Deborah Lavoie, Contract Coordinator

Approved by ____ Date: _____

David Zarfoss
Authorized Signature (Bidder) — David Zarfoss

Director of Government Pricing
Title of Person Signing Above

Mansfield Oil Company of Gainesville, inc.
Typed Name of Business or Individual

1025 Airport Parkway SW, Gainesville GA 30501-6813
Address

7. Prices quotes shall be for tankwagon loads delivered to the following County locations:

Item	Delivery Locations	Tank Capacity (gallons)
1	Jefferson County Maintenance Department (Diesel/Generator) 1149 Pearl Street, Beaumont TX 77701	1,500
2	Jefferson County Correctional Facility (Diesel/Below Ground) 5030 Highway 69 South, Beaumont TX 77705	2,500
3	Jefferson County Correctional Facility (Unleaded Gasoline/Below Ground) 5030 Highway 69 South, Beaumont TX 77705	6,000
4	Jack Brooks Regional Airport (Diesel/Above Ground) 5000 Jerry Ware Drive, Beaumont TX 77705	400
5	Road & Bridge, Precinct 1 (Diesel/Above Ground) 1290 Highway 90, Beaumont TX 77713	2,000
6	Road & Bridge, Precinct 1 (Unleaded Gasoline/Above Ground) 1290 Highway 90, Beaumont TX 77713	2,000
7	Road & Bridge, Precinct 2 (Diesel/Above Ground) 7759 Viterbo Road, Beaumont TX 77705	2,000
8	Road & Bridge, Precinct 2 (Unleaded Gasoline/Above Ground) 7759 Viterbo Road, Beaumont TX 77705	2,000
9	Road & Bridge, Precinct 3 (Diesel/Above Ground) Highway 124 Stockpile, Hamshire TX 77622	1,000
10	Road & Bridge, Precinct 3 (Diesel/Above Ground) 5700 Jade Avenue, Port Arthur TX 77640	5,000
11	Road & Bridge, Precinct 3 (Unleaded Gasoline/Above Ground) 5700 Jade Avenue, Port Arthur TX 77640	3,000
12	Road & Bridge, Precinct 4 (Diesel/Above Ground) 7780 Boyt Road, Beaumont TX 77713	2,000
13	Road & Bridge, Precinct 4 (Diesel/Above Ground) 7780 Boyt Road, Beaumont TX 77713	2,000
14	Jefferson County Service Center (Unleaded Gasoline/Above Ground) 7789 Viterbo Road, Nederland TX 77627	12,000
15	Sheriff's Department Commissary (JCCF) (Diesel/Above Ground) 5030 Highway 69 South, Beaumont TX 77705	500
~~16~~	~~Sheriff's Department Marine Division (Unleaded Gasoline/Above Ground)~~ ~~Port of Beaumont, Beaumont TX 77701~~ - OMIT	~~1,000~~
17	Sheriff's Department Marine Division (Diesel/Generator) 5950 South 1st Avenue, Sabine Pass TX 77655	150
18	Jefferson County Subcourthouse (Unleaded Gasoline/Above Ground) 525 Lakeshore Drive, Port Arthur TX 77640	2,000

The County can furnish the successful bidder copies of the underground storage tank requirements for the applicable tanks.

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593 phone

ADDENDUM TO IFB

IFB Number:	IFB 16-001/YS
IFB Title:	Term Contract for Motor Fuel for Jefferson County
IFB Due:	**11:00 am CDT, Tuesday, February 16, 2016**
Addendum No.:	2
Issued (Date):	February 12, 2016

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this addendum: Correction to Bid Form

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Julie Tittle
Witness Julie Tittle, Bid Contract Supervisor

Deborah Lavoie
Witness Deborah Lavoie, Contract Coordinator

Approved by ____ Date: _____

David Zarfoss
Authorized Signature (Bidder) David Zarfoss

David Zarfoss
Title of Person Signing Above

Mansfield Oil Company of Gainesville, Inc.
Typed Name of Business or Individual

1025 Airport Parkway, SW Gainesville, GA 30501-6813
Address

Mansfield
Energy. Simplified.

Entity Information

Name: Mansfield Oil Company Of Gainesville, Inc.
Doing Business As: Mansfield Oil Co
Business Type: Business or Organization
POC Name: MOC Bid Team
Registration Status: Active
Activation Date: 06/01/2015
Expiration Date: 05/31/2016

Exclusions

Active Exclusion Records? No

FLINT HILLS resources®

MATERIAL SAFETY DATA SHEET

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

TRADE NAME(S)	**GASOLINE**
CAS NUMBER	Mixture
MSDS NUMBER	9672
SYNONYM(S)	APPLICABLE TO ALL OCTANE GRADES BLUE PLANET® CONVENTIONAL BLENDSTOCK CONVENTIONAL BLENDSTOCK FOR OXYGENATE BLENDING (CBOB) CONVENTIONAL GASOLINE FINISHED GASOLINE GASOHOL MOTOR FUEL NO LEAD GASOLINE REFORMULATED GASOLINE (RFG) REFORMULATED GASOLINE BLENDSTOCK REFORMULATED BLENDSTOCK FOR OXYGENATE BLENDING (RBOB) UNLEADED GASOLINE
MANUFACTURER / SUPPLIER	Flint Hills Resources, LP P.O. Box 2917 Wichita, KS 67201

TELEPHONE NUMBERS - 24 HOUR EMERGENCY ASSISTANCE

Chemtrec	800-424-9300
Flint Hills Resources, LP	361-241-4811 (Corpus Christi)
Flint Hills Resources, LP	651-437-0700 (Pine Bend)

TELEPHONE NUMBERS - GENERAL ASSISTANCE

8-5 (M-F, CST) MSDS Assistance	316-828-7988
Email: msdsrequest@fhr.com	

2 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER!

HEALTH HAZARDS
VAPORS MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION
BREATHING HIGH CONCENTRATIONS CAN CAUSE IRREGULAR HEARTBEATS WHICH MAY BE FATAL
MAY BE HARMFUL OR FATAL IF SWALLOWED
MAY CAUSE LUNG DAMAGE
OVEREXPOSURE MAY CAUSE CNS DEPRESSION
DANGER-CONTAINS BENZENE-CANCER HAZARD
CAN CAUSE LEUKEMIA AND OTHER BLOOD DISORDERS
SEE "TOXICOLOGICAL INFORMATION" (SECTION 11) FOR MORE INFORMATION

FLAMMABILITY HAZARDS
EXTREMELY FLAMMABLE LIQUID AND VAPOR
VAPOR MAY CAUSE FLASH FIRE OR EXPLOSION

REACTIVITY HAZARDS
STABLE

POTENTIAL HEALTH EFFECTS, SKIN

Contact may cause reddening, itching and inflammation. Skin contact may cause harmful effects in other parts of the body.

POTENTIAL HEALTH EFFECTS, EYE

Contact may cause pain and severe reddening and inflammation of the conjunctiva. Effects may become more serious with repeated or prolonged contact.

POTENTIAL HEALTH EFFECTS, INHALATION

Breathing high concentrations may be harmful. May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Breathing high concentrations of this material, for example, in a confined space or by intentional abuse, can cause irregular heartbeats which can cause death.
Overexposure to this material may cause systemic damage including target organ effects listed under "Toxicological Information" (Section 11).

POTENTIAL HEALTH EFFECTS, INGESTION

Swallowing this material may be harmful. May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Exposure may also cause central nervous system symptoms similar to those listed under "Inhalation" (see Inhalation section).

3 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
GASOLINE, UNLEADED	Mixture	100 %	Gasoline: 300 ppm 8-Hour TWA (ACGIH) 500 ppm 15-Min STEL (ACGIH)

Ingredient Name	CAS Number	Concentration*	Exposure Limits / Health Hazards
XYLENE	1330-20-7	1 - 15 %	100 ppm 8-Hour TWA (OSHA) (MNOSHA) 100 ppm 8-Hour TWA (ACGIH) 150 ppm 15-Min STEL (ACGIH)
TOLUENE	108-88-3	1 - 15 %	200 ppm 8-Hour TWA (OSHA) 300 ppm CEILING (OSHA) 20 ppm 8-Hour TWA (ACGIH) 100 ppm 8-Hour TWA (MNOSHA) 150 ppm 15-Min STEL (MNOSHA)
ETHYL ALCOHOL	64-17-5	0 - 10 %	1000 ppm 8-Hour TWA (OSHA) 1000 ppm 8-Hour TWA (ACGIH)
N-HEXANE	110-54-3	0 - 7 %	500 ppm 8-Hour TWA (OSHA) 50 ppm 8-Hour TWA (ACGIH) (MNOSHA)
1,2,4-TRIMETHYLBENZENE	95-63-6	0 - 3 %	25 ppm 8-Hour TWA (ACGIH) 25 ppm 8-Hour TWA (#25551-13-7) (MNOSHA)
BENZENE	71-43-2	0 - 2.3 %	1 ppm 8-Hour TWA (OSHA) (MNOSHA) 5 ppm 15-Min STEL (OSHA) (MNOSHA) 0.5 ppm 8-Hour TWA (ACGIH) 2.5 ppm 15-Min STEL (ACGIH)
ETHYLBENZENE	100-41-4	0 - 2 %	100 ppm 8-Hour TWA (OSHA) (MNOSHA) 100 ppm 8-Hour TWA (ACGIH) 125 ppm 15-Min STEL (ACGIH) (MNOSHA)
CYCLOHEXANE	110-82-7	0 - 1 %	300 ppm 8-Hour TWA (OSHA) (MNOSHA) 100 ppm 8-Hour TWA (ACGIH)
NAPHTHALENE	91-20-3	0 - 1 %	10 ppm 8-Hour TWA (OSHA) (MNOSHA) 10 ppm 8-Hour TWA (ACGIH) 15 ppm 15-Min STEL (ACGIH) (MNOSHA)
CUMENE	98-82-8	0 - 1 %	50 ppm 8-Hour TWA (OSHA) (MNOSHA) 50 ppm 8-Hour TWA (ACGIH)

*Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time.

COMPOSITION COMMENTS

This Material Safety Data Sheet is intended to communicate potential health hazards and potential physical hazards associated with the product(s) covered by this sheet, and is not intended to communicate product specification information. For product specification information, contact your Flint Hills Resources, LP representative.

** Dermal exposure to this chemical may add to the overall exposure, as it is readily absorbed through the skin.

4 FIRST AID MEASURES

SKIN

Immediately wash skin with plenty of soap and water after removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

EYE

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

INHALATION

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR).

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

INGESTION

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty.

Never give anything by mouth to an unconscious person.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

NOTES TO PHYSICIAN

INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

INGESTION: If ingested this material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5 FIRE FIGHTING MEASURES

HAZARDOUS COMBUSTION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, irritating vapors, and other decomposition products in the case of incomplete combustion.

EXTINGUISHING MEDIA

Use water spray, dry chemical, carbon dioxide or fire-fighting foam for Class B fires to extinguish fire.

BASIC FIRE FIGHTING PROCEDURES

Material will burn in a fire.

Evacuate area and fight fire from a safe distance.

If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak.

Use water spray to cool adjacent structures and to protect personnel. Shut off source of flow if possible. Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire.

Firefighters must wear NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

UNUSUAL FIRE & EXPLOSION HAZARDS

Extremely flammable. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back.

Static accumulator (nonconductive) flammable or combustible liquid may form ignitable vapor-air mixtures in storage tanks. Bonding and grounding may be insufficient to eliminate the hazard from static accumulation.

Explosion hazard if exposed to extreme heat.

SPECIFIC HAZARDS

Conductivity (pS/m) <50 (Gasoline without Ethanol)
Conductivity (pS/m) >2000 (Gasoline with Ethanol)

Flash Point	-45 °F (-42.8 °C)
Autoignition Temperature	536 - 853 °F (280.0 - 456.1 °C)
Flammability Limits in Air, Lower, % by Volume	1.2 %
Flammability Limits in Air, Upper, % by Volume	7.6 %

6 ACCIDENTAL RELEASE MEASURES

EMERGENCY ACTION

Eliminate and/or shut off ignition sources and keep ignition sources out of the area. Keep unnecessary people away; isolate hazard area and deny entry. Stay upwind. Isolate for 800 meters (1/2 mile) in all directions if tank, rail car or tank truck is involved in fire. Evacuate area endangered by release as required. (See Exposure Controls/Personal Protection, Section 8.)

ENVIRONMENTAL PRECAUTIONS

Eliminate all sources of ignition. Isolate hazard area and deny entry.

If material is released to the environment, take immediate steps to stop and contain release. Caution should be exercised regarding personnel safety and exposure to the released material. Notify local authorities and the National Response Center, if required.

This product, if you spill it, or allow it to leak from storage or containment can contaminate soil and possibly ground water. You should ensure your storage or containment equipment is fit and capable of safely storing this product.

SPILL OR LEAK PROCEDURE

Keep unnecessary people away. Isolate area for at least 50 meters (164 feet) in all directions to preserve public safety. For large spills, consider initial evacuation for at least 300 meters (1000 feet).

Keep ignition sources out of area and shut off all ignition sources. Absorb spill with inert material (e. g. dry sand or earth) then place in a chemical waste container. Large Spills: Dike far ahead of liquid spill for later disposal.

Use a vapor suppressing foam to reduce vapors. Stop leak when safe to do so.

See Exposure Controls/Personal Protection (Section 8).

7 HANDLING & STORAGE

HANDLING

Static accumulator (nonconductive) flammable or combustible liquid may form ignitable vapor-air mixtures in storage tanks. Bond and ground lines and equipment (tank, transfer lines, pump, floats, etc.) used during transfer to reduce the possibility of static spark-initiated fire or explosion. Bonding and grounding may be insufficient to eliminate the hazard from static accumulation. Additional precautions should be considered consistent with the current NFPA 77, Recommended Practice on Static Electricity, the current API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and OSHA Standard 29 CFR 1910.106, Flammable and Combustible Liquids.

Use non-sparking tools. Do not cut, grind, drill, weld or reuse containers unless adequate precautions are taken against these hazards.

Do not eat, drink or smoke in areas of use or storage.

STORAGE

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Avoid contact with strong oxidizers.

Empty containers may contain material residue. Do not reuse without adequate precautions.

Do not eat, drink or smoke in areas of use or storage.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Ventilation and other forms of engineering controls are the preferred means for controlling exposures.

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Keep away from eyes. Eye contact can be avoided by using chemical safety glasses, goggles, and/or face shield. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Avoid skin contact with this material. Use appropriate chemical protective gloves when handling. Additional protective clothing may be necessary.

Good personal hygiene practices such as properly handling contaminated clothing, using wash facilities before entering public areas and restricting eating, drinking and smoking to designated areas are essential for preventing personal chemical contamination.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

A NIOSH approved air purifying respirator with an appropriate cartridge or canister, such as an organic vapor cartridge, may be used in circumstances where airborne concentrations may exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. See OSHA 29 CFR 1910.134 for more information regarding respiratory protection and Assigned Protection Factors (APFs).

9 PHYSICAL & CHEMICAL PROPERTIES

ODOR AND APPEARANCE

CLEAR, COLORLESS TO LIGHT COLORED LIQUID WITH AN AROMATIC ODOR

Flash Point	-45 °F (-42.8 °C)
Boiling Point	> 100 °F (> 37.8 °C) @ 10% Evap. (D86) - Summer; >90 °F (32.22 °C) @ 10% Evap. (D86) - Winter
Specific Gravity	0.69 - 0.77 at 60/60 °F (15.6/15.6 °C)
Melting Point	-130 °F (-90.0 °C)
Percent Volatile	100 %
Vapor Pressure	5.2 - 15 psi at 100 °F (38 °C)
Evaporation Rate	Moderately Fast
Vapor Density	3 - 4 (Air=1)
Viscosity	No Data
Solubility in Water	Negligible
Octanol/Water Partn	No Data
Volatile Organic	No Data
Pour Point	No Data
pH Value	Essentially Neutral
Bulk Density	No Data
Freezing Point	No Data
Molecular Formula	Mixture
Molecular Weight	No Data
Chemical Family	Hydrocarbon and Hydrocarbon/Alcohol Mixtures
Odor Threshold	No Data

10 STABILITY & REACTIVITY

STABILITY/INCOMPATIBILITY

Incompatible with oxidizing agents. See precautions under Handling & Storage (Section 7).

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, irritating vapors, and other decomposition products in the case of incomplete combustion.

11 TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE

Inhalation, ingestion, skin and eye contact.

TOXICOLOGICAL DATA

BENZENE: Studies of Workers Overexposed to Benzene: Studies of workers exposed to benzene show clear evidence

that overexposure can cause cancer of the blood forming organs (acute myelogenous leukemia) and aplastic anemia, an often fatal disease. Some studies suggest overexposure to benzene may also be associated with other blood disorders including myelodysplastic syndrome. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of aplastic anemia have been reported in the offspring of persons severely overexposed to benzene. Studies in Laboratory Animals: Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and skeletal variations. Benzene has been classified as a proven human carcinogen by OSHA and a Group 1 (Carcinogenic to Humans) material by IARC.

CUMENE: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression. Studies in laboratory animals indicate evidence of respiratory tract hyperplasia, and adverse effects on the liver, kidney and adrenal glands following high level exposure. The relevance of these findings to humans is not clear at this time. Findings from lifetime inhalation studies in laboratory rodents were as follows: In F344/N rats: an increased incidence of renal carcinomas and adenomas, respiratory epithelial adenomas, and interstitial cell adenomas of the testes. In B6C3F1 mice: an increased incidence of carcinomas and adenomas of the bronchi and lung, liver neoplasms, hemangiosarcomas of the spleen, and adenomas of the thyroid.

CYCLOHEXANE: Cyclohexane has been the focus of substantial testing in laboratory animals. Cyclohexane tested negative in various genotoxicity tests including unscheduled DNA synthesis, bacterial and mammalian cell mutation assays, and in vivo chromosomal aberration. An increase in chromosomal aberrations in bone marrow cells of rats exposed to cyclohexane was reported in the 1980's but a careful re-evaluation of slides from this study by the laboratory which conducted the study indicates these findings were in error, and that no significant chromosomal effects were observed in animals exposed to cyclohexane. Findings indicate long-term exposure to cyclohexane does not promote dermal tumorigenesis.

ETHYL ALCOHOL: Repeated ingestion of ethanol can result in alcohol abuse, causing behavioral changes, memory loss, impaired judgement, decreased appetite, irregular heartbeats, and decreased fertility. Prolonged and repeated ingestion of ethanol has also been associated with cancers of the mouth, pharynx, esophagus and liver. Ethanol ingestion by pregnant women can cause miscarriage, low birth weight, premature birth and fetal alcohol syndrome. In males, acute and chronic alcohol ingestion may affect gonadal hormone levels. It may also affect the liver, kidney, brain, blood and cardiovascular system.

ETHYLBENZENE: Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). The incidence of tumors was also elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals have demonstrated evidence of ototoxicity (hearing loss) following exposure levels as low as 300 ppm for 5 days. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to

naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as a Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Abuse of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system, and can cause CNS depression, cardiac arrhythmias, and death. Studies of workers indicate longterm exposure may be related to impaired color vision and hearing. Some studies of workers suggest longterm exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest longterm exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals have been largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Adverse effects on the liver, kidney, thymus and nervous system were observed in animal studies following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

XYLENES, ALL ISOMERS: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, CNS damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Effects from Prolonged or Repeated Exposure: Impaired neurological function was reported in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure. The relevance of these observations to humans is not clear at this time. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

C9 AROMATIC HYDROCARBONS: A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm.

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased risk of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period.

Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffers Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, indepth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

Exposure to this material may cause adverse effects or damage to the following organs or organ systems: blood, bone marrow, central nervous system, brain, peripheral nervous system, auditory system, heart, testes, kidneys, liver, adrenal gland, lymphatic system, thymus, respiratory tract, lungs, mucous membranes, reproductive organs, pituitary gland, thyroid, immune system, eyes, skin, mouth, esophagus, pharynx, and cardiovascular system.

PRE-EXISTING CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing medical conditions which may be aggravated by exposure include disorders of the blood, bone marrow, blood forming organs, respiratory tract, liver, kidneys, skin, eyes, peripheral nervous system, and auditory system.

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

ECOTOXICITY:
Toxic to aquatic organisms.

PERSISTENCE/BIODEGRADATION:
Readily biodegradable in the environment.

The presence of ethanol in this product may impede the biodegradation of benzene, toluene, ethylbenzene and xylene in groundwater, resulting in elongated plumes of these constituents.

BIOACCUMULATION:
Not likely to bioaccumulate in aquatic organisms.

MOBILITY IN ENVIRONMENT:
May move through soil and reach groundwater. May partition into air, soil and water.

13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

This material, as supplied, when discarded or disposed of, is a hazardous waste according to Federal Regulations (40 CFR 261) due to its ignitability and benzene content. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user of the material to determine, at the time of disposal, whether the material is a hazardous waste subject to RCRA.

The transportation, storage, treatment and disposal of RCRA waste material must be conducted in compliance with 40 CFR 262, 263, 264, 268 and 270. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Chemical additions, processing or otherwise altering this material may make the waste management information presented in this MSDS incomplete, inaccurate or otherwise inappropriate. Disposal of this material must be conducted in compliance with all federal, state and local regulations.

14 TRANSPORT INFORMATION

BILL OF LADING - BULK (U. S. DOT)

UN1203, Gasoline, 3, PG II

BILL OF LADING - NON-BULK (U. S. DOT)

UN1203, Gasoline, 3, PG II

U. S. Department of Transportation (DOT) Requirements

General Transportation Information for Bulk Shipments

Proper Shipping Name	Gasoline		
Hazard Class	3	UN/NA Code	UN1203
Packaging Group	II		
Labels Required	Flammable Liquid		
Placards Required	Flammable Liquid, UN1203		
Reportable Quantity	See Regulatory Information (Section 15)		

General Transportation Information for Non-Bulk Shipments

Proper Shipping Name	Gasoline		
Hazard Class	3	UN/NA Code	UN1203
Packaging Group	II		
Labels Required	Flammable Liquid		
Placards Required	Flammable Liquid, UN1203		
Reportable Quantity	See Regulatory Information (Section 15)		

COMMENTS

The above description may not cover shipping in all cases, please consult 49 CFR 100-185 for specific shipping information.

15 REGULATORY INFORMATION

FEDERAL REGULATIONS

All ingredients are on the TSCA inventory, or are not required to be listed on the TSCA inventory.

Consult OSHA's Benzene standard 29 CFR 1910.1028 for provisions on air monitoring, employee training, medical monitoring, etc.

This material may be subject to export notification under TSCA section 12(b): contains Naphthalene, CAS# 91-20-3; Biphenyl, CAS# 92-52-4; Heptane, CAS# 142-82-5; Paraxylene, CAS# 106-42-3; Pentane, CAS# 109-66-0; Nonane, CAS# 111-84-2; effective date May 26, 2004.

A release of this material, as supplied, may be exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA - 40 CFR 302) by the petroleum exclusion. Releases may be reportable to the National Response Center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321(b)(3) and (5).

This material contains toxic chemical(s) in excess of the applicable de minimis concentration that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372). This information must be included in all MSDSs that are copied and distributed for this material.

This material contains one or more substances listed as hazardous air pollutants under Section 112 of the Clean Air Act.

Check local, regional or state/provincial regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to report may result in substantial civil and criminal penalties.

STATE REGULATIONS

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

SARA 311/312 HAZARD CATEGORIES

Immediate Hazard:	X	Delayed Hazard:	X	Fire Hazard:	X	Pressure Hazard:	-
Reactivity Hazard:	-						

NFPA RATINGS

Health	1	Flammability	3	Instability	0	Special Hazards	-

HMIS RATINGS

Health	2*	Flammability	3	Physical Hazard	0

Following ingredients of this material are listed in SARA 313 above the de minimis concentration

SARA Listed Ingredient Name	CAS Number	Maximum %
XYLENES	1330-20-7	15.0
TOLUENE	108-88-3	15.0
N-HEXANE	110-54-3	7.0
1,2,4-TRIMETHYLBENZENE	95-63-6	3.0
BENZENE	71-43-2	2.3
ETHYLBENZENE	100-41-4	2.0
CYCLOHEXANE	110-82-7	1.0
NAPHTHALENE	91-20-3	1.0
CUMENE	98-82-8	1.0

16 OTHER INFORMATION

MISCELLANEOUS

WARNING -- WARNING: THIS PRODUCT, AS INDICATED, CONTAINS ETHANOL. ETHANOL, OR FUELS BLENDED WITH ETHANOL, MAY DAMAGE OR HARM FUEL STORAGE TANKS, PIPING, METERS, ENGINES AND/OR RELATED FUEL SYSTEMS (INCLUDING, BUT NOT LIMITED TO MARINE EQUIPMENT). IT IS IMPERATIVE THAT BEFORE YOU USE OR STORE THIS PRODUCT YOU CONDUCT AN ASSESSMENT TO DETERMINE WHETHER THIS FUEL IS COMPATIBLE WITH YOUR PARTICULAR EQUIPMENT/MACHINERY IN WHICH THIS FUEL MIGHT BE STORED, TRANSPORTED OR COMBUSTED.

DISCLAIMER OF ALL WARRANTIES: FLINT HILLS RESOURCES MAKES NO WARRANTY EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY FOR FITNESS FOR ANY PARTICULAR PURPOSE AND HEREBY DISCLAIMS ALL SUCH WARRANTIES REGARDING THIS PRODUCT.

DISCLAIMER

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. Adequate training and instruction should be given by you to your employees and affected personnel. Appropriate warnings and safe handling procedures should be provided by you to handlers and users. Additionally, the user should review this information, satisfy itself as to its suitability and completeness, and pass on the information to its employees or customers in accordance with the applicable federal, state, provincial or local hazard communication requirements. This MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, vendor neither assumes nor retains any responsibility for any damage or injury resulting from abnormal use, from any failure to adhere to appropriate practices, or from any hazards inherent in the nature of the material. Moreover, unless an employee or a customer accesses or receives a MSDS directly from the company, there is no assurance that a document obtained from alternate sources is the most currently available MSDS.

SECTIONS / SUBSECTIONS CHANGED

CHEMICAL PRODUCT & COMPANY IDENTIFICATION: Synonyms

Completed By Flint Hills Resources, LP - Operations EH&S

FLINT HILLS resources

SAFETY DATA SHEET

1. Identification

Product identifier	**DIESEL NO. 2 PRODUCTS**
Other means of identification	
SDS number	10106
Synonym(s)	APPLICABLE TO ALL GRADES OF DIESEL OIL NO. 2 WITH SULFUR LEVEL 500 PPM OR LESS; INCLUDES BIODIESEL BLENDS (< OR = 5%) * HEATING OIL * GOLD® DIESEL PRODUCTS * LOW SULFUR DISTILLATE BLEND STOCK * RAILROAD FUEL
Recommended use	Motor fuel
Recommended restrictions	Other uses are not recommended unless an assessment is completed, prior to commencement of that use, which demonstrates that the use will be controlled.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Flint Hills Resources Corpus Christi, LLC
P.O. Box 2608
Corpus Christi, TX
78403
United States

Telephone numbers – 24 hour emergency assistance	
Chemtrec	800-424-9300
Flint Hills Resources Corpus Christi, LLC	361-241-4811
Telephone numbers – general assistance	
8-5 (M-F, CST) Customer Service	361-241-4811
8-5 (M-F, CST) MSDS Assistance	316-828-7988
Email:	msdsrequest@fhr.com

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2 (liver, thymus, bone marrow)
	Aspiration hazard	Category 1
OSHA defined hazards	Not classified.	
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 2

Label elements

Signal word Danger

Hazard statement	Suspected of causing cancer. Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. May cause damage to organs (liver, thymus, bone marrow) through prolonged or repeated exposure. May be fatal if swallowed and enters airways. Toxic to aquatic life with long lasting effects.
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.
Response	If exposed or concerned: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/ doctor if you feel unwell. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. Specific treatment (See first aid instructions on this label). In case of fire: Use water spray, dry chemical, carbon dioxide, or fire-fighting foam for extinction. Wash contaminated clothing before reuse. Collect spillage.
Storage	Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	Static accumulating flammable liquids Classified

Supplemental information

Hazard statement	Static accumulating flammable liquid can become electrostatically charged even in bonded and grounded equipment. Sparks may ignite liquid and vapor. May cause flash fire or explosion.
Prevention	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. These alone may be insufficient to remove static electricity.
Response	Eliminate all ignition sources if safe to do so.

3. Composition/information on ingredients

Components	Common name and synonyms	CAS number	%
DISTILLATES (PETROLEUM), HYDRODESULFURIZED MIDDLE		64742-80-9	0 - 100 %
KEROSENE (PETROLEUM), HYDRODESULFURIZED		64742-81-0	0 - 100 %

Additional components

Chemical name	CAS number	%
KEROSENE, STRAIGHT RUN	8008-20-6	0 - 25
DISTILLATES (PETROLEUM), HYDRODESULFURIZED LIGHT CATALYTIC CRACKED	68333-25-5	0 - 20
BIODIESEL	Mixture	0 - 7
1,2,4-TRIMETHYLBENZENE	95-63-6	0.1 - 1
XYLENE	1330-20-7	0 - 1
BIPHENYL	92-52-4	0 - 0.75
NAPHTHALENE	91-20-3	0 - 0.3
BENZENE	71-43-2	0 - 0.02

Composition comments	Values do not reflect absolute minimums and maximums; these values are typical which may vary from time to time. This Safety Data Sheet is intended to communicate potential health hazards and potential physical hazards associated with the product(s) covered by this sheet, and is not intended to communicate product specification information. For product specification information, contact your Flint Hills Resources, LP representative.

4. First-aid measures

Inhalation

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR).

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Skin contact

Immediately wash skin with plenty of soap and water after removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

Eye contact

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

Ingestion

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person.

Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms/effects, acute and delayed

INHALATION:
Breathing high concentrations may be harmful. May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Breathing of the mists, vapors or fumes may irritate the nose, throat and lungs.

SKIN:
Contact may cause reddening, itching and inflammation. Prolonged skin contact may defat the skin and cause drying, cracking and/or dermatitis. Skin contact may cause harmful effects in other parts of the body.

EYES:
May cause slight transient irritation, lacrimation (tears) and a burning sensation in the eyes. Effects may become more serious with repeated or prolonged contact.

INGESTION:
Swallowing this material may be harmful. May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea.

Aspiration into lungs may cause chemical pneumonia and lung damage.

Indication of immediate medical attention and special treatment needed

INGESTION: If ingested this material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. Fire-fighting measures

Suitable extinguishing media

Use water spray, dry chemical, carbon dioxide or fire-fighting foam for Class B fires to extinguish fire.

Unsuitable extinguishing media

Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Combustion may produce COx, NOx, SOx, reactive hydrocarbons, irritating vapors, and other decomposition products in the case of incomplete combustion.

Extremely flammable. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources and flash back.

Static accumulator (nonconductive) flammable or combustible material may form ignitable vapor-air mixtures in storage tanks. Bonding and grounding may be insufficient to eliminate the hazard from static accumulation.

Explosion hazard if exposed to extreme heat.

Special protective equipment and precautions for firefighters

Evacuate area and fight fire from a safe distance.

If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor, cool adjacent structures, and to protect personnel attempting to stop a leak.

Shut off source of flow, if possible.

Stay away from storage tank ends. Withdraw immediately in case of rising sound from venting safety device or any discoloration of storage tank due to fire. Always stay away from tanks engulfed in flame.

Firefighters must wear NIOSH approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary people away; isolate hazard area and deny entry. For spills in confined areas, ensure adequate ventilation. For spills outdoors, stay upwind. IF TANK, RAILCAR OR TANK TRUCK IS INVOLVED IN A FIRE, isolate for 800 meters (1/2 mile) in all directions. Evacuate area endangered by release as required. Wear appropriate personal protective equipment. See Exposure Controls/Personal Protection (Section 8).

Methods and materials for containment and cleaning up

Keep unnecessary people away. Isolate area for at least 50 meters (164 feet) in all directions to preserve public safety. For large spills, if downwind consider initial evacuation for at least 300 meters (1000 feet).

Small Spills: Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Large Spills: Dike far ahead of liquid spill for later disposal. Avoid clean up procedures that may result in water pollution.

Do not touch or walk through spilled material. Stop leak when safe to do so.

See Exposure Controls/Personal Protection (Section 8).

Environmental precautions

Prevent entry into water ways, sewers, basements or confined areas. Notify local authorities and National Response Center, if required.

7. Handling and storage

Precautions for safe handling

Electrostatic charge may accumulate and create a hazardous condition when handling this material.

Static accumulator (nonconductive) flammable or combustible material may form ignitable vapor-air mixtures in storage tanks. Bond and ground lines and equipment (tank, transfer lines, pump, floats, etc.) used during transfer to reduce the possibility of static spark-initiated fire or explosion.

Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (such as tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate procedures to mitigate the hazard.

Bonding and grounding may be insufficient to eliminate the hazard from static accumulation. Additional precautions should be considered consistent with the current NFPA 77, Recommended Practice on Static Electricity, the current API Recommended Practice 2003, Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents and OSHA Standard 29 CFR 1910.106, Flammable and Combustible Liquids.

Use non-sparking tools. Do not cut, grind, drill, weld (or introduce any other ignition source) on empty containers. Do not reuse containers unless adequate precautions are taken.

Avoid contact with strong oxidizing agents. Prevent small spills to minimize slip hazard or release to the environment.

Avoid personal contact with this material. Always observe good personal hygiene measures, such as removing contaminated clothing and protective equipment, washing after handling the material and before entering public areas. Restrict eating, drinking and smoking to designated areas to prevent personal chemical contamination. Routinely wash work clothing and protective equipment to remove contaminants. Do not breathe mist or vapor.

Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in a cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibles. Ground/bond container and equipment. Avoid contact with strong oxidizing agents. Empty containers may contain material residue. Do not reuse without adequate precautions.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Additional components	Type	Value
BENZENE (CAS 71-43-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Additional components	Type	Value
XYLENE (CAS 1330-20-7)	TWA	100 ppm
BIPHENYL (CAS 92-52-4)	TWA	0.2 ppm
NAPHTHALENE (CAS 91-20-3)	PEL	10 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Additional components	Type	Value
BENZENE (CAS 71-43-2)	TWA	1 ppm

U.S. - Minnesota (MNOSHA)

Additional components	Type	Value
1,2,4-TRIMETHYL BENZENE (CAS 95-63-6)	TWA	25 ppm
XYLENE (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm
BIPHENYL (CAS 92-52-4)	TWA	0.2 ppm
NAPHTHALENE (CAS 91-20-3)	STEL	15 ppm
	TWA	10 ppm
BENZENE (CAS 71-43-2)	STEL	5 ppm
	TWA	1 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
KEROSENE (PETROLEUM), HYDRODESULFURIZED (CAS 64742-81-0)	TWA	200 mg/m3	Skin; P

Additional components	Type	Value	Form
KEROSENE, STRAIGHT RUN (CAS 8008-20-6)	TWA	200 mg/m3	Skin; P
1,2,4-TRIMETHYL BENZENE (CAS 95-63-6)	TWA	25 ppm	
XYLENE (CAS 1330-20-7)	STEL	150 ppm	
	TWA	100 ppm	
BIPHENYL (CAS 92-52-4)	TWA	0.2 ppm	
NAPHTHALENE (CAS 91-20-3)	TWA	10 ppm	Skin
BENZENE (CAS 71-43-2)	STEL	2.5 ppm	Skin
	TWA	0.5 ppm	Skin

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
KEROSENE (PETROLEUM), HYDRODESULFURIZED (CAS 64742-81-0)	TWA	100 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Additional components	Type	Value
KEROSENE, STRAIGHT RUN (CAS 8008-20-6)	TWA	100 mg/m3
1,2,4-TRIMETHYL BENZENE (CAS 95-63-6)	TWA	25 ppm
XYLENE (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm
BIPHENYL (CAS 92-52-4)	TWA	0.2 ppm
NAPHTHALENE (CAS 91-20-3)	STEL	15 ppm
	TWA	10 ppm
BENZENE (CAS 71-43-2)	STEL	1 ppm
	TWA	0.1 ppm

Biological limit values

ACGIH Biological Exposure Indices

Additional components	Value	Determinant	Specimen	Sampling Time
XYLENE (CAS 1330-20-7)	1.5 g/g	Methylhippuric acids	Creatinine in urine	*
BENZENE (CAS 71-43-2)	25 µg/g	S-Phenylmercapt uric acid	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US ACGIH Threshold Limit Values: Skin designation

BENZENE (CAS 71-43-2)	Can be absorbed through the skin.
KEROSENE (PETROLEUM), HYDRODESULFURIZED (CAS 64742-81-0)	Can be absorbed through the skin.
KEROSENE, STRAIGHT RUN (CAS 8008-20-6)	Can be absorbed through the skin.
NAPHTHALENE (CAS 91-20-3)	Can be absorbed through the skin.

US OSHA Specifically Regulated Substances: Action level and Reference

BENZENE (CAS 71-43-2)	0.5 PPM

US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants

1,2,4-TRIMETHYLBENZENE (CAS 95-63-6)	125 MGM3 - 25 PPM
BENZENE (CAS 71-43-2)	1 PPM
BIPHENYL (CAS 92-52-4)	1.5 MGM3 - 0.2 PPM
NAPHTHALENE (CAS 91-20-3)	50 MGM3 - 10 PPM
XYLENE (CAS 1330-20-7)	435 MGM3 - 100 PPM

Appropriate engineering controls

Consider the following when employing engineering controls and selecting personal protective equipment: potential hazards of the material, applicable exposure limits, job activities, and other substances in the work place. Explosion-proof ventilation and other forms of engineering controls are the preferred means for controlling exposures below occupational exposure limits and guidelines.

Individual protection measures, such as personal protective equipment

Eye/face protection

Keep away from eyes. Eye contact can be avoided by using chemical safety glasses, goggles and/or face shield. Have eye washing facilities readily available where eye contact can occur.

Hand protection

Avoid skin contact with this material. Use chemical resistant gloves when handling this material. Contact the glove manufacturer for specific advice on glove selection regarding permeability and breakthrough times for your use conditions. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Other

Dermal exposure to this chemical may add to the overall exposure.

Avoid skin contact with this material. Additional protective clothing may be necessary.

Respiratory protection

A NIOSH approved air purifying respirator with an appropriate cartridge or canister, such as an organic vapor cartridge, may be used in circumstances where airborne organic vapor concentrations may exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. See OSHA 29 CFR 1910.134 for more information regarding respiratory protection and Assigned Protection Factors (APFs).

Thermal hazards	No special precautions required.

9. Physical and chemical properties

Appearance	
Physical state	Liquid.
Form	Not applicable
Color	Pale yellow or green; for tax exempt purposes, this fuel may contain red dye
Odor	Kerosene-like
Odor threshold	Not available.
pH	Not available
Melting point/freezing point	Not available
Initial boiling point and boiling range	> 320 °F (> 160 °C) ASTM D86
Flash point	> 125 °F (> 51.67 °C) ASTM D93 PMCC
Evaporation rate	Not available
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	0.6 %
Flammability limit - upper (%)	7.5 %
Explosive limit - lower (%)	See flammability limit
Explosive limit - upper (%)	See flammability limit
Vapor pressure	2.6 mmHg at 122 °F (50 °C)
Vapor density	> 1 (air=1)
Relative density	0.84 - 0.89 at 60/60 °F (15.6/15.6 °C)
Solubility(ies)	Insoluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	494 °F (256.67 °C)
Decomposition temperature	Not available.
Viscosity	1.7 - 4.1 cSt at 104 °F (40 °C)
Other information	
Chemical family	Hydrocarbon Mixture
Electrostatic properties	
Conductivity	≤ 50 pS/m
Pour point	-20 to 20 °F (-28.9 to -6.7 °C)

10. Stability and reactivity

Reactivity	See statements below.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Not anticipated under normal conditions.
Conditions to avoid	Avoid unventilated areas, heat, open flames, sparks and ungrounded electrical equipment.
Incompatible materials	Incompatible with strong oxidizing agents. See precautions under Handling & Storage (Section 7).
Hazardous decomposition products	Not anticipated under normal conditions.

11. Toxicological information

Information on likely routes of exposure	
Ingestion	Likely route of exposure

Inhalation	Likely route of exposure
Skin contact	Likely route of exposure
Eye contact	Likely route of exposure
Symptoms related to the physical, chemical and toxicological characteristics	INHALATION: Breathing high concentrations may be harmful. May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure. Breathing of the mists, vapors or fumes may irritate the nose, throat and lungs. SKIN: Contact may cause reddening, itching and inflammation. Prolonged skin contact may defat the skin and cause drying, cracking and/or dermatitis. Skin contact may cause harmful effects in other parts of the body. EYES: May cause slight transient irritation, lacrimation (tears) and a burning sensation in the eyes. Effects may become more serious with repeated or prolonged contact. INGESTION: Swallowing this material may be harmful. May cause irritation of the mouth, throat and gastrointestinal tract. Symptoms may include salivation, pain, nausea, vomiting and diarrhea. Aspiration into lungs may cause chemical pneumonia and lung damage.

Information on toxicological effects

Acute toxicity Harmful if inhaled.

Components	Species	Test Results
DISTILLATES (PETROLEUM), HYDRODESULFURIZED MIDDLE (CAS 64742-80-9)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
Inhalation		
LC50	Rat	4.6 mg/l
Oral		
LD50	Rat	> 5000 mg/kg
KEROSENE (PETROLEUM), HYDRODESULFURIZED (CAS 64742-81-0)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
Inhalation		
LC50	Rat	> 5.28 mg/l
Oral		
LD50	Rat	> 5000 mg/kg

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Not classified.
Respiratory sensitization	Not classified.
Skin sensitization	Not classified.
Germ cell mutagenicity	Not classified.
Carcinogenicity	Not classified.

ACGIH Carcinogens

BENZENE (CAS 71-43-2)	A1 Confirmed human carcinogen.
KEROSENE (NON-AEROSOL), AS TOTAL HYDROCARBON VAPOR (CAS 64742-81-0)	A3 Confirmed animal carcinogen with unknown relevance to humans.
KEROSENE (NON-AEROSOL), AS TOTAL HYDROCARBON VAPOR (CAS 8008-20-6)	A3 Confirmed animal carcinogen with unknown relevance to humans.

NAPHTHALENE (CAS 91-20-3)	A3 Confirmed animal carcinogen with unknown relevance to humans.
XYLENE (O, M AND P ISOMERS) (CAS 1330-20-7)	A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

BENZENE (CAS 71-43-2)	1 Carcinogenic to humans.
DISTILLATES (PETROLEUM), HYDRODESULFURIZED MIDDLE (CAS 64742-80-9)	3 Not classifiable as to carcinogenicity to humans.
NAPHTHALENE (CAS 91-20-3)	2B Possibly carcinogenic to humans.
XYLENE (CAS 1330-20-7)	3 Not classifiable as to carcinogenicity to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

BENZENE (CAS 71-43-2)	Known To Be Human Carcinogen.
NAPHTHALENE (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

BENZENE (CAS 71-43-2)	Cancer

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Causes damage to organs (liver, thymus, bone marrow) through prolonged or repeated exposure.

Aspiration toxicity May be fatal if swallowed and enters airways.

Toxicological data

BENZENE: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer of the blood forming organs (acute myelogenous leukemia) and aplastic anemia, an often fatal disease. Some studies suggest overexposure to benzene may also be associated with other blood disorders including myelodysplastic syndrome. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of aplastic anemia have been reported in the offspring of persons severely overexposed to benzene. Animal studies indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals also show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and skeletal variations has been classified as a known human carcinogen by OSHA and a Group 1 (carcinogenic to Humans) material by IARC, the International Agency for Research on Cancer.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have also been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays were negative. A few studies have shown chromosomal effects (elevated levels of sister chromatid exchanges or chromosomal aberrations) in vitro. Naphthalene has been classified as possibly carcinogenic to humans (Group 2B) by IARC, the International Agency for Research on Cancer, based on findings from studies in laboratory animals.

XYLENES, ALL ISOMERS: Acute effects of xylene may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Prolonged or repeated exposure to xylene was reported to cause impaired neurological function in workers exposed to solvents (including xylene). Studies in rats have shown evidence of impaired hearing following prolonged exposure to high concentrations of paraxylene. Studies in laboratory animals also suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Developmental toxicity studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure. The relevance of these observations to humans is not clear at this time. In addition, adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

1,2,4-TRIMETHYLBENZENE: The following information pertains to a mixture of C9 aromatic hydrocarbons, over 40% of which was composed of 1,2,4-trimethylbenzene. A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm. Embryotoxicity has been reported in studies of laboratory animals. Adverse effects included increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate.

MIDDLE DISTILLATES, PETROLEUM: Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

DIESEL EXHAUST: NIOSH recommends that whole diesel exhaust be regarded as a potential carcinogen, and the National Toxicology Program (NTP) classifies diesel exhaust particulate as "reasonably anticipated to be a human carcinogen". In a recent review of the scientific literature, The International Agency for Cancer (IARC) classified diesel engine exhaust as a Group 1 carcinogen (carcinogenic to humans), based on sufficient evidence that exposure is associated with an increased risk for lung cancer, and limited evidence of a positive association with an increased risk of bladder cancer. Lifetime exposure to whole diesel exhaust also has been shown to cause cancer in laboratory animals.

12. Ecological information

Ecotoxicity Toxic to aquatic life with long lasting effects.

Components		Species	Test Results
DISTILLATES (PETROLEUM), HYDRODESULFURIZED MIDDLE (CAS 64742-80-9)			
Acute			
Crustacea	EC50	Daphnia magna	7.35 mg/l, 48 hr
Fish	LC50	Fish	1.13 mg/l, 96 hr
Other	EC50	Pseudokirchnerella subcapitata	1.714 mg/l, 72 hr
Chronic			
Crustacea	NOEL	Daphnia magna	0.163 mg/l, 21 d
Fish	NOEL	Oncorhynchus mykiss	1.2 mg/l, 28 d
KEROSENE (PETROLEUM), HYDRODESULFURIZED (CAS 64742-81-0)			
Acute			
Crustacea	EC50	Daphnia magna	1.4 mg/l, 48 hr
Fish	LC50	Oncorhynchus mykiss	2 - 5 mg/l, 96 hr
Other	EC50	Pseudokirchnerella subcapitata	1 mg/l, 72 hr
Chronic			
Crustacea	NOEC	Daphnia magna	1.2 mg/l, 21 d
Fish	NOEC	Oncorhynchus mykiss	0.1 mg/l, 28 d

Persistence and degradability Not readily biodegradable.

Bioaccumulative potential May bioaccumulate in aquatic organisms.

Mobility in soil May partition into air, soil and water.

Other adverse effects No other adverse effects expected.

13. Disposal considerations

Disposal instructions The transportation, storage, treatment and disposal of waste material must be conducted in compliance with federal, state, and local regulations. Under RCRA it is the responsibility of the user of the material to determine, at the time of disposal, whether this material meets RCRA criteria for hazardous waste. For additional handling information and protection of employees, see Section 7 (Handling and Storage) and Section 8 (Exposure Controls/Personal Protection).

Hazardous waste code The proper waste code must be evaluated at the time of disposal and should be determined by the user and waste disposal company.

Waste from residues / unused products Dispose of this material in accordance with all applicable local and national regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal in accordance with government regulations. Packaging may contain residue that can be hazardous.

14. Transport information

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not classified for MARPOL. Please contact the Transportation Compliance CSO if transportation mode is ship or vessel to determine the need for a MARPOL classification.

General information BILL OF LADING - BULK (U. S. DOT): See Bill of Lading for proper shipping description, or consult 49 CFR 100-185 for specific shipping information.

BILL OF LADING - NON-BULK (U. S. DOT): See Bill of Lading for proper shipping description, or consult 49 CFR 100-185 for specific shipping information.

Due to the possible variances of this material, the shipping classification must be evaluated at the time of shipment. Please consult 49 CFR 171 - 180 for specific shipping information.

15. Regulatory information

US federal regulations All ingredients are on the TSCA inventory, or are not required to be listed on the TSCA inventory.

Consult OSHA's Benzene standard 29 CFR 1910.1028 for provisions on air monitoring, employee training, medical monitoring, etc.

A release of this material, as supplied, may be exempt from reporting under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA - 40 CFR 302) by the petroleum exclusion. Releases may be reportable to the National Response Center (800-424-8802) under the Clean Water Act, 33 U.S.C. 1321(b)(3) and (5).

This material may contain toxic chemical(s) in excess of the applicable de minimis concentration that are subject to the annual toxic chemical release reporting requirements of the Superfund Amendments and Reauthorization Act (SARA) Section 313 (40 CFR 372). This information must be included in all SDSs that are copied and distributed for this material.

Check local, regional or state/provincial regulations for any additional requirements as these may be more restrictive than federal laws and regulations. Failure to comply may result in substantial civil and criminal penalties.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

1,2,4-TRIMETHYLBENZENE (CAS 95-63-6)	1.0 %
BENZENE (CAS 71-43-2)	0.1 %
BIPHENYL (CAS 92-52-4)	1.0 %
NAPHTHALENE (CAS 91-20-3)	0.1 %
XYLENE (CAS 1330-20-7)	1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

1,2,4-TRIMETHYLBENZENE (CAS 95-63-6)	Listed.
BENZENE (CAS 71-43-2)	Listed.
BIPHENYL (CAS 92-52-4)	Listed.
NAPHTHALENE (CAS 91-20-3)	Listed.
XYLENE (CAS 1330-20-7)	Listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

BENZENE (CAS 71-43-2)	LISTED
BIPHENYL (CAS 92-52-4)	LISTED
NAPHTHALENE (CAS 91-20-3)	LISTED
XYLENE (CAS 1330-20-7)	LISTED

US CERCLA Hazardous Substances: Reportable quantity

BENZENE (CAS 71-43-2)	10 LBS
BIPHENYL (CAS 92-52-4)	100 LBS
NAPHTHALENE (CAS 91-20-3)	100 LBS
XYLENE (CAS 1330-20-7)	100 LBS

US EPCRA (SARA Title III) Section 304 - Extremely Hazardous Spill: Reportable quantity

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

BENZENE (CAS 71-43-2)	Cancer Central nervous system Blood Aspiration Skin Eye respiratory tract irritation Flammability

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

BENZENE (CAS 71-43-2)
BIPHENYL (CAS 92-52-4)
NAPHTHALENE (CAS 91-20-3)
XYLENE (CAS 1330-20-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

US state regulations

US. California Proposition 65

WARNING: This product contains one or more chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Proposition 65, CAL. HSC. §25249.5.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

BENZENE (CAS 71-43-2)	Listed: February 27, 1987
NAPHTHALENE (CAS 91-20-3)	Listed: April 19, 2002

US - California Proposition 65 - CRT: Listed date/Developmental toxin

BENZENE (CAS 71-43-2)	Listed: December 26, 1997

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

BENZENE (CAS 71-43-2)	Listed: December 26, 1997

16. Other information, including date of preparation or last revision

Issue date	06-29-2015
Revision date	06-29-2015
Version #	02
Further information	WARNING: THIS PRODUCT, AS INDICATED, CONTAINS BIODIESEL. BIODIESEL, OR FUELS BLENDED WITH BIODIESEL, MAY UNDER CERTAIN COLD WEATHER CONDITIONS GEL, CLOG, DAMAGE OR HARM FUEL STORAGE TANKS, PIPING, METERS, DIESEL ENGINES AND/OR RELATED FUEL SYSTEMS (INCLUDING, BUT NOT LIMITED TO MARINE EQUIPMENT). IT IS IMPERATIVE THAT BEFORE YOU USE OR STORE THIS PRODUCT YOU CONDUCT AN ASSESSMENT TO DETERMINE WHETHER THIS FUEL IS COMPATIBLE WITH YOUR PARTICULAR EQUIPMENT/MACHINERY IN WHICH THIS FUEL MIGHT BE STORED, TRANSPORTED OR COMBUSTED. AS SOME MANUFACTURERS MAY VOID ENGINE WARRANTIES IF THIS FUEL IS USED, IT IS IMPORTANT YOU REVIEW THE TERMS OF YOUR MANUFACTURER's WARRANTY AND DETERMINE IF THIS FUEL IS RIGHT FOR YOUR APPLICATION. DISCLAIMER OF ALL WARRANTIES: FLINT HILLS RESOURCES MAKES NO WARRANTY EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR WARRANTY FOR FITNESS FOR ANY PARTICULAR PURPOSE AND HEREBY DISCLAIMS ALL SUCH WARRANTIES REGARDING THIS PRODUCT.

HMIS® ratings	Health: 1* Flammability: 2 Physical hazard: 0 * Indicates chronic health hazard
NFPA ratings	Health: 1 Flammability: 2 Instability: 0
Disclaimer	THIS SDS HAS BEEN PREPARED TO COMPLY WITH FEDERAL REGULATIONS THAT ARE INTENDED TO QUICKLY PROVIDE USEFUL INFORMATION TO THE USER(S) OF THIS MATERIAL OR PRODUCT - IT IS NOT INTENDED TO SERVE AS A COMPREHENSIVE DISCUSSION OF ALL POSSIBLE RISKS OF HAZARDS, BUT RATHER PROVIDES INFORMATION GENERALLY ACCEPTED IN THE SCIENTIFIC COMMUNITY AS RELEVANT REGARDING THE POTENTIAL HAZARDS OF THIS PRODUCT. ADEQUATE TRAINING, INSTRUCTION, WARNINGS AND SAFE HANDLING PROCEDURES SHOULD BE PROVIDED TO HANDLERS AND USERS. USERS SHOULD REVIEW THE INFORMATION IN THE SDS, AND SATISFY THEMSELVES AS TO ITS SUITABILITY AND COMPLETENESS, INCLUDING ENSURING THAT THIS IS THE MOST CURRENT SDS.
Revision Information	Product and Company Identification: Synonyms Hazard(s) identification: <INDENT>Response Physical & Chemical Properties: Multiple Properties
Completed by	Flint Hills Resources, LP - Operations EH&S

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678-450-2055
MANSFIELD OIL COMPANY
1025 AIRPORT PARKWAY SW
GAINESVILLE GA 30501

0.0 LBS LTR 1 OF 1

SHIP TO:
DEBORAH L. CLARK, PURCHASING AGENT
409-835-8593
JEFFERSON COUNTY
ENGINEERING CONFERENCE ROOM
HISTORIC COURTHOUSE, 5TH FLOOR
1149 PEARL STREET
BEAUMONT TX 77701-3633
SEALED BID ENCLOSED

TX 777 0-01

UPS NEXT DAY AIR EARLY **1+**

TRACKING #: 1Z X30 467 15 9409 5279

BILLING: P/P

JEFFERSO
1149 P
FL 5
BEAU

P:

1Z X30467159409

JEFFERSON COUNTY
1149 PEARL ST
FL 5
BEAUMONT TX 77701-3638

EAM - 1001 5279

Content

MANSFIELD OIL COMPANY OF GAINESVILLE, INC.
1025 AIRPORT PARKWAY, SW
GAINESVILLE, GEORGIA 30501-6813
(800) 255-6699 MOCBIDS@MANSFIELDOIL.COM

SEALED BID ENCLOSED
Jefferson County Government
Jefferson County Engineering Dept.
Att: Deborah L. Clark, Purchasing Agent
1149 Pearl Street, 5th Floor
Historic Courthouse
Beaumont, Texas 77701

SEALED BID ENCLOSED
Jefferson County Government
Jefferson County Engineering Dept
IFB: 16-001/YS
Term Contract for Motor Fuel for Jefferson County
BID DUE DATE: February 16, 2016
BID OPENING TIME: 11:00AM CDT

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): _____, _____, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

Spidle oil. Co.
Company Name

401 West 19th St.
Address

Port Arthur TX 77641
City State Zip

Signature of Person Authorized to Sign

William Spidle
Printed Name

Owner
Title

For clarification of this offer, contact:

William Spidle
Name

(409) 727-4400
Phone Fax

Spidleoil@yahoo.com
E-mail

Bidder Shall Return Completed Form with Offer.

Acceptance of Offer

The Offer is hereby accepted for the following items: Term Contract for Motor Fuel for Jefferson County, Contract Term: One (1) year from date of award with an option to renew for four (4) additional years.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as Contract No. IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

Countersigned:

Jeff R. Branick
County Judge

Date

Attest:

Carolyn L. Guidry
County Clerk

Bidder Shall Return Completed Form with Offer.

Bid Form

Note to bidders: Minimum order bids are not acceptable.

Item	Estimated Quantity (gallons)	Description	Brand	+/- Factor
1	170,841	Unleaded Gasoline Regular Grade 87 Octane	Unbranded	+ 0.081
2	38,297	Unleaded Gasoline Medium Grade 89 Octane	unbranded	+ 0.081
3	102,917	Unleaded Gasoline Premium Grade 93 Octane	Unbranded	+ 0.081
4	67,416	No. 2 Diesel	unbranded	+ 0.081

* Bidder will supply the quantity of the requested item required to meet the specifications.

Acknowledgment of Addenda (if any):

Addendum 1 _____ Date Received_____

Addendum 2 _____ Date Received_____

Addendum 3 _____ Date Received_____

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: City of Beaumont, Texas Transit Sys.

Address: 550 Milam St. Beaumont, Texas

Contact Person and Title: Johnathan Clegg Asst. Gen. Mgr.

Phone: 409-835-7895 Fax: 409-833-9454

Contract Period: 1998 - Present Scope of Work: Fuel + Lubricants

REFERENCE TWO

Government/Company Name: City of Port Arthur, Texas

Address: 444 4th. St. Port Arthur, TX 77641

Contact Person and Title: Shauna D. Tubbs Purch. Mgr.

Phone: 409 983 8162 Fax: 409-983-8291

Contract Period: 2008 - Present Scope of Work: Fuel Dsl. + Lubes.

REFERENCE THREE

Government/Company Name: Pt. Neches Ind. School Dist.

Address: 1606 Park Pt. Neches, TX 77651

Contact Person and Title: Kevin Bus Manager

Phone: 409 729-4141 Fax: 409729-4817

Contract Period: 1970's - Present Scope of Work: Fuel & Lubes

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☑ **No** ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

Spidle oil Co.
Bidder (Entity Name)

Wm. Spidle
Signature

PO Box 782, 401 West 19th Street
Street & Mailing Address

William Spidle
Print Name

Port Arthur, TX, 77641
City, State & Zip

Feb, 15, 2016
Date Signed

(409) - 727 - 4400
Telephone Number

(409) 982 - 5655
Fax Number

Spidleoil @ yahoo.com
E-mail Address

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY
Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

NONE

4

_____ Feb, 15, 18
Signature of vendor doing business with the governmental entity — Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☐ Yes ☐ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☐ Yes ☐ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☐ Yes ☐ No 3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☐ Yes ☐ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?

☐ Yes ☐ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☐ Yes ☐ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

Spidle Oil will use our trucks & employees to deliver awarded fuel & or Lubes

If "No" was selected, please explain and include any pertinent documentation with your bid.
If necessary, please use a separate sheet to answer the above questions.

William D Spidle
Printed Name of Authorized Representative

Signature

President
Title

2-11-16
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: _____ HUB: p Yes p No

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____

Prime Contract Amount: $ _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

_____ _____ _____
Printed Name of Contractor Representative Signature of Representative Date

_____ _____ _____
Printed Name of HUB Signature of Representative Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Prime Contractor: _____ HUB: ☐ Yes ☐ No

HUB Status (Gender & Ethnicity): _____

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____ IFB/RFP No.: _____

Total Contract: $ _____ Total HUB Subcontract(s): $ _____

Construction HUB Goals: 12.8% MBE:: _____ % 12.6% WBE: _____ %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American.
Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☒ Other: Bidder will not be using sub contractors

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required**. I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): William D. Spidle

Title: President

Signature: William D Spidle

Date: Feb. 15, 2016

E-mail address: spidleoil@yahoo.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Melissa Pearson

Title: Office Manager

Date: Feb. 15, 2016

E-mail address: spidleoil@yahoo.com

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that Spidle Oil Co. [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	74 1703-344
Company Name submitting bid/proposal:	
Mailing address:	P.O. Box 782 Port Arthur, TX 77641
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
199418	401 W. 19th Street Port Arthur TX (PERSONAL PROPERTY)

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Jefferson

BEFORE ME, the undersigned authority, a Notary Public in and for the State of ~~William D. Spidle~~ Texas,

on this day personally appeared William D. Spidle (name), who

after being by me duly sworn, did depose and say:

"I, William D. Spidle (name) am a duly authorized officer of/agent

for Spidle Oil Co. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said Spidle Oil Co (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: Spidle Oil Company Port Arthur, Texas 401 West 19th St 77641

Fax: (409) 982-5655 Telephone# (409) 721-4400

by William D Spidle (print name) Title: President

Signature: William D S

SUBSCRIBED AND SWORN to before me by the above-named William D Spidle on

this the 16th day of February, 2016.

EDITH A. HOWELL
MY COMMISSION EXPIRES
November 8, 2017

Edith A Howell
Notary Public in and for
the State of Texas

Bidder Shall Return Completed Form with Offer.

2711

Spidle & Spidle Inc.

PO box 782

West 19th Street, Port Arthur, Texas 77641

RECEIVED 10:02 AM FEB 16 2016

Jefferson County Purchasing Department

1149 Pearl Street

Beaumont, TX 77701

Bid Name: Term of contract for motor fuel for Jefferson County

Bid NO: IFB 16-001/YS

DUE DATE: 11:00 am CDT, Tuesday, February 16, 2016

Original

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593

ADDENDUM TO IFB

IFB Number:	IFB 16-001/YS
IFB Title:	Term Contract for Motor Fuel for Jefferson County
IFB Due:	**Tuesday, February 16, 2016, 11:00 am CDT**
Addendum No.:	1
Issued (Date):	February 3, 2016

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reasons for Issuance of this addendum: (1) Relocation of bid opening to 1149 Pearl Street, 5th Floor, Beaumont TX 77701, Engineering Conference Room, and (2) changes to delivery locations (page 17).

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Witness

Witness

Approved by ____ Date: _____

Authorized Signature (Bidder)

Corporate Controller/Treasurer
Title of Person Signing Above

Sun Coast Resources, Inc.
Typed Name of Business or Individual

6405 Cavalcade St., Bldg. 1
Houston, TX 77026
Address

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT

1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593 phone

ADDENDUM TO IFB

IFB Number: IFB 16-001/YS

IFB Title: Term Contract for Motor Fuel for Jefferson County

IFB Due: **11:00 am CDT, Tuesday, February 16, 2016**

Addendum No.: 2

Issued (Date): February 12, 2016

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this addendum: Correction to Bid Form

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

_____
Witness

_____
Witness

Approved by ____ Date: _____

_____
Authorized Signature (Bidder)

Corporate Controller/Treasurer
Title of Person Signing Above

Sun Coast Resources, Inc.
Typed Name of Business or Individual

6405 Cavalcade St., Bldg. 1, Houston, TX 77026
Address

Bid Form

Note to bidders: Minimum order bids are <u>not acceptable</u>.

Item	Estimated Quantity (gallons)	Description	Brand	+/- Factor
1	170,841	Unleaded Gasoline Regular Grade 87 Octane	Various Unbranded Suppliers	+.2485
2	38,297	Unleaded Gasoline Medium Grade 89 Octane	Various Unbranded Suppliers	+.2485
3	102,917	Unleaded Gasoline Premium Grade 93 Octane	Various Unbranded Suppliers	+.2485
4	67,416	No. 2 Diesel	Various Unbranded Suppliers	+.2485

* Bidder will supply the quantity of the requested item required to meet the specifications.

Acknowledgment of Addenda (if any):

Addendum 1 __X__ Date Received 2/3/2016

Addendum 2 __X__ Date Received 2/12/2016

Addendum 3 _____ Date Received _____

<u>Bidder Shall Return Completed Form with Offer.</u>

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): 1, 2, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

Sun Coast Resources, Inc.
Company Name

6405 Cavalcade St., Bldg. 1
Address

Houston | TX | 77026
City | State | Zip

Signature of Person Authorized to Sign

Jeff Hebert
Printed Name

Corporate Controller/Treasurer
Title

For clarification of this offer, contact:

Lisa Moore
Name

713-429-6702 | 713-969-3383
Phone | Fax

national@suncoastresources.com
E-mail

Bidder Shall Return Completed Form with Offer.

Acceptance of Offer

The Offer is hereby accepted for the following items: Term Contract for Motor Fuel for Jefferson County, Contract Term: One (1) year from date of award with an option to renew for four (4) additional years.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as Contract No. IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

Countersigned:

Jeff R. Branick
County Judge

Date

Attest:

Carolyn L. Guidry
County Clerk

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: City of Tomball

Address: 401 Market Street, Tomball, TX 77375

Contact Person and Title: George Shackelford, City Manager

Phone: 281-351-5484 Fax:

Contract Period: 6/16/2014 - 6/19/2016 Scope of Work: Delivers Gas & Diesel Fuel

REFERENCE TWO

Government/Company Name: Jasper County

Address: 150 North Austin Street, Jasper, TX 75951

Contact Person and Title: Renee Weaver, County Auditor

Phone: 409-384-5212 Fax: 409-384-7346

Contract Period: 4/15/2015 - 4/14/2017 Scope of Work: Delivers Gas & Diesel Fuel

REFERENCE THREE

Government/Company Name: Leon County

Address: 12168 Hwy 79 West, Jewett, TX 75846

Contact Person and Title: Linda McDonald, County Auditor

Phone: 903-536-2988 Fax: 903-626-1420

Contract Period: 10/1/2015 - 9/30/2016 Scope of Work: Delivers Gas, Diesel & Lubricants

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☐ **No** ☒

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

Sun Coast Resources, Inc.	Jeff Hebert
Bidder (Entity Name)	Signature
6405 Cavalcade St., Bldg. 1	Jeff Hebert
Street & Mailing Address	Print Name
Houston, TX 77026	2/12/2016
City, State & Zip	Date Signed
713-429-6702	713-969-3383
Telephone Number	Fax Number
national@suncoastresources.com	
E-mail Address	

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY
Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

Sun Coast Resources, Inc.

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

N/A

Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

N/A

4

Signature of vendor doing business with the governmental entity — Date: 2/12/16

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☐ Yes ☒ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☐ Yes ☒ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☐ Yes ☒ No 3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☐ Yes ☒ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?

☐ Yes ☒ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☐ Yes ☒ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid. If necessary, please use a separate sheet to answer the above questions.

Jeff Hebert
Printed Name of Authorized Representative

Jeff Hebert
Signature

Corporate Controller/Treasurer
Title

2/12/16
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: Sun Coast Resources, Inc. HUB: p Yes (p No)

Address: 6405 Cavalcade St., Bldg. 1 (Street) Houston (City) TX (State) 77026 (Zip)

Phone (with area code): 713-429-6702 Fax (with area code): 713-969-3383

Project Title & No.: IFB 16-001/YS Term contract for Motor Fuel for Jefferson County

Prime Contract Amount: $

HUB Subcontractor Name: N/A

HUB Status (Gender & Ethnicity):

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: (Street) (City) (State) (Zip)

Phone (with area code): Fax (with area code):

Proposed Subcontract Amount: $ Percentage of Prime Contract: %

Description of Subcontract Work to be Performed:

Jeff Hebert Printed Name of Contractor Representative	 Signature of Representative	2/12/16 Date
N/A Printed Name of HUB	Signature of Representative	Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Prime Contractor: Sun Coast Resources, Inc. HUB: ☐ Yes ☒ No

HUB Status (Gender & Ethnicity): N/A

Address: 6405 Cavalcade St., Bldg. 1 (Street) Houston (City) TX (State) 77026 (Zip)

Phone (with area code): 713-429-6702 Fax (with area code): 713-969-3383

Project Title & No.: Term Contract for Motor Fuel for Jefferson County IFB/RFP No.: IFB 16-001/YS

Total Contract: $ Total HUB Subcontract(s): $ N/A

Construction HUB Goals: 12.8% MBE:: N/A % 12.6% WBE: N/A %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American. Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: N/A

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____ (Street) _____ (City) _____ (State) _____ (Zip)

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: N/A

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

HUB Subcontractor Name: N/A

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☒ Other: We are a large certified WBE and able to self perform all services without subcontractors.

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☒ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: N/A

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required**. I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): Jeff Hebert

Title: Corporate Controller/Treasurer

Signature: Jeff Hebert

Date: 2/12/2016

E-mail address: national@suncoastresources.com

Contact person that will be in charge of invoicing for this project:

Name (print or type): Lisa Moore

Title: Director of National Sales and Supply

Date: 2/12/2016

E-mail address: national@suncoastresources.com

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that Sun Coast Resources, Inc. [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	76-0143483
Company Name submitting bid/proposal:	Sun Coast Resources, Inc.
Mailing address:	6405 Cavalcade St., Bldg. 1, Houston, TX 77026
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
N/A	

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF Texas COUNTY OF Harris

BEFORE ME, the undersigned authority, a Notary Public in and for the State of Texas,

on this day personally appeared Jeff Hebert (name), who

after being by me duly sworn, did depose and say:

"I, Jeff Hebert (name) am a duly authorized officer of/agent

for Sun Coast Resources, Inc. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said Sun Coast Resources, Inc. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: Sun Coast Resources, Inc.

6405 Cavalcade St., Bldg. 1, Houston, TX 77026

Fax: 713-969-3383 Telephone# 713-429-6702

by: Jeff Hebert (print name) Title: Corporate Controller/Treasurer

Signature: Jeff Hebert

SUBSCRIBED AND SWORN to before me by the above-named Jeff Hebert on

this the 12th day of February, 2016.

COURTNEY COLETTE DAVIS
Notary Public, State of Texas
Comm. Expires 10-26-2016
Notary ID 129181534

Courtney Colette Davis
Notary Public in and for
the State of Texas

Bidder Shall Return Completed Form with Offer.

Sun Coast RESOURCES, INC.
Quality Fuels & Lubricants

1st SOURCE ELITE

EXCEPTIONS PAGE

Page 3, Instructions to Bidders, Paragraph 7, Emergency/Declared Disaster Requirements: Bidder requests removal of this paragraph in its entirety. Bidder provides emergency services, but these must be under separate contract.

Page 15, Minimum Specifications, Scope: Bidder requests removal of the following "...and in times of Emergency or Natural Disaster...." Bidder provides emergency services, but these must be under separate contract.

RECEIVED 10:58 AM FEB 16 2016

MICHELE PULLINS
800-677-3835 3409
SUN COAST RESOURCES
6405 CAVALCADE ST
HOUSTON TX 77026

1 LBS

1 OF 1

SHIP TO:
ATTN: YEA- MEI SAUER
409-835-8593
JEFFERSON COUNTY
PURCHASING DEPARTMENT
1149 PEARL STREET
BEAUMONT TX 77701-3638

TX 777 0-01

UPS NEXT DAY AIR **1**

TRACKING #: 1Z F67 1X4 01 9347 1745

BILLING: P/P

Reference # 1: Michele Pullins

GS 18.0.22. WNTIE70 72.0A 01/2016

JEFFERSON COUNTY PURCHASING DEPARTMENT

http://co.jefferson.tx.us/purchasing/main.htm
1001 Pearl Street, 3rd Floor
Beaumont, Texas 77701
Office: 409-835-8593
Fax: 409-835-8456

Deborah Clark
Purchasing Agent

Jamey West
Assistant Purchasing Agent

FAX

To:	David Oliver	**From:**	Yea-Mei Sauer Contract Specialist
Company:	Tri-Con, Inc.	**Pages:**	3 including this cover sheet
Fax No.:	409-838-1924 5	**Date:**	February 12, 2016
Phone No.:		**cc:**	
Re:	Addendum 2: Invitation to Bid IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County		

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

Comments:

Attached, please find Addendum 2 for the above referenced Invitation to Bid. Jefferson County encourages all bidders to visit the Jefferson County website at www.co.jefferson.tx.us prior to bid submission to check for any updates and/or addenda.

Bids are due by 11:00 AM CDT, Tuesday, February 16, 2016.

JEFFERSON COUNTY, TEXAS
PURCHASING DEPARTMENT
1149 Pearl Street – First Floor
Beaumont, Texas 77701
409-835-8593 phone

ADDENDUM TO IFB

IFB Number:	IFB 16-001/YS
IFB Title:	Term Contract for Motor Fuel for Jefferson County
IFB Due:	**11:00 am CDT, Tuesday, February 16, 2016**
Addendum No.:	2
Issued (Date):	February 12, 2016

TO BIDDER: This Addendum is an integral part of the IFB package under consideration by you as a Bidder in connection with the subject matter herein identified. Jefferson County deems all sealed proposals to have been proffered in recognition and consideration of the entire IFB package – **including all addenda.** For purposes of clarification, **receipt of this present Addendum by a Bidder should be evidenced by returning it (signed) as part of the Bidder's sealed proposal.** If the Proposal has already been received by the Jefferson County Purchasing Department, Bidder should return this addendum in a separate sealed envelope, clearly marked with the IFB Title, IFB Number, and Opening Date and Time, as stated above.

Reason for Issuance of this addendum: Correction to Bid Form

The information included herein is hereby incorporated into the documents of this present Bid matter and supersedes any conflicting documents or portion thereof previously issued.

Receipt of this Addendum is hereby acknowledged by the undersigned Bidder:

ATTEST:

Paula Cooper
Witness

Witness

Approved by ____ Date: _____

Authorized Signature (Bidder)

SALES REPRESENTATIVE
Title of Person Signing Above

TRI-CON INC.
Typed Name of Business or Individual

7076 WEST PORT ARTHUR RD.
Address

Bid Form

Note to bidders: Minimum order bids are not acceptable.

Item	Estimated Quantity (gallons)	Description	Brand	+/- Factor
1	170,841	Unleaded Gasoline Regular Grade 87 Octane	VARIOUS PLACID-EXXON	$.1299
2	38,297	Unleaded Gasoline Medium Grade 89 Octane	VARIOUS PLACID-EXXON	$.1299
3	102,917	Unleaded Gasoline Premium Grade 93 Octane	VARIOUS PLACID-EXXON	$.1299
4	67,416	No. 2 Diesel	VARIOUS PLACID-EXXON	$.1299

* Bidder will supply the quantity of the requested item required to meet the specifications.

Acknowledgment of Addenda (if any):

Addendum 1 _____ Date Received _____

Addendum 2 ✓ Date Received 2-12-2016

Addendum 3 _____ Date Received _____

Bidder Shall Return Completed Form with Offer.

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): _____, _____, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

TRI-CON INC.
Company Name

P.O. BOX 20555
Address

BEAUMONT TX 77720
City State Zip

Signature of Person Authorized to Sign

BRYAN DENISON
Printed Name

SALES REPRESENTATIVE
Title

For clarification of this offer, contact:

BRYAN DENISON
Name

409-782-9548 409-838-1925
Phone Fax

BRYANDENISON@TRICONINC.ORG
E-mail

Bidder Shall Return Completed Form with Offer.

Acceptance of Offer

The Offer is hereby accepted for the following items: Term Contract for Motor Fuel for Jefferson County, Contract Term: One (1) year from date of award with an option to renew for four (4) additional years.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as Contract No. IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

Countersigned:

Jeff R. Branick
County Judge

Date

Attest:

Carolyn L. Guidry
County Clerk

Bidder Shall Return Completed Form with Offer.

Bid Form

Note to bidders: Minimum order bids are not acceptable.

Item	Estimated Quantity (gallons)	Description	Brand	+/- Factor	Unit Price	Total Price
1	170,841	Unleaded Gasoline Regular Grade 87 Octane	VARIOUS-PLACID EXXON	+	$ .1299	$
2	38,297	Unleaded Gasoline Medium Grade 89 Octane	VARIOUS-PLACID EXXON	+	$ .1299	$
3	102,917	Unleaded Gasoline Premium Grade 93 Octane	VARIOUS PLACID EXXON	+	$ .1299	$
4	67,416	No. 2 Diesel	VARIOUS PLACID EXXON	+	$ .1299	$

* Bidder will supply the quantity of the requested item required to meet the specifications.

Acknowledgment of Addenda (if any):

Addendum 1 _____ Date Received_____

Addendum 2 _____ Date Received_____

Addendum 3 _____ Date Received_____

Bidder Shall Return Completed Form with Offer.

Vendor References

Please list at least three (3) companies or governmental agencies (preferably a municipality) where the same or similar products and/or services as contained in this specification package were recently provided.

THIS FORM MUST BE RETURNED WITH YOUR BID.

REFERENCE ONE

Government/Company Name: CITY OF NEDERLAND

Address: P.O. Box 967 NEDERLAND, TX 77627

Contact Person and Title: ROBERT SANGSTER ACCOUNTS PAYABLE

Phone: 409-723-1540 Fax:

Contract Period: 2005 - CURRENT Scope of Work: BULK FUEL/OIL DELIVERY

REFERENCE TWO

Government/Company Name: CITY OF PORT NECHES

Address: P.O. Box 758 PORT NECHES, TX 77651

Contact Person and Title: STEPHANIE McCULLER ACCOUNTS PAYABLE

Phone: 409-727-2185 Fax: N/A

Contract Period: 2012 - CURRENT Scope of Work: BULK FUEL DELIVERY

REFERENCE THREE

Government/Company Name: CITY OF GROVES

Address: 4925 McKINLEY GROVES, TX 77619

Contact Person and Title: ANNETTE ACCOUNTS PAYABLE

Phone: 409-962-4471 Fax:

Contract Period: 2013-2014 Scope of Work: BULK FUEL/OIL DELIVERY

Bidder Shall Return Completed Form with Offer.

Signature Page

As permitted under Article 4413 (32c) V.A.C.S., other governmental entities may wish to participate under the same terms and conditions contained in this contract (i.e., piggyback). In the event any other entity participates, all purchase orders will be issued directly from and shipped directly to the entity requiring supplies/services. Jefferson County shall not be held responsible for any orders placed, deliveries made or payment for supplies/services ordered by another entity. Each entity reserves the right to determine their participation in this contract.

Would bidder be willing to allow other governmental entities to piggyback off this contract, if awarded, under the same terms and conditions? ..... **Yes** ☒ **No** ☐

This bid shall remain in effect for ninety (90) days from bid opening and shall be exclusive of federal excise and state and local sales tax (exempt).

The undersigned agrees, if this bid is accepted, to furnish any and all items upon which prices are offered, at the price and upon the terms and conditions contained in the Invitation for Bid, Conditions of Bidding, Terms of Contract, and Specifications and all other items made a part of the accepted contract.

The undersigned affirms that they are duly authorized to execute the contract, that this company, corporation, firm, partnership or individual has not prepared this bid in collusion with any other bidder, and that the contents of this bid as to prices, terms or conditions of said bid have not been communicated by the undersigned nor by any employee or agent to any other bidder or to any other person(s) engaged in this type of business prior to the official opening of this bid. And further, that neither the bidder nor their employees nor agents have been for the past six (6) months directly nor indirectly concerned in any pool or agreement or combination to control the price of goods or services on, nor to influence any person to bid or not to bid thereon.

TRI-CON INC.
Bidder (Entity Name)

Signature

7076 WEST PT. ARTHUR RD. P.O. BOX 20555
Street & Mailing Address

BRYAN DENISON
Print Name

BEAUMONT, TX 77720
City, State & Zip

2-4-2016
Date Signed

409-835-2237
Telephone Number

409-838-1925
Fax Number

BRYANDENISON@TRICONINC.ORG
E-mail Address

Bidder Shall Return Completed Form with Offer.

Conflict of Interest Questionnaire

CONFLICT OF INTEREST QUESTIONNAIRE — FORM CIQ

For vendor doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code, by a vendor who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the vendor meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the vendor becomes aware of facts that require the statement to be filed. *See* Section 176.006(a-1), Local Government Code.

A vendor commits an offense if the vendor knowingly violates Section 176.006, Local Government Code. An offense under this section is a misdemeanor.

OFFICE USE ONLY
Date Received

1 **Name of vendor who has a business relationship with local governmental entity.**

N/A

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date on which you became aware that the originally filed questionnaire was incomplete or inaccurate.)

3 **Name of local government officer about whom the information in this section is being disclosed.**

_____
Name of Officer

This section (item 3 including subparts A, B, C, & D) must be completed for each officer with whom the vendor has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the vendor?

☐ Yes ☐ No

B. Is the vendor receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership interest of one percent or more?

☐ Yes ☐ No

D. Describe each employment or business and family relationship with the local government officer named in this section.

4

_____ _____
Signature of vendor doing business with the governmental entity Date

Adopted 8/7/2015

Bidder Shall Return Completed Form with Offer.

Local Government Officer
Conflicts Disclosure Statement - OFFICE USE ONLY

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

This questionnaire reflects changes made to the law by H.B. 23, 84th Leg., Regular Session.

This is the notice to the appropriate local governmental entity that the following local government officer has become aware of facts that require the officer to file this statement in accordance with Chapter 176, Local Government Code.

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

N/A

2 **Office Held**

3 **Name of vendor described by Sections 176.001(7) and 176.003(a), Local Government Code**

4 **Description of the nature and extent of employment or other business relationship with vendor named in item 3**

5 **List gifts accepted by the local government officer and any family member, if aggregate value of the gifts accepted from vendor named in item 3 exceeds $100 during the 12-month period described by Section 176.003(a)(2)(B).**

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

I swear under penalty of perjury that the above statement is true and correct. I acknowledge that the disclosure applies to each family member (as defined by Section 176.001(2), Local Government Code) of this local government officer. I also acknowledge that this statement covers the 12-month period described by Section 176.003(a)(2)(B), Local Government Code.

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

Sworn to and subscribed before me, by the said _____, this the _____ day of _____, 20 _____, to certify which, witness my hand and seal of office.

_____
Signature of officer administering oath | Printed name of officer administering oath | Title of officer administering oath

Adopted 8/7/2015

Good Faith Effort (GFE) Determination Checklist

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions: In order to determine if a "Good Faith Effort" was made in soliciting HUBs for subcontracting opportunities, the following checklist and supporting documentation shall be completed by the Prime Contractor/Consultant, and returned with the Prime Contractor/ Consultant's bid. This list contains the **minimum** efforts that should be put forth by the Prime Contractor/Consultant when attempting to achieve or exceed the goals of HUB Subcontractor participation. The Prime Contractor/Consultant may extend his/her efforts in soliciting HUB Subcontractor participation beyond what is listed below.

Did the Prime Contractor/Consultant . . .

☐ Yes ☐ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☐ Yes ☐ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☐ Yes ☐ No 3. **Provide** HUBs that were genuinely interested in bidding on a subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☐ Yes ☐ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive bidders?

☐ Yes ☐ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☐ Yes ☐ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

If "No" was selected, please explain and include any pertinent documentation with your bid. If necessary, please use a separate sheet to answer the above questions.

BRYAN DENISON
Printed Name of Authorized Representative

Signature

SALES REPRESENTATIVE
Title

2-15-2016
Date

Bidder Shall Return Completed Form with Offer.

Notice of Intent (NOI) to Subcontract with Historically Underutilized Business (HUB)

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract. Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: _____ HUB: p Yes p No

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____

Prime Contract Amount: $ _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

_____ _____ _____
Printed Name of Contractor Representative Signature of Representative Date

_____ _____ _____
Printed Name of HUB Signature of Representative Date

NOTE: NOTHING ON THIS NOTICE OF INTENT FORM IS INTENDED TO CONFER ANY RIGHTS, EXPRESSED OR IMPLIED, TO ANY THIRD PARTIES.

Pre-Approval for Subcontractor Substitutions must be obtained from the Jefferson County Purchasing Agent's Representative. The "HUB Subcontractor/Subconsultant Change Form" must be completed and faxed to 409-835-8456.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

This information must be submitted with your bid.

Bidder intends to utilize subcontractors/subconsultants in the fulfillment of this contract (if awarded). ☐ Yes ☒ No

Prime Contractor: _____ HUB: ☐ Yes ☐ No

HUB Status (Gender & Ethnicity): _____

Address: _____
Street City State Zip

Phone (with area code): _____ Fax (with area code): _____

Project Title & No.: _____ IFB/RFP No.: _____

Total Contract: $ _____ Total HUB Subcontract(s): $ _____

Construction HUB Goals: 12.8% MBE:: _____ % 12.6% WBE: _____ %

Sub-goals: 1.7 African-American, 9.7% Hispanic, 0.7% Native American, 0.8% Asian American.
Use these goals as a guide to diversify.

FOR HUB OFFICE USE ONLY:

Verification date HUB Program Office reviewed and verified HUB Sub information Date: _____ Initials: _____

PART I. HUB SUCONTRACTOR DISCLOSURE

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Texas Bldg & Procurement Comm. ☐ Texas Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

HUB SUBCONTRACTOR DISCLOSURE

PART I: Continuation Sheet **(Duplicate as Needed)**

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

Certifying Agency: ☐ Tx. Bldg & Procurement Comm. ☐ Jefferson County ☐ Tx Unified Certification Prog.

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

_____

All HUB Subcontractor Participation may be verified with the HUB Subcontractor(s) listed on Part I.

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB) Subcontracting Participation Declaration Form

PART II: STATEMENT OF NON-COMPLIANCE FOR NOT MEETING HUB SUBCONTRACTING GOALS

Please complete Good Faith Effort (GFE) Checklist and attach any supporting documentation.

Our firm was unable to meet the HUB goals for this project for the following reasons:

- ☐ All subcontractors to be utilized are "Non-HUBs." *(Complete Part III)*
- ☐ HUBs were solicited but did not respond.
- ☐ HUBs solicited were not competitive.
- ☐ HUBs were unavailable for the following trade(s):
- ☐ Other: _____

Was the Jefferson County HUB Office contacted for assistance in locating HUBs? ☐ Yes ☐ No

PART III: DISCLOSURE OF OTHER "NON-HUB" SUBCONTRACTS

The bidder shall use this area to provide a listing of all "Non-HUB" Subcontractors, including suppliers, that will perform under this project. A list of those "Non-HUB" Subcontractors the bidder selects, after bid submission, shall be provided to the Purchasing Office not later than five (5) calendar days after being notified that bidder is the apparent low bidder. A list of those "Non-HUB" Subcontractors that are selected after contract award must be provided **immediately** after their selection.

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Bidder Shall Return Completed Form with Offer.

Historically Underutilized Business (HUB)
Subcontracting Participation Declaration Form

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

Phone (with area code): _____ Fax (with area code): _____

Proposed Subcontract Amount: $ _____ Percentage of Prime Contract: _____ %

Description of Subcontract Work to be Performed: _____

I hereby certify that I have read the *HUB Program Instructions and Information*, truthfully completed all applicable parts of this form, and **attached any necessary support documentation as required**. I fully understand that intentionally falsifying information on this document may result in my not receiving a contract award or termination of any resulting contract.

Name (print or type): _____

Title: _____

Signature: _____

Date: _____

E-mail address: _____

Contact person that will be in charge of invoicing for this project:

Name (print or type): _____

Title: _____

Date: _____

E-mail address: _____

Bidder Shall Return Completed Form with Offer.

Residence Certification/Tax Form

Pursuant to Texas Government Code §2252.001 *et seq.*, as amended, Jefferson County requests Resident Certification. §2252.001 *et seq.* of the Government Code provides some restrictions on the awarding of governmental contracts; pertinent provisions of §2252.001 are stated below:

(3) "Nonresident bidder" refers to a person who is not a resident.

(4) "Resident bidder" refers to a person whose principal place of business is in this state, including a contractor whose ultimate parent company or majority owner has its principal place of business in this state.

☒ I certify that TRI-CON INC. [company name] is a Resident Bidder of Texas as defined in Government Code §2252.001.

☐ I certify that _____ [company name] is a Nonresident Bidder as defined in Government Code §2252.001 and our principal place of business is _____ _____ (city and state).

Taxpayer Identification Number (T.I.N.):	741647339
Company Name submitting bid/proposal:	TRI-CON INC.
Mailing address:	P.O. BOX 20555 BEAUMONT, TX 77720
If you are an individual, list the names and addresses of any partnership of which you are a general partner:	

Property: List all taxable property owned by you or above partnerships in Jefferson County.

Jefferson County Tax Acct. No.*	Property address or location**
SEE ATTACHED	

* This is the property amount identification number assigned by the Jefferson County Appraisal District.

** For real property, specify the property address or legal description. For business property, specify the address where the property is located. For example, office equipment will normally be at your office, but inventory may be stored as a warehouse or other location.

Bidder Shall Return Completed Form with Offer.

LOCATION	ACCOUNT #	CITY/COUNTY	TYPE OF PROPERTY
BULK PLANT	233220-000 / 058900-00000-5	JEFF CNTY	LAND & BLDG
BULK PLANT	700000-000 / 625001-00000	JEFF CNTY	PERSONAL PROPERTY
EM #04	300044-000 / 001100-00000-2	JEFF CNTY	LAND & BLDG
EM #04	300044-000-001000-00000-4	JEFF CNTY	LAND & BLDG
EM #04	300044-000 / 001105-00000-1	JEFF CNTY	LAND & BLDG
EM #04	700000-000/197002-00000	JEFF CNTY	PERSONAL PROPERTY
EM #06	071425-000 / 000100-00000-1	JEFF CNTY	LAND & BLDG
EM #06	700000-000 / 622386-00000	JEFF CNTY	PERSONAL PROPERTY
EM #10	036050-000 / 006000-00000-7	JEFF CNTY	LAND & BLDG
4455 WASHINGTON	036050-000-006100-00000-5	JEFF CNTY	LAND
EM #10	700000-000 / 622377-00000-3	JEFF CNTY	PERSONAL PROPERTY
EM #11	300459-000 / 002500-00000-2	JEFF CNTY	LAND & BLDG
EM #11	700000-000 / 622383-00000	JEFF CNTY	PERSONAL PROPERTY
EM #15	032700-000 / 00700-00000-2	JEFF CNTY	LAND & BLDG
EM #15	700000-000/622388-00000	JEFF CNTY	PERSONAL PROPERTY
EM #18	049401-000-060800-00000-3	JEFF CNTY	LAND & BLDG
EM #18	700000-000 / 622392-00000	JEFF CNTY	PERSONAL PROPERTY
EM #19	049400-000 / 048831-00000-7	JEFF CNTY	LAND & BLDG
EM #19	049400-00/048805-00100-0	JEFF CNTY	LAND & BLDG
EM #19	700000-000/622393-00000	JEFF CNTY	PERSONAL PROPERTY
EM #20	021850-000-013400-00000-0	JEFF CNTY	LAND & BLDG
EM #20	700000-000/622389-00000	JEFF CNTY	PERSONAL PROPERTY
EM#23	067550-000-000100-00000-2	JEFF CNTY	LAND & BLDG
EM #23	70000-000/622396-00000	JEFF CNTY	PERSONAL PROPERTY
EM#25	035450-000/005200-00000	JEFF CNTY	LAND & BLDG
EM#25	035450-000/005300-00000	JEFF CNTY	LAND & BLDG
EM#26	049402-000/025600-00000	JEFF CNTY	LAND & BLDG
EM#26	700000-000/576775-00000	JEFF CNTY	PERSONAL PROPERTY
EM#27	02250-000/001100-00000	JEFF CNTY	LAND & BLDG
EM#27	700000-000/622398-00000	JEFF CNTY	PERSONAL PROPERTY
EM#28 (1655)	235222-000/004800-00000	JEFF CNTY	LAND & BLDG
EM#28 (1755)	235222-000/004900-00000	JEFF CNTY	LAND & BLDG
EM#28 (1755)	700000-000/576726-00000	JEFF CNTY	PERSONAL PROPERTY
EM#28 (1755)	700000-000/576615-00000	JEFF CNTY	PERSONAL PROPERTY
EM#29	233-220-000/007400-00000	JEFF CNTY	LAND & BLDG
EM#29	700000-000/576650-00000	JEFF CNTY	PERSONAL PROPERTY
EM#30	231218-000/012600-00000	JEFF CNTY	LAND & BLDG
EM#30	70000-000/576721-00000	JEFF CNTY	PERSONAL PROPERTY
GATEWAY	013415-000 / 011400-00000	JEFF CNTY	LAND & BLDG
GATEWAY	700000-000 / 622381-00000	JEFF CNTY	PERSONAL PROPERTY
ROYAL STOP	300056-000 / 016200-00000	JEFF CNTY	LAND & BLDG
ROYAL STOP	700000-000/622394-00000	JEFF CNTY	PERSONAL PROPERTY
SECOND CHANCE MOTOR	021750-000 / 003800-00000	JEFF CNTY	LAND & BLDG

Bid Affidavit

The undersigned certifies that the bid prices contained in this bid have been carefully reviewed and are submitted as correct and final. Bidder further certifies and agrees to furnish any and/or all commodities upon which prices are extended at the price offered, and upon the conditions contained in the specifications and the Notice to Bidders.

STATE OF TEXAS COUNTY OF JEFFERSON

BEFORE ME, the undersigned authority, a Notary Public in and for the State of TEXAS,

on this day personally appeared BRYAN DENISON (name), who

after being by me duly sworn, did depose and say:

"I, BRYAN DENISON (name) am a duly authorized officer of/agent

for TRI-CON INC. (name of firm) and have been duly authorized to execute the

foregoing on behalf of the said TRI-CON INC. (name of firm).

I hereby certify that the foregoing bid has not been prepared in collusion with any other bidder or other person or persons engaged in the same line of business prior to the official opening of this bid. Further, I certify that the bidder is not now, nor has been for the past six (6) months, directly or indirectly concerned in any pool or agreement or combination, to control the price of services/commodities bid on, or to influence any person or persons to bid or not to bid thereon."

Name and address of bidder: TRI-CON INC.

Fax: 409-838-1925 Telephone# 409-835-2237

by: BRYAN DENISON (print name) Title: SALES REPRESENTATIVE

Signature:

SUBSCRIBED AND SWORN to before me by the above-named BRYAN DENISON on

this the 16 day of February, 2016.

Paula Cooper
Notary Public in and for
the State of Texas

Paula Cooper
Notary Public,
State of Texas
Expires: 03/19/2019

Bidder Shall Return Completed Form with Offer.

2749 TRI-CON INC

CONTRACT FOR MOTOR FUEL
FOR JEFFERSON COUNTY

BID NO. IFB 16-001/YS

DEBORAH CLARK
JEFFERSON COUNTY PURCHASING DEPT.
1149 PEARL ST.
BEAUMONT, TX 77701

RECEIVED 10:30 AM FEB 16 2016

ATTACHMENT A

IFB 16-001/YS
Term Contract for Motor Fuel for Jefferson County

		Spidle Oil Co.
Item	Description	+/- Factor Brand
1	Unleaded Gasoline Regular Grade 87 Octane	+.081 unbranded
2	Unleaded Gasoline Medium Grade 89 Octane	+.081 unbranded
3	Unleaded Gasoline Premium Grade 93 Octane	+.081 unbranded
4	No. 2 Diesel	+.081 unbranded
		Spidle Oil Co. 401 West 19th Street Port Arthur TX 77641 ph: 409-727-4400 fx: 409-985-5655 Attn: William Spidle spidleoil@yahoo.com

OFFER AND ACCEPTANCE FORM

OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer. We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

The undersigned hereby states, under penalty of perjury, that all information provided is true, accurate, and complete, and states that he/she has the authority to submit this bid, which will result in a binding contract if accepted by Jefferson County.

We acknowledge receipt of the following amendment(s): _____, _____, _____, _____.

I certify, under penalty of perjury, that I have the legal authorization to bind the firm hereunder:

Spidle Oil. Co.
Company Name

401 West 19th St.
Address

Port Arthur TX 77641
City State Zip

Signature of Person Authorized to Sign

William Spidle
Printed Name

Owner
Title

For clarification of this offer, contact:

William Spidle
Name

(409) 727-4400
Phone Fax

Spidleoil@yahoo.com
E-mail

Bidder Shall Return Completed Form with Offer.

Acceptance of Offer

The Offer is hereby accepted for the following items: Term Contract for Motor Fuel for Jefferson County, Contract Term: One (1) year from date of award with an option to renew for four (4) additional years.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as Contract No. IFB 16-001/YS, Term Contract for Motor Fuel for Jefferson County. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

Countersigned:

Jeff R. Branick
County Judge

February 22, 2016
Date

Attest:

Carolyn L. Guidry
County Clerk

COMMISSIONERS COURT
JEFFERSON COUNTY, TEXAS

Bidder Shall Return Completed Form with Offer.

CONTRACT RENEWAL FOR (IFB 14-004/JW)
TERM CONTRACT FOR LEGAL NOTICES FOR JEFFERSON COUNTY

The County entered into a contract with Beaumont Enterprise for one (1) year, from March 10, 2014 to March 9, 2015, with an option to renew the contract for up to a five (5) year period.

Pursuant to the contract, Jefferson County hereby exercises its option to renew the contract for the second additional (1) one year renewal from March 8, 2016 to March 7, 2017.

ATTEST:

Carolyn L. Guidry, County Clerk

COMMISSIONERS COURT JEFFERSON COUNTY, TEXAS

JEFFERSON COUNTY, TEXAS

Jeff Branick, County Judge

CONTRACTOR:
Beaumont Enterprise

(Name)

CONTRACT RENEWAL FOR (IFB 14-004/JW)
TERM CONTRACT FOR LEGAL NOTICES FOR JEFFERSON COUNTY

The County entered into a contract with The Examiner for one (1) year, from March 10, 2014 to March 9, 2015, with an option to renew the contract for up to a five (5) year period.

Pursuant to the contract, Jefferson County hereby exercises its option to renew the contract for the second additional (1) one year renewal from March 8, 2016 to March 7, 2017.

ATTEST:

Carolyn L. Guidry, County Clerk

COMMISSIONERS COURT JEFFERSON COUNTY, TEXAS

JEFFERSON COUNTY, TEXAS

Jeff Branick, County Judge

CONTRACTOR:
The Examiner

(Name) C.E.O. The Examiner Corp.

TERM CONTRACT FOR LEGAL NOTICES FOR JEFFERSON COUNTY

The County entered into a contract with The Port Arthur News for one (1) year, from March 10, 2014 to March 9, 2015, with an option to renew the contract for up to a five (5) year period.

Pursuant to the contract, Jefferson County hereby exercises its option to renew the contract for the second additional (1) one year renewal from March 8, 2016 to March 7, 2017.

ATTEST:

Carolyn L. Guidry, County Clerk

COMMISSIONERS COURT JEFFERSON COUNTY, TEXAS

JEFFERSON COUNTY, TEXAS

Jeff Branick, County Judge

CONTRACTOR:
The Port Arthur News

Dana Ford

(Name)

Jefferson County and U.S. Fish and Wildlife Service (USFWS)
PUBLIC NOTICE
Notice of Availability of the Draft Environmental Assessment for the
McFaddin National Wildlife Refuge (NWR) Beach Ridge Restoration Project
CEPRA No. 1530
Jefferson County, Texas

Jefferson County has applied to the USFWS for assistance with the construction of approximately 20 miles of dune ridge and nourished beach face along the McFaddin NWR shoreline, utilizing sediments from an offshore borrow area. Total ground disturbance in the entire project area (on- and off-shore) will be approximately 2,852 acres. The improvements plan to protect the sensitive wetlands within the 59,000 acre Refuge and the 100,000 acre Salt Bayou watershed from increasing seawater inundation; protect the chenier beach ridge from further erosion and shoreline retreat; and re-create lost dune/beach habitat.

A draft Environmental Assessment (EA) has been prepared to assess the potential impacts of the proposed action and alternatives on the human and natural environment in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council for Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Parts 1500 – 1508), the National Historic Preservation Act, Executive Order 11988, Executive Order 11990, and the implementing regulations of FEMA (44 CFR Parts 9 and 10). Included with this *Environmental Assessment* is the required Compatibility Determination (CD) for the project.

The draft EA evaluates alternatives that provide for compliance with applicable environmental laws. The alternatives evaluated include (1) no action; (2) shoreline stabilization methods; (3) sand source identification; (4) sand delivery methods; and (5) dune/beach configuration.

The draft EA and CD will be available for public review and comment between February 24, 2016, and March 25, 2016, in the Jefferson County Engineering Department located at 1149 Pearl Street; the Office of the Jefferson County Clerk located at 1085 Pearl Street in Beaumont; and at the Chambers County Library located at 202 Cummings St in Anahuac, Texas. An electronic copy can be accessed on the U.S. Fish and Wildlife website at http://www.fws.gov/refuge/mcfaddin/.

Written comments regarding this proposed project can be mailed to: Jefferson County Engineering Dept., 1149 Pearl Street, 5th Floor, Beaumont, TX 77701. Electronic comments can also be submitted to drao@co.jefferson.tx.us. Comments should be received no later than 4 p.m. on March 25, 2016. If no substantive comments are received, the draft EA will become final and a Finding of No Significant Impact (FONSI) will be issued for the project. Substantive comments will be addressed as appropriate in the final documents.

EVERETTE "BO" ALFRED
COUNTY COMMISSIONER
PRECINCT 4
P.O. Box 4025
Beaumont, Texas 77704-4025

SHEDRICK D. EVANS
Executive Assistant

KENNETH MINKINS
Superintendent
Precinct 4 - Service Center

MEMO

TO: Ms. Fran Lee, Auditing

FROM: Commissioner Everette Alfred

DATE: February 12, 2016

RE: Transfer Funds

Please transfer **$10,000** from account # 114-0402-431.30-79 (Crushed Stone) into Precinct #4 account # 114-0405-431.40-18 (Road Machinery) for additional cost of equipment repairs.

Thank you.

EA/nr

NAME	AMOUNT	CHECK NO.	TOTAL
JURY FUND			
TRI-CITY COFFEE SERVICE	95.65	417658	
			95.65**
ROAD & BRIDGE PCT.#1			
ENTERGY	972.86	417612	
TEXAS STATE DIRECTORY	47.45	417656	
TRI-CON, INC.	1,279.88	417657	
AIRGAS SOUTHWEST	185.10	417707	
TRANSIT & LEVEL CLINIC LLC	75.00	417768	
			2,560.29**
ROAD & BRIDGE PCT.#2			
MUNRO'S	18.45	417629	
FRED PRYOR SEMINARS & CAREER TRACK	138.00	417638	
PATHMARK TRAFFICE PRODUCTS OF TEXAS	1,139.65	417687	
BUMPER TO BUMPER	316.70	417693	
CENTERPOINT ENERGY RESOURCES CORP	170.28	417694	
NEW WAVE WELDING TECHNOLOGY	6.82	417708	
MEMBER'S BUILDING MAINTENANCE LLC	149.50	417744	
ABRASIVE PRODUCTS AND EQUIPMENT LLC	19.20	417767	
			1,958.60**
ROAD & BRIDGE PCT. # 3			
CERTIFIED LABORATORIES	423.35	417601	
CITY OF PORT ARTHUR - WATER DEPT.	28.88	417602	
FARM & HOME SUPPLY	37.56	417611	
MUNRO'S	18.23	417629	
PHILPOTT MOTORS, INC.	200.41	417635	
SMART'S TRUCK & TRAILER, INC.	318.51	417646	
TIME WARNER COMMUNICATIONS	85.52	417654	
C & I OIL COMPANY INC	3,751.74	417710	
ASCO	1,479.47	417739	
			6,343.67**
ROAD & BRIDGE PCT.#4			
APAC, INC. - TROTTI & THOMSOM	1,017.96	417597	
MUNRO'S	155.73	417629	
AT&T	75.30	417648	
UNITED STATES POSTAL SERVICE	.49	417675	
SIERRA SPRING WATER CO. - BT	57.84	417677	
MARTIN PRODUCT SALES LLC	169.69	417698	
SHOPPA'S FARM SUPPLY	23.37	417756	
			1,500.38**
ENGINEERING FUND			
UNITED STATES POSTAL SERVICE	2.54	417675	
			2.54**
PARKS & RECREATION			
SCHEAFFER MFG CO	1,870.55	417743	
SPRINT WASTE SERVICES LP	310.80	417749	
			2,181.35**
GENERAL FUND			
CASH ADVANCE ACCOUNT	11.00	417621	
MOTIVA ENTERPRISES LLC	8,092,721.30	417712	
			8,092,732.30*
TAX OFFICE			
SOUTHEAST TEXAS WATER	532.50	417647	
UNITED STATES POSTAL SERVICE	3,033.97	417675	
			3,566.47*
COUNTY HUMAN RESOURCES			
UNITED STATES POSTAL SERVICE	1.66	417675	
TEXAS A&M AGRILIFE EXTENSION SERVIC	175.00	417764	
			176.66*
AUDITOR'S OFFICE			

NAME	AMOUNT	CHECK NO.	TOTAL
OFFICE DEPOT	47.77	417631	
FRAN M. LEE	66.00	417662	
UNITED STATES POSTAL SERVICE	17.09	417675	
			130.86*
COUNTY CLERK			
OFFICE DEPOT	151.93	417631	
UNITED STATES POSTAL SERVICE	258.27	417675	
WESTERN MICROGRAPHICS & IMAGING	94.00	417731	
			504.20*
COUNTY JUDGE			
REGINA BELL	500.00	417590	
UNITED STATES POSTAL SERVICE	10.62	417675	
ROCKY LAWDERMILK	500.00	417682	
JAN GIROUARD & ASSOCIATES LLC	200.00	417771	
			1,210.62*
RISK MANAGEMENT			
UNITED STATES POSTAL SERVICE	3.07	417675	
			3.07*
COUNTY TREASURER			
UNITED STATES POSTAL SERVICE	235.29	417675	
			235.29*
PURCHASING DEPARTMENT			
UNITED STATES POSTAL SERVICE	98.12	417675	
			98.12*
GENERAL SERVICES			
CASH ADVANCE ACCOUNT	55.00	417621	
OLMSTED-KIRK PAPER	292.50	417632	
TIME WARNER COMMUNICATIONS	191.75	417655	
PATTILLO BROWN & HILL LLP	32,000.00	417726	
SAM'S CLUB DIRECT	54.86	417734	
DYNAMEX INC	378.99	417746	
			32,973.10*
VOTERS REGISTRATION DEPT			
UNITED STATES POSTAL SERVICE	155.15	417675	
COASTAL BUSINESS FORMS	3,413.95	417740	
			3,569.10*
ELECTIONS DEPARTMENT			
OFFICE DEPOT	147.66	417631	
UNITED STATES POSTAL SERVICE	428.75	417675	
A. RIFKIN COMPANY	402.21	417692	
			978.62*
DISTRICT ATTORNEY			
RICARDO VEGA	100.00	417659	
UNITED STATES POSTAL SERVICE	264.83	417675	
MCM ELEGANTE HOTEL	102.35	417695	
THOMSON REUTERS-WEST	1,853.64	417742	
O'CONNOR'S	115.00	417766	
			2,435.82*
DISTRICT CLERK			
OFFICE DEPOT	764.73	417631	
UNITED STATES POSTAL SERVICE	421.71	417675	
			1,186.44*
CRIMINAL DISTRICT COURT			
TODD W. LEBLANC	900.00	417591	
RENE MULHOLLAND	329.80	417660	
KEVIN S. LAINE	1,218.75	417664	
JASON ROBERT NICKS	1,950.00	417715	
THE DAWS LAW FIRM PLLC	1,400.00	417747	
			5,798.55*
252ND DISTRICT COURT			
TODD W. LEBLANC	800.00	417591	

NAME	AMOUNT	CHECK NO.	TOTAL
JIMMY D. HAMM	900.00	417616	
UNITED STATES POSTAL SERVICE	107.65	417675	
SUMMER TANNER	45.50	417699	
DUSTIN R. GALMOR	1,000.00	417721	
JAMES R. MAKIN, P.C.	408.72	417722	
SOUTHEAST TEXAS PSYCHIATRY PA	595.00	417727	
WILLIAM MARCUS WILKERSON	800.00	417735	
STEVEN GREENE	810.16	417745	
SAMUEL & SON LAW FIRM PLLC	399.00	417755	
			5,866.03*
279TH DISTRICT COURT			
OFFICE DEPOT	101.60	417631	
ANITA F. PROVO	150.00	417637	
UNITED STATES POSTAL SERVICE	10.40	417675	
TONYA CONNELL TOUPS	75.00	417703	
TARA SHELANDER	75.00	417752	
DANE DENNISON	75.00	417753	
MELANIE AIREY	75.00	417758	
THE CEDILLO LAW FIRM	75.00	417761	
			637.00*
317TH DISTRICT COURT			
PHILLIP DOWDEN	2,000.00	417596	
THOMAS J. BURBANK, P.C.	325.00	417600	
TERRENCE HOLMES	75.00	417619	
PENGAD	53.45	417634	
ANITA F. PROVO	1,143.75	417637	
NATHAN REYNOLDS, JR.	500.00	417639	
CHARLES ROJAS	1,000.00	417667	
TONYA CONNELL TOUPS	75.00	417703	
MICHAEL WALZEL	500.00	417711	
THE DAWS LAW FIRM PLLC	500.00	417747	
MATUSKA LAW FIRM	475.00	417750	
TARA SHELANDER	1,000.00	417752	
LAW OFFICE OF J SCOTT FREDERICK	75.00	417759	
			7,722.20*
JUSTICE COURT-PCT 1 PL 1			
UNITED STATES POSTAL SERVICE	41.18	417675	
			41.18*
JUSTICE COURT-PCT 2			
OFFICE DEPOT	20.12	417631	
			20.12*
JUSTICE COURT-PCT 4			
AT&T	75.30	417648	
INDEPENDENT STATIONERS	63.22	417724	
			138.52*
JUSTICE COURT-PCT 6			
UNITED STATES POSTAL SERVICE	47.55	417675	
			47.55*
COUNTY COURT AT LAW NO.1			
LEXIS-NEXIS	47.00	417676	
			47.00*
COUNTY COURT AT LAW NO. 2			
BRUCE W. COBB	250.00	417606	
TRAVIS EVANS	250.00	417610	
JOHN E MACEY	300.00	417625	
OFFICE DEPOT	75.49	417631	
ELIZABETH PARKS	1,450.15	417633	
CHARLES ROJAS	250.00	417667	
UNITED STATES POSTAL SERVICE	12.06	417675	
DANIEL CLAYTON	1,300.00	417679	
LANGSTON ADAMS	250.00	417683	
TERRENCE ALLISON	250.00	417736	
			4,387.70*
COUNTY COURT AT LAW NO. 3			

NAME	AMOUNT	CHECK NO.	TOTAL
TRAVIS EVANS	250.00	417610	
KARLA J. M. ROGERS	250.00	417641	
UNITED STATES POSTAL SERVICE	16.64	417675	
ANTOINE FREEMAN	350.00	417704	
			866.64*
COURT MASTER			
UNITED STATES POSTAL SERVICE	1.25	417675	
			1.25*
MEDIATION CENTER			
OFFICE DEPOT	76.53	417631	
SOUTHEAST TEXAS WATER	50.65	417647	
UNITED STATES POSTAL SERVICE	7.07	417675	
			134.25*
SHERIFF'S DEPARTMENT			
KAY ELECTRONICS, INC.	496.25	417622	
MOORMAN & ASSOCIATES, INC.	150.00	417628	
OFFICE DEPOT	574.62	417631	
PORT ARTHUR NEWS, INC.	209.75	417636	
UNITED STATES POSTAL SERVICE	1,074.07	417675	
BEAUMONT OCCUPATIONAL SERVICE, INC.	32.95	417680	
FIVE STAR FEED	115.50	417688	
CODE BLUE POLICE SUPPLY	140.00	417691	
ATTABOY TERMITE & PEST CONTROL	55.00	417713	
3L PRINTING COMPANY	75.00	417770	
			2,923.14*
CRIME LABORATORY			
ACCUTOX, INC.	93.04	417587	
OFFICE DEPOT	328.93	417631	
LARRY'S REFRIGERATION	220.00	417668	
CAYMAN CHEMICAL COMPANY	490.00	417716	
			1,131.97*
JAIL - NO. 2			
JOHNSTONE SUPPLY	99.53	417593	
COASTAL WELDING SUPPLY	37.20	417605	
COBURN'S, BEAUMONT BOWIE (1)	54.54	417607	
ECOLAB	399.90	417609	
HERNANDEZ OFFICE SUPPLY, INC.	694.04	417617	
M&D SUPPLY	35.90	417624	
OFFICE DEPOT	777.60	417631	
SANITARY SUPPLY, INC.	762.80	417643	
SCOTT EQUIPMENT, INC.	1,761.99	417644	
AT&T	1,350.08	417648	
SUTHERLAND LUMBER CO.	68.96	417649	
WORTH HYDROCHEM	327.00	417661	
ADVANCED SYSTEMS & ALARM SERVICES,	2,215.00	417666	
LOWE'S HOME CENTERS, INC.	184.87	417681	
TEXAS GAS SERVICE	616.88	417686	
CODE BLUE POLICE SUPPLY	405.00	417691	
ACT PIPE AND SUPPLY	219.64	417709	
WORLD FUEL SERVICES	383.33	417714	
FIVE STAR CORRECTIONAL SERVICE	16,196.55	417718	
ORALINE INC	6,050.00	417720	
INDUSTRIAL & COMMERCIAL MECHANICAL	3,039.06	417732	
EPIC CARD SERVICES LLC	873.28	417733	
THOMSON REUTERS-WEST	888.00	417741	
WOLFE'S TROPHY SHOP	182.00	417757	
STEPHEN PIEPER	64.00	417769	
			37,687.15*
JUVENILE PROBATION DEPT.			
UNITED STATES POSTAL SERVICE	13.46	417675	
CHRISTAL CHANNELL	36.18	417765	
			49.64*
JUVENILE DETENTION HOME			
OAK FARM DAIRY	229.50	417663	
FLOWERS FOODS	81.49	417689	
BEN E KEITH FOODS	2,495.78	417690	

NAME	AMOUNT	CHECK NO.	TOTAL
CENTERPOINT ENERGY RESOURCES CORP	667.55	417694	
			3,474.32*
CONSTABLE PCT 1			
CASH ADVANCE ACCOUNT	496.58	417621	
UNITED STATES POSTAL SERVICE	21.10	417675	
			517.68*
CONSTABLE-PCT 2			
CASH ADVANCE ACCOUNT	468.58	417621	
TAC - TEXAS ASSN. OF COUNTIES	230.00	417650	
			698.58*
CONSTABLE-PCT 4			
AT&T	37.65	417648	
			37.65*
CONSTABLE-PCT 6			
CASH ADVANCE ACCOUNT	1,577.66	417621	
UNITED STATES POSTAL SERVICE	20.75	417675	
			1,598.41*
CONSTABLE PCT. 8			
TAC - TEXAS ASSN. OF COUNTIES	35.00	417651	
TAC - TEXAS ASSN. OF COUNTIES	60.00	417652	
			95.00*
COUNTY MORGUE			
ISI COMMERCIAL REFRIGERATION	460.94	417620	
A1 FILTER SERVICE COMPANY	55.20	417729	
			516.14*
AGRICULTURE EXTENSION SVC			
UNITED STATES POSTAL SERVICE	58.31	417675	
			58.31*
HEALTH AND WELFARE NO. 1			
ENTERGY	16.69	417614	
MUNRO'S	52.45	417629	
MCKESSON MEDICAL-SURGICAL INC	427.10	417665	
UNITED STATES POSTAL SERVICE	64.42	417675	
PDR DISTRIBUTION LLC	59.95	417728	
EXCEL MEDICAL WASTE LLC	70.00	417762	
			690.61*
HEALTH AND WELFARE NO. 2			
BROUSSARD'S MORTUARY	1,500.00	417599	
CITY OF PORT ARTHUR - WATER DEPT.	40.00	417603	
CLAYBAR FUNERAL HOME, INC.	2,499.00	417604	
O.W. COLLINS APARTMENTS	313.68	417608	
ENTERGY	70.00	417615	
OFFICE DEPOT	635.06	417631	
MCKESSON MEDICAL-SURGICAL INC	229.08	417665	
			5,286.82*
NURSE PRACTITIONER			
SIERRA SPRING WATER CO. - BT	14.63	417678	
			14.63*
CHILD WELFARE UNIT			
BEAUMONT OCCUPATIONAL SERVICE, INC.	217.70	417680	
			217.70*
ENVIRONMENTAL CONTROL			
KIRKSEY'S SPRINT PRINTING	46.35	417623	
OFFICE DEPOT	13.29	417631	
AT&T	51.20	417648	
			110.84*
INDIGENT MEDICAL SERVICES			
GUARDIAN FORCE	80.00	417589	
LOCAL GOVERNMENT SOLUTIONS LP	3,773.00	417705	
LAGNIAPPE PHARMACY SERVICES LLC	56.88	417751	
			3,909.88*
MAINTENANCE-BEAUMONT			

NAME	AMOUNT	CHECK NO.	TOTAL
M&D SUPPLY	183.88	417624	
MCCOWN PAINT & SUPPLY OF TEXAS	363.72	417627	
NEDERLAND FRAME SHOP	31.46	417717	
TEXAS GENERAL LAND OFFICE SEMP	113.18	417748	
BK INDUSTRIAL SOLUTIONS LLC	985.89	417760	
			1,678.13*
MAINTENANCE-PORT ARTHUR			
GUARDIAN FORCE	160.00	417589	
TRIANGLE LOCKSMITH	534.50	417592	
ENTERGY	641.14	417612	
MAVERICK COMMUNICATIONS, INC.	112.37	417626	
TIME WARNER COMMUNICATIONS	300.30	417653	
MEMBER'S BUILDING MAINTENANCE LLC	2,524.60	417744	
			4,272.91*
MAINTENANCE-MID COUNTY			
RITTER @ HOME	13.05	417640	
ACE IMAGEWEAR	29.12	417645	
CENTERPOINT ENERGY RESOURCES CORP	232.60	417694	
A1 FILTER SERVICE COMPANY	93.50	417729	
MEMBER'S BUILDING MAINTENANCE LLC	1,925.52	417744	
			2,293.79*
SERVICE CENTER			
MUNRO'S	43.20	417629	
PHILPOTT MOTORS, INC.	225.91	417635	
TRI-CON, INC.	11,317.59	417657	
JEFFERSON CTY. TAX OFFICE	7.50	417669	
JEFFERSON CTY. TAX OFFICE	7.50	417670	
JEFFERSON CTY. TAX OFFICE	7.50	417671	
THE FRONT END SHOP	215.00	417685	
BUMPER TO BUMPER	278.01	417693	
AIRPORT GULF TOWING LLC	220.00	417696	
BEAUMONT ENGINE & BALANCING SERVICE	25.00	417697	
MIGHTY OF SOUTHEAST TEXAS	132.76	417725	
			12,479.97*
VETERANS SERVICE			
UNITED STATES POSTAL SERVICE	19.36	417675	
HILARY GUEST	114.26	417684	
			133.62*
			8,245,385.55**
MOSQUITO CONTROL FUND			
HILO / O'REILLY AUTO PARTS	189.12	417588	
CARROLL & BLACKMAN, INC.	612.00	417594	
SUPERIOR TIRE & SERVICE	49.28	417595	
MUNRO'S	172.40	417629	
CENTERPOINT ENERGY RESOURCES CORP	190.30	417694	
PARKER LUMBER	9.79	417719	
			1,222.89**
LAW LIBRARY FUND			
THOMSON REUTERS-WEST	4,129.08	417741	
			4,129.08**
JUVENILE DETENTION - TJPC			
VERIZON WIRELESS	56.33	417672	
			56.33**
GRANT A STATE AID			
VICTORIA COUNTY JUVENILE SERVICES	6,754.46	417706	
			6,754.46**
COMMUNITY SUPERVISION FND			
CASH ADVANCE ACCOUNT	685.25	417621	
OFFICE DEPOT	980.26	417631	
FRED PRYOR SEMINARS & CAREER TRACK	298.00	417638	
UNITED STATES POSTAL SERVICE	123.28	417675	
			2,086.79**
JEFF. CO. WOMEN'S CENTER			

NAME	AMOUNT	CHECK NO.	TOTAL
AT&T	131.38	417648	
BEN E KEITH FOODS	1,042.14	417690	
LAW OFFICER TRAINING GRT			1,173.52**
BEAUMONT POLICE DEPARTMENT	195.07	417598	
COUNTY CLERK - RECORD MGT			195.07**
FILEX SYSTEMS, INC.	3,036.00	417723	
COUNTY RECORDS MANAGEMENT			3,036.00**
UNITED STATES POSTAL SERVICE	13.47	417675	
HOTEL OCCUPANCY TAX FUND			13.47**
DISH NETWORK	110.52	417701	
STARS OVER TEXAS SOFTBALL	1,575.00	417702	
COUNTY CLERK ELECTION CON			1,685.52**
HOLIDAY INN - BEAUMONT PLAZA	8,425.32	417618	
AIRPORT FUND			8,425.32**
HILO / O'REILLY AUTO PARTS	7.99	417588	
ENTERGY	298.19	417613	
RALPH'S INDUSTRIAL ELECTRONICS	19.10	417642	
SANITARY SUPPLY, INC.	388.10	417643	
UNITED STATES POSTAL SERVICE	8.32	417675	
LOWE'S HOME CENTERS, INC.	23.41	417681	
CENTERPOINT ENERGY RESOURCES CORP	2,307.67	417694	
DISH NETWORK	95.52	417700	
SAM'S CLUB DIRECT	73.88	417734	
ADVANCE AUTO PARTS	6.00	417737	
KONECRANES INC	1,137.50	417738	
EASTERN AVIATION FUELS INC	21,245.64	417754	
AIRPORT IMPROVE. GRANTS			25,611.32**
APAC, INC. - TROTTI & THOMSOM	241,401.22	417597	
ALLCO, INC.	216,093.13	417673	
LIABILITY CLAIMS ACCOUNT			457,494.35**
STEVENS BALDO FREEMAN & LIGHTY LLP	731.43	417730	
CALVERT EAVES CLARKE & STELLY LLP	121.47	417763	
			852.90**
			8,772,765.05***

STATE OF TEXAS	)(	AMENDED AGREEMENT REGARDING PLAT APPROVAL AUTHORITY IN THE
COUNTY OF TEXAS	)(	EXTRATERRITORIAL JURISDICTION

WHEREAS, the County of Jefferson and the City of Beaumont did on April 8, 2002, pursuant to Section 242.001, Local Government Code, enter a written agreement identifying the governmental entity authorized to regulate subdivision plats and approve related permits in the extraterritorial jurisdiction (ETJ) of the City of Beaumont; and

WHEREAS, the Jefferson County, Texas and the City of Beaumont wish to Amend this Interlocal Government Agreement, a copy of which is attached as Exhibit "A" and incorporated herein as if copied in full; and

WHEREAS, the parties now agree to be bound by all of the terms and conditions of the agreement of April 8, 2002 except that the definitions, terms and conditions expressly amended herein will be in full force and effect from the date of execution of this agreement.

NOW, THEREFORE, the parties agree that these specific amendments to the Subdivision and Site Development Regulations for the City of Beaumont are to be in effect:

Definitions

1. Section 26.01.006 – Planning Area: the Planning Area shall constitute an area beginning two (2) miles from the corporate limits of the City and extending out an additional three (3) miles to the boundary of the five (5) mile extraterritorial jurisdiction of the City.
2. Section 26.03.002(12) –Streets: For subdivisions located within the Planning Area, as defined herein, street design, construction and acceptance shall be in accordance with the standards set forth in the Jefferson County Subdivision and Development Regulations and approved by the County Engineer. Curbs are not required and open roadside ditches may be used for drainage.
3. Section 26.03.004 (4) –Sidewalks: Sidewalks within the Planning Area, as defined herein, shall not be required.
4. Section 26.003.008(d) – Streetlights: For subdivisions located within the Planning Area, as defined herein, streetlights shall not be required.

WHEREAS, at a Joint Public hearing held on January 25, 2016, the Planning Commission for the City of Beaumont recommended the amendments recited hereinabove.

Jefferson County	**City of Beaumont**
Jeff R. Branick, County Judge	**Becky Ames, Mayor of Beaumont**
2.22.16	
Date	**Date**

Resolution

STATE OF TEXAS § COMMISSIONERS' COURT
§
COUNTY OF JEFFERSON § OF JEFFERSON COUNTY, TEXAS

BE IT REMEMBERED at a meeting of Commissioners' Court of Jefferson County, Texas, held on the 22nd day of February, 2016, on motion made by Eddie Arnold, Commissioner of Precinct No. 1, and seconded by Michael S. Sinegal, Commissioner of Precinct No. 3, the following Resolution was adopted:

A RESOLUTION APPROVING SUBMISSION OF THE GRANT APPLICATION FOR THE JEFFERSON COUNTY DRUG INTERVENTION COURT

WHEREAS, illicit drug related crime consumes limited criminal justice resource and is responsible for a large backlog in our criminal courts dockets, prison overcrowding, and is a major contributor to social and economic problems in our communities; and,

WHEREAS, the mission of the Jefferson County Drug Intervention Court is to reduce the number of felony offenders who are recycled through the criminal justice system by breaking the cycle of drugs and crime in Jefferson County, Texas; and,

WHEREAS, the Jefferson County Drug Intervention Court has been operational since April 1993 and has provided judicially supervised substance abuse treatment to over 4,200 offenders; and,

WHEREAS, the Commissioners Court of Jefferson County, Texas, finds it in the best interest of the citizens of Jefferson County, Texas, that the Jefferson County Drug Intervention Court be operated for the period September 1, 2016 through August 31, 2017; and,

WHEREAS, the Commissioners Court of Jefferson County, Texas, agrees to provide applicable matching funds for the said project as required by the Office of the Governor, Criminal Justice Division grant application; and,

WHEREAS, the Commissioners Court of Jefferson County, Texas, agrees that in the event of loss or misuse of the Criminal Justice Division funds, the Commissioners Court of Jefferson County, Texas, assures that the funds will be returned to the Criminal Justice Division in full.

WHEREAS, the Commissioners Court of Jefferson County, Texas, designates Jeff Branick, County Judge, as the grantee's authorized official. The authorized official is given the power to apply for, accept, reject, alter or terminate the grant on behalf of the applicant agency.

NOW THEREFORE, BE IT RESOLVED that the Commissioners Court of Jefferson County, Texas, approves submission of the grant application for the Jefferson County Drug Intervention Court to the Office of the Governor, Criminal Justice Division.

Grant Application Number:1604516

SIGNED this 22nd day of February, 2016.

JUDGE JEFF R.BRANICK
County Judge

COMMISSIONER EDDIE ARNOLD
Precinct No. 1

COMMISSIONER MICHAEL S. SINEGAL
Precinct No. 3

COMMISSIONER BRENT A. WEAVER
Precinct No. 2

COMMISSIONER EVERETTE D. ALFRED
Precinct No. 4

Resolution

STATE OF TEXAS	§	COMMISSIONERS' COURT
	§	
COUNTY OF JEFFERSON	§	OF JEFFERSON COUNTY, TEXAS

BE IT REMEMBERED at a meeting of Commissioners' Court of Jefferson County, Texas, held on the 22nd day of February, 2016, on motion made by Eddie Arnold, Commissioner of Precinct No. 1, and seconded by Michael Sinegal, Commissioner of Precinct No. 3, the following RESOLUTION was adopted:

WHEREAS, the Jefferson County Commissioners' Court finds it in the best interest of the citizens of Jefferson County that the Juvenile Justice and Delinquency Prevention Allocation to States Grant be operated for the fiscal year 2017; and in the amount of $140,138 CJD funds with no matching funds requirement; and,

WHEREAS, the Jefferson County Commissioners'' Court has authorized the County Judge, Jeff Branick, to apply for, accept, reject, alter, or terminate the grant; and

WHEREAS, the Jefferson County Commissioners' Court has agreed to provide the minimum matching percentage for the said project as required by the Governor's Office, CJD grant application; and

WHEREAS, the Jefferson County Commissioners' Court has agreed that in the event of loss or misuse of the Criminal Justice Division Funds, Jefferson County Commissioners' Court assure that the funds will be returned to the Criminal Justice Division in full.

NOW, THEREFORE, BE IT RESOLVED that the Commissioners' Court of Jefferson County, Texas, does hereby approve submission of the grant application for the Juvenile Accountability Incentive Block Grant to the Office of the Governor, Criminal Justice Division.

SIGNED this 22nd day of February, 2016.

JUDGE JEFF R. BRANICK
County Judge

COMMISSIONER EDDIE ARNOLD
Precinct No. 1

COMMISSIONER MICHAEL S. SINEGAL
Precinct No. 3

COMMISSIONER BRENT A. WEAVER
Precinct No. 2

COMMISSIONER EVERETTE D. ALFRED
Precinct No. 4

JEFFERSON COUNTY SHERIFF'S OFFICE

SHERIFF G. MITCH WOODS

CHIEF TIM SMITH
LAW ENFORCEMENT

CHIEF GEORGE MILLER
CORRECTIONS

CHIEF MARK DUBOIS
SERVICES

CHIEF RON HOBBS
NARCOTICS

To: Honorable Judge Jeff R. Branick
Commissioner Eddie Arnold
Commissioner Brent Weaver
Commissioner Michael Sinegal
Commissioner Everette "Bo" Alfred

From: Deputy Chief Ron Hobbs

Subject: Out of State Training

Date: February 16, 2016

Consider and possibly approve out of state training for Deputy Allen Burleson to attend The National Interdiction Conference in Reno, Nevada, on March 13-18, 2016. This trip is not budgeted. All expenses will be paid from the Sheriff's Asset Forfeiture Fund. While the training is not mandatory, it does directly apply to Deputy Burleson's assignment as the newest member of our drug interdiction unit. This training is not available in Texas.

Sincerely,

Deputy Chief Ron Hobbs,
Narcotics Task Force
Jefferson County Sheriff's Office

Special, February 22, 2016

There being no further business to come before the Court at this time, same is now here adjourned on this date, February 22, 2016