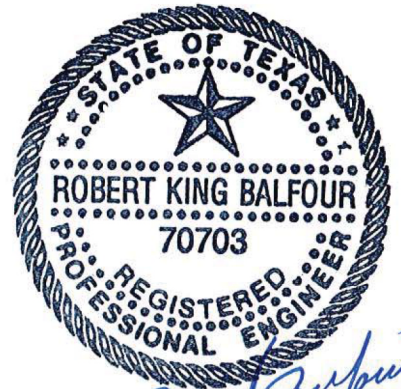




JEFFERSON COUNTY

PLANS & SPECIFICATIONS FOR THE PROPOSED JEFFERSON COUNTY HEALTH CLINIC

860 4TH Street
Port Arthur, Texas 77640



Robert King Balfour
6/12/2014



03-10-2014
Expires 04-30-2015



Chica & Associates, Inc.

Consulting Engineers

Texas Registered Engineering Firm F-1062
505 Orleans, Suite 106 Beaumont, Texas 77701
Ph: (409) 833-4343 Fax: (409) 833-8326

White Rock Studio, LLC



1407 San Saba Drive
Dallas, Texas 75218
214.763.0416



JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1149 Pearl Street, Beaumont, TX 77701 409-835-8593 Fax 409-835-8456

July 2, 2014
Legal Notice

Dear Bidders:

You are invited to submit bids in accordance with specifications packet, Invitation for Bid (IFB 14-018/KJS) Jefferson County New Health Clinic- (TDRA- Round I Disaster Project Now Funded by GLO) All bids must be submitted with an original and three (3) copies to the Jefferson County Purchasing Agent, 1149 Pearl Street, 1st Floor, Beaumont, Texas 77701, no later than 11:00 AM, Tuesday, **July 29, 2014**. Bids will be publicly opened and read at that time.

Specifications and plans for this project may be obtained from the website, <http://www.co.jefferson.tx.us>, under Purchasing/Notice for Bids, by calling (409) 835-8593, or on a Disc for a non-refundable fee of \$25.00 from Chica and Associates, Inc., 505 Orleans St., Suite 106 Beaumont, Texas 77701. Contact Robert Balfour at (409) 833-4343. Any questions relating to these requirements should be directed to Karen J. Smith, MBA, Assistant Purchasing Agent, at 409-835-8593.

A Mandatory Pre-Bid Conference will be held on **July 15, 2014 at 9:00 AM CST**. The conference will be held in the Jefferson County Engineering Department Conference Room located on the fifth floor of the Jefferson County Courthouse, 1149 Pearl Street, Beaumont, Texas 77701.

The County shall require the bidder to furnish a bid security in the amount of five percent (5%) of the total contract cost. The bid bond must be executed with a surety company authorized to do business in the State of Texas. 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.

All Bids shall be submitted to the Jefferson County Purchasing Agent in a sealed envelope marked:

BID NAME:	Jefferson County New Health Clinic- (TDRA- Round I Disaster Project Now Funded by GLO)
BID NO:	14-018/KJS
DUE DATE/TIME:	11:00 AM, July 29, 2014
MAIL OR DELIVER TO:	Jefferson County Purchasing Department 1149 Pearl Street, 1st Floor Beaumont, TX 77701

Sincerely,

Deborah L. Clark
Jefferson County
Purchasing Agent
Publish: [REDACTED]

IFB 14-018/KJS

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Notice to Bidders

SEALED BIDS SHALL BE SUBMITTED TO:

**JEFFERSON COUNTY PURCHASING DEPARTMENT, FIRST FLOOR
JEFFERSON COUNTY COURTHOUSE
1149 PEARL STREET, BEAUMONT, TEXAS 77701**

NO LATER THAN 11:00 AM, CENTRAL TIME, TUESDAY, July 29, 2014

MARK ENVELOPE:

“IFB 14-018/KJS- Jefferson County New Health Clinic- (TDRA- Round I Disaster Project Now Funded by GLO) “JEFFERSON COUNTY WILL NOT BE RESPONSIBLE

FOR UNMARKED OR IMPROPERLY MARKED ENVELOPES.

There is no expressed or implied obligation for Jefferson County to reimburse responding bidders for any expense incurred in preparing bid in response to this request and Jefferson County will not reimburse bidders for these expenses.

All bids must be received in the Purchasing Department before opening date at 11:00 AM. Bids received after the date and time above will be considered void and unacceptable and returned to the vendor unopened. Jefferson County is not responsible for lateness or non-delivery of mail, carrier, etc., and the date/time stamp in the Purchasing Office shall be the official time of receipt.

PLEASE TAKE NOTE OF THE FOLLOWING COUNTY HOLIDAYS:

1. County Holidays – 2014

January 1	Wednesday	New Year's Day
January 20	Monday	Martin Luther King, Jr. Day
February 17	Monday	President's Day
April 18	Friday	Good Friday
May 26	Monday	Memorial Day
July 4	Friday	Independence Day
September 1	Monday	Labor Day
November 11	Tuesday	Veterans Day
November 27-28	Thursday-Friday	Thanksgiving
December 25-26	Thursday-Friday	Christmas

FACSIMILE TRANSMITTALS SHALL NOT BE ACCEPTED.

The enclosed **Notice to Bidders** and accompanying **Specifications and Bid Forms** must be completed prior to submission. Failure to complete forms/affidavits may render your bid null and void. Bids will be opened and read aloud in the Commissioners' Courtroom, Fourth Floor, 1149 Pearl Street, Beaumont, Texas.

In the event the Commissioners' Courtroom is in use at time of opening, bids will be opened in the Conference Room of the County Judge.

Hours for the Purchasing Department are 8:00 am – 5:00 pm central time, Monday - Friday.

GENERAL TERMS AND CONDITIONS OF BIDDING AND TERMS OF CONTRACT

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

A. Bidding

- 1.1 Bid documents, including the bid, the bid bond, and the statement of bidders' qualifications, shall be sealed in an envelope and clearly labeled with the words "Bid Documents," the IFB number (14-018/KJS), name of bidder, and the date and time of bid opening.
- 1.2 Bids must be submitted in complete original form by mail or messenger to the following address:

Jefferson County Purchasing Department
1149 Pearl Street, First Floor
Beaumont, TX 77701
- 1.3 All bids must be submitted on the bid form furnished in this package.
- 1.4 The bid shall be legibly printed in ink or typed.
- 1.5 Erasures or other corrections in the bid must be noted over the signature of the bidder.
- 1.6 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.
- 1.7 Authorized Signatures. The bid must be executed personally by the bidder, 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 bidder shall accompany the bid to become a valid bid, and must include the complete address of the bidder.
- 1.8 Late Bids. Bids must be in the Purchasing Department before or at 11:00am by submission deadline. Bids received after 11:00am, the submission deadline, shall be rejected as non-responsive and returned unopened.
- 1.9 Withdrawal of Bids Prior to Bid Opening. A bid may be withdrawn before opening 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 11:00am submission deadline. Jefferson County reserves the right to withdraw a request for bids before the specified opening date and time.
- 1.10 Withdrawal of Bids After Bid Opening. Bidder agrees that its offer may not be withdrawn or cancelled by the bidder 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.
- 1.11 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.
- 1.12 Exceptions and/or Substitutions. All bids meeting the intent of the specifications and plans will be considered for award. Bidders taking exception to the specifications and plans, or offering substitutions, shall state these exceptions in the section

provided. The absence of stated exceptions and/or substitutions shall indicate that the bidder 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.

- 1.13 Alternates. No alternate bids or bid items will be considered unless they are specifically requested by the technical specifications.
- 1.14 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.
- 1.15 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.
- 1.16 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.
- 1.17 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.
- 1.18 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.
- 1.19 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.
- 1.20 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 distributed to all known recipients of bid documents. Bidders shall acknowledge receipt of all addenda with submission of bid.
- 1.21 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. Bids shall be accompanied by a bid guarantee of not less than five percent (5%) of the amount of the total bid which shall be a Certified Check or Cashier's Check payable without recourse to Jefferson County, or a bid bond with corporate surety authorized to conduct business in Texas.
- 1.22 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.

- 1.23 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.
- 1.24 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.
- 1.25 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 bidder. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing Open Records Acts.
- 1.26 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. Inspection of Site

- 2.1 Each bidder should visit the site of the proposed work and become fully acquainted with the existing conditions there and should fully inform himself as to the facilities involved, the difficulties and restrictions attending the performance of the contract. The bidder should thoroughly examine and familiarize himself with the drawings, technical specifications and all other contract documents. The contractor by the execution of the contract shall in no way be relieved of any obligation under it due to his failure to receive or examine any form or legal document or to visit the site or acquaint himself with the conditions there existing. The city/county will be justified in rejecting any claim based on lack of inspection of the site prior to the bid.

3. Performance

- 3.1 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.
- 3.2 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.

- 3.3 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.
- 3.4 Delivery Schedule. Delivery time may be an important consideration in the evaluation of best value. The maximum number of days necessary for delivery ARO (after receipt of order) shall be stated in the space, if provided, on the bid form.
- 3.5 Delivery Charges. 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.
- 3.6 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.
- 3.7 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.
- 3.8 Storage. Bidder agrees to provide storage of custom ordered materials, if requested, for up to thirty (30) calendar days.
- 3.9 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 in effect for Jefferson County or the State of Texas at the time of performance.
- 3.10 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.
- 3.11 Patents and Copyrights. The successful vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.
- 3.12 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.
- 3.13 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.

- 3.14 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.
- 3.15 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.
- 3.16 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 the right to contact any bidder, at any time, to clarify, verify or request information with regard to this bid.

4. Notice to Proceed/Purchase Orders and Payment

- 4.1 Purchase Orders. A purchase order(s) or written Notice to Proceed 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.
- 4.2 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. Invoices should be sent directly to the Jefferson County Auditor, Patrick Swain, located at 1149 Pearl Street, Seventh Floor, Beaumont, Texas 77701.
- 4.3 Prompt Payment. In accordance with the State of Texas Prompt Payment Act, Article 601f V.T.C.S., payment will be made after receipt 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.

- 4.4 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.

5. Contract

- 5.1 Contract Definition/Contract Agreement. 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.

5.2 Changes in the Work

- 5.2.1 The Owner may make changes in the scope of work required to be performed by the Contractor under the Contract without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise. Additionally, all such change orders must be approved by the CDBG staff prior to execution of same.

- 5.2.2 Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.

- 5.2.3 If applicable unit prices are contained in the Agreement, the Owner may order the Contractor to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by eighteen percent (18%).

- 5.2.4 Each change order shall include in its final form:

5.2.4.1 A detailed description of the change in the work.

5.2.4.2 The Contractor's proposal (if any) or a confirmed copy thereof.

5.2.4.3 A definite statement as to the resulting change in the contract price and/or time.

5.2.4.4 The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.

5.2.4.5 The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

5.3 Claims for Extra Cost

- 5.3.1 If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Owner, stating clearly

and in detail the basis of his objections. No such claim will be considered unless so made.

- 5.3.2 Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- 5.3.3 Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the Owner and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Owner.
- 5.3.4 If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

5.4 Termination, Delays, and Liquidated Damages

- 5.4.1 Right of the Owner to Terminate Contract. In the event that any of the provisions of this contract are violated by the Contractor, or by any of his sub-contractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the contract. The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and complete the project by bid/contract or by force account at the expense of the Contractor and his Surety shall be liable to the Owner for any excess cost incurred. In such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.
- 5.4.2 Liquidated Damages for Delays. If the work is not completed within the number of working days stipulated in the applicable bid for Lump Sum or Unit Price Contract provided, the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of \$250.00 Dollars for each calendar day of delay, until the work is completed. The Contractor and his sureties shall be liable to the Owner for the amount thereof.
- 5.4.3 Excusable Delays.
 - 5.4.3.1 The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:
 - 5.4.3.2 Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;
 - 5.4.3.3 Any acts of the Owner;

- 5.4.3.4 Causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.
 - 5.4.3.5 Provided, however, that the Contractor promptly notifies the Owner within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.
- 5.5 Assignment or Novation. The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.
- 5.6 Disputes.
 - 5.6.1 All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of commencement of the dispute, be presented by the Contractor to the Owner for decision. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt of the Owner.
 - 5.6.2 The Contractor shall submit in detail his claim and his proof thereof.
 - 5.6.3 If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest.
- 5.7 Conflict of Interest.
 - 5.7.1 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.
 - 5.7.2 When conflict of interest is discovered, it shall be grounds for termination of contract.

- 5.8 Injuries or Damages Resulting from Negligence. Successful bidder 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 bidder, or of any agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from bid award. Successful bidder shall pay any judgment with related court costs, which may be obtained against Jefferson County growing out of such injury or damages.
- 5.9 Interest by Public Officials. No public official shall have interest in this contract except, in accordance with Texas Local Government Code.
- 5.10 Warranty. The successful bidder 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.
- 5.11 Uniform Commercial Code. The successful bidder and Jefferson County agree that both parties have all rights, duties, and remedies available as stated in the Uniform Commercial Code, subject to and enforceable according to the laws of the State of Texas.
- 5.12 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.
- 5.13 Sale, Assignment, or Transfer of Contract. The successful bidder shall not sell, assign, transfer or convey this contract, in whole or in part, without the prior written consent of Jefferson County.
- 5.14 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.

6. Execution of Agreement/Performance and Payment Bonds

- 6.1 Performance and Payment Bonds requires all prime contractors which enter into a formal contract in excess of \$25,000 with the State, any department, board, agency, municipality, county, school district, or any division or subdivision thereof, to obtain a Payment Bond in the amount of the contract before commencing with work and a performance bond for public works contracts in excess of \$100,000.
- 6.2 The failure of the successful bidder to execute the agreement and supply the required bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as Jefferson County may grant, shall constitute a default and Jefferson County may, at its option, either award the contract to the next lowest responsible bidder, or re-advertise for bids. In either case, Jefferson County may charge against the bidder the difference between the amount of the bid and the amount for which a contract is subsequently executed, irrespective of whether this difference exceeds the amount of the bid bond. If a more favorable bid is received through re-advertisement, the defaulting bidder shall have no claim against Jefferson County for a refund.

7. Statement of Bidder's Qualifications

- 7.1 Each bidder shall submit on the form furnished for that purpose a statement of the bidder's qualifications. Jefferson County shall have the right to take such steps as it deems necessary to determine the ability of the bidder to perform his obligations

under the contract, and the bidder shall furnish Jefferson County all such information and data for this purpose as it may request. The right is reserved to reject any bid where an investigation of the available data does not satisfy Jefferson County that the bidder is qualified to carry out properly the terms of the contract.

8. Interpretation of Addenda

8.1 No oral interpretations will be made to any bidder. Each request for an interpretation shall be made in writing to Jefferson County or engineer no less than seven (7) days prior to the bid opening. Each interpretation will be in the form of an Addendum to the contract documents and will be distributed to all parties holding contract documents no less than five (5) days prior to the bid opening. It is, however, the bidder's responsibility to make inquiry as to any addenda issued. All such addenda shall become part of the contract documents and all bidders shall be bound by such addenda, whether or not received by the bidders.

9. Minority-Women Business Enterprise Participation

9.1 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.

10. Non Discrimination

10.1 The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate.

11. Equal Employment Opportunity

11.1 Attention is called to the requirements for ensuring that employees and applicants for employment are not discriminated against because of their race, color, creed, sex, gender, or national origin.

SPECIAL REQUIREMENTS/INSTRUCTIONS

The following requirements and instructions supersede General Requirements where applicable.

1. Bid Requirement

- 1.1 Each bidder should submit as a bid this entire IFB, completed where necessary, for example, the IFB cover sheet, the Price Sheets, etc. Use an opaque envelope, **clearly indicating on the outside the Bid Number and Bid Name: (IFB 14-018/KJS) Jefferson County New Health Clinic- (TDRA- Round I Disaster Project Now Funded by GLO)**, 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.

2. Multiple Vendor Award

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

3. Delivery

- 3.1 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.

4. Payment

- 4.1 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.
- 4.2 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).

5. Payments to Contractor

- 5.1 Partial Payments
 - 5.1.1 The Contractor shall prepare his requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Jefferson County Auditor, Patrick Swain, for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) ten percent (10%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection of the Jefferson County Engineer.

5.2.2 Monthly or partial payments made by the Owner to the Contractor are moneys advanced for the purpose of assisting the contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

5.2 Final Payment

5.2.1 After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this contract shall be the amount computed as described above less all previous payments.

5.2.2 The Owner before paying the final estimate, shall require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems it necessary in order to protect its interest. The Owner may, if it deems such action advisable, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

5.2.3 Any amount due the Owner under Liquidated Damages, shall be deducted from the final payment due the contractor.

5.3 Payments Subject to Submission of Certificates. Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his subcontractors.

5.4 Withholding Payments. The Owner may withhold from any payment due the Contractor whatever is deemed necessary to protect the Owner, and if so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

6. Usage Reports

6.1 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.

7. Insurance

- 7.1 The contractor shall, at all times during the term of this contract, maintain insurance coverage 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.
- 7.2 All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents.
- 7.3 **Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as ADDITIONAL INSURED.**
- 7.4 All insurance must be written by an insurer licensed to conduct business in the State of Texas.

MINIMUM INSURANCE REQUIREMENTS

Public Liability	\$300,000.00
Property Damage	\$300,000.00
Bodily Injury	\$300,000.00
Excess Liability	\$1,000,000.00
Workers' Compensation	Statutory Coverage (see attached)

8. Workers' Compensation Insurance

- 8.1 Definitions:
 - 8.1.1 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, TWCC-81, TWCC-82, TWCC-83, or TWCC-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.
 - 8.1.2 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.
 - 8.1.3 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.
- 8.2 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.
- 8.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract.

- 8.4 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.
- 8.5 The Contractor shall obtain from each person providing services on a project, and provide to the governmental entity:
 - 8.5.1 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
 - 8.5.2 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.
- 8.6 The Contractor shall retain all required certificates of coverage for the duration of the project and for one (1) year thereafter.
- 8.7 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.
- 8.8 The Contractor shall post on each project site a notice, in the text, form and manner prescribed by the Texas Workers' Compensation Commission, 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.
- 8.9 The Contractor shall contractually require each person with whom it contracts to provide services on a project to:
 - 8.9.1 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.
 - 8.9.2 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.
 - 8.9.3 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.
 - 8.9.4 Obtain from each person with whom it contracts, and provide to the Contractor:
 - 8.9.4.1 A certificate of coverage, prior to the other person beginning work on the project; and
 - 8.9.4.2 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.
 - 8.9.5 Retain all required certificates of coverage on file for the duration of the project and for one (1) year thereafter.

- 8.9.6 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
- 8.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs I.1. – I.7., with the certificates of coverage to be provided to the person for whom they are providing services.
- 8.10 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.
- 8.11 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.

COUNTY OF JEFFERSON
STANDARD FORM OF AGREEMENT
FOR OWNER-CONTRACTOR PROJECTS

STATE of TEXAS }

JEFFERSON COUNTY }

THIS AGREEMENT, made and entered into this ____ day of _____, A.D. 2014, by and between (Grant Recipient) of the COUNTY of _____ in the STATE OF TEXAS, thereunto duly authorized so to do, Party of the First Part, hereinafter termed OWNER, and (Construction Firm) of the City of _____ County of _____ in the State of Texas, Party of the Second Part, hereinafter termed CONTRACTOR.

WITNESSETH: That for and inconsideration of the payments and agreements hereinafter mentioned, to be made and performed by the Party of the First Part (OWNER) and under the conditions expressed in the bond bearing even date herewith, the said Party of the Second Part (CONTRACTOR), hereby agrees with the said Party of the First Part (OWNER) to commence and complete the construction of certain improvements described as follow: and all extra work in connection therewith, under the terms as stated in the General Conditions of the Agreement and at his (or their) own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said construction, in accordance with the Notice to Contractors, General and Special Conditions of Agreement, Plans and other drawings and printed or written explanatory matter thereof, and the Specifications and addenda therefore, as prepared by (Project Engineer), herein entitled the ENGINEER, each of which has been identified by the CONTRACTOR and the ENGINEER, together with the CONTRACTOR'S written proposal, the General Conditions of the Agreement, the Performance and Payment Bonds hereto attached; all of which are made a part hereof and collectively evidence and constitute the entire contract.

The CONTRACTOR hereby agrees to commence work within ten (10) calendar days after the date written notice to do so shall have been given to him, and to substantially complete within _____ consecutive calendar days after issuance of the "Notice to Proceed" and to be at Final Completion within ____ consecutive calendar days after the issuance of the "Notice to Proceed", subject to such extensions of time as are provided by the General and Special Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds the price or prices shown in the proposal, which forms a part of this contract, such payments to be subject to the General and Special Conditions of the contract.

IN WITNESS WHEREOF, the parties to these presents have executed this Agreement in the year and day first above written.

Party of the First Part (OWNER)

Party of the Second Part (CONTRACTOR)

By: _____

By: _____

ATTEST: _____

ATTEST: _____

GENERAL CONTRACT CONDITIONS FOR CONSTRUCTION

1. Contract and Contract Documents

- 1.1 The project to be constructed pursuant to this contract will be financed with assistance from the CDBG and is subject to all applicable Federal and State laws and regulations.
- 1.2 The Plans, Specifications and Addenda, hereinafter enumerated in Paragraph 1 of the Supplemental General Conditions shall form part of this contract and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth.

2. Definitions

- 2.1 Whenever used in any of the contract Documents, the following meanings shall be given to the terms here in defined:
 - 2.1.1 The term "Contract" means the Contract executed between the (Name of Grant Recipient), hereinafter called the Owner and (Name of Construction Co.), hereinafter called Contractor, of which these GENERAL CONDITIONS, form a part.
 - 2.1.2 The term "Project Area" means the area within which are the specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this contract.
 - 2.1.3 The term "Engineer" means (name of engineering firm), Engineer in charge, serving the Owner with architectural or engineering services, his successor, or any other person or persons, employed by the Owner for the purpose of directing or having in charge the work embraced in this Contract.
 - 2.1.4 The term "Contract Documents" means and shall include the following: Executed Contract, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings).

3. Supervision By Contractor

- 3.1 Except where the Contractor is an individual and gives his personal supervision to the work, the Contractor shall provide a competent superintendent, satisfactory to the Local Public Agency and the Engineer, on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.
- 3.2 The Contractor shall lay out his own work and he shall be responsible for all work executed by him under the Contract. He shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

4. Subcontracts

- 4.1 The Contractor shall not execute an agreement with any subcontractor or permit any subcontractor to perform any work included in this contract until he has verified the subcontractor as eligible to participate in federally funded contracts.

- 4.2 No proposed subcontractor shall be disapproved by the city/county except for cause.
- 4.3 The Contractor shall be as fully responsible to the city/county for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them.
- 4.4 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work and required compliance by each subcontractor with the applicable provisions of the Contract.
- 4.5 Nothing contained in the Contract shall create any contractual relation between any subcontractor and the Owner.

5. Fitting and Coordination of Work

- 5.1 The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or material suppliers engaged upon this Contract.

6. Payments to Contractor

6.1 Partial Payments

6.1.1 The Contractor shall prepare his requisition for partial payment as of the last day of the month and submit it, with the required number of copies, to the Engineer for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) ten percent (10%) of the total amount, to be retained until final payment and (2) the amount of all previous payments. The total value of work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on the site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for inspection of the Engineer.

6.1.2 Monthly or partial payments made by the Owner to the Contractor are moneys advanced for the purpose of assisting the contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the Owner. Such payments shall not constitute a waiver of the right of the Owner to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the Owner in all details.

6.2 Final Payment

6.2.1 After final inspection and acceptance by the Owner of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the careful inspection of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this contract shall be the amount computed as described above less all previous payments.

6.2.2 The Owner before paying the final estimate, shall require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the Owner deems it necessary in order to protect its interest. The Owner may, if it deems such action advis-

able, make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

6.2.3 Any amount due the Owner under Liquidated Damages, shall be deducted from the final payment due the contractor.

6.3 Payments Subject to Submission of Certificates

6.3. Each payment to the Contractor by the Owner shall be made subject to submission by the Contractor of all written certifications required of him and his subcontractors.

6.4 Withholding Payments

6.4.1 The Owner may withhold from any payment due the Contractor whatever is deemed necessary to protect the Owner, and if so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers, for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the Owner and will not require the Owner to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the Owner elects to do so. The failure or refusal of the Owner to withhold any moneys from the Contractor shall in no way impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

7. Changes in the Work

7.1 The Owner may make changes in the scope of work required to be performed by the Contractor under the Contract without relieving or releasing the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless it is expressly provided otherwise. Additionally, all such change orders must be approved by the CDBG staff prior to execution of same.

7.2 Except for the purpose of affording protection against any emergency endangering health, life, limb or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the improvements or supply additional labor, services or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the Owner authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.

7.3 If applicable unit prices are contained in the Agreement, the Owner may order the Contractor to proceed with desired unit prices specified in the Contract; provided that in case of a unit price contract the net value of all changes does not increase the original total amount of the agreement by more than twenty-five percent (25%) or decrease the original the total amount by eighteen percent (18%).

7.4 Each change order shall include in its final form:

7.4.1 A detailed description of the change in the work.

7.4.2 The Contractor's proposal (if any) or a confirmed copy thereof.

7.4.3 A definite statement as to the resulting change in the contract price and/or time.

- 7.4.4 The statement that all work involved in the change shall be performed in accordance with contract requirements except as modified by the change order.
- 7.4.5 The procedures as outlined in this Section for a unit price contract also apply in any lump sum contract.

8. Claims for Extra Cost

- 8.1 If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten days after the receipt of such instructions, and in any event before proceeding to execute the work, submit his protest thereto in writing to the Owner, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.
- 8.2 Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.
- 8.3 Any discrepancies which may be discovered between actual conditions and those represented by the Drawings and maps shall be reported at once to the Owner and work shall not proceed except at the Contractor's risk, until written instructions have been received by him from the Owner.
- 8.4 If, on the basis of the available evidence, the Owner determines that an adjustment of the Contract Price and/or time is justifiable, a change order shall be executed.

9. Termination, Delays, and Liquidated Damages

- 9.1 Right of the Owner to Terminate Contract.
- 9.2 In the event that any of the provisions of this contract are violated by the Contractor, or by any of his subcontractors, the Owner may serve written notice upon the Contractor and the Surety of its intention to terminate the contract. The notices shall contain the reasons for such intention to terminate the contract, and unless such violation or delay shall cease and satisfactory arrangement of correction be made within ten days, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination, the Owner shall immediately serve notice thereof upon the Surety and the Contractor. The Surety shall have the right to take over and perform the contract. Provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and complete the project by bid/contract or by force account at the expense of the Contractor and his Surety shall be liable to the Owner for any excess cost incurred. In such event the Owner may take possession of and utilize in completing the work, such materials, appliances, and plant as may be on the site of the work and necessary therefore.
- 9.3 Liquidated Damages for Delays.
 - 9.3.1 If the work is not completed within the time stipulated in the applicable bid for Lump Sum or Unit Price Contract provided, the Contractor shall pay to the Owner as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) the amount of \$250.00 Dollars for each calendar day of delay, until the work is completed. The Contractor and his sureties shall be liable to the Owner for the amount thereof.

9.4 Excusable Delays.

- 9.4.1 The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due to:
- 9.4.2 Any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, national defense, or any other national emergency;
- 9.4.3 Any acts of the Owner;
- 9.4.4 Causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in the performance of some other contract with the Owner, fires, floods, epidemics, quarantine, restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones and other extreme weather conditions.
- 9.4.5 Provided, however, that the Contractor promptly notifies the Owner within ten (10) days in writing of the cause of the delay. Upon receipt of such notification, the Owner shall ascertain the facts and the cause and extent of delay. If, upon the basis of the facts and the terms of this contract, the delay is properly excusable, the Owner shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

10. Assignment or Novation

- 10.1 The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the Owner; provided, however, that assignments to banks or other financial institutions may be made without the consent of the Owner. No assignment or novation of this Contract shall be valid unless the assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

11. Disputes

- 11.1 All disputes arising under this Contract or its interpretation except those disputes covered by FEDERAL LABOR STANDARDS PROVISIONS whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of commencement of the dispute, be presented by the Contractor to the Owner for decision. Any claim not presented within the time limit specified in this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of its commencement, the claim will be considered only for a period commencing ten (10) days prior to the receipt of the Owner.
- 11.2 The Contractor shall submit in detail his claim and his proof thereof.

- 11.3 If the Contractor does not agree with any decision of the Owner, he shall in no case allow the dispute to delay the work but shall notify the Owner promptly that he is proceeding with the work under protest.

12. Technical Specifications and Drawings

- 12.1 Anything mentioned in the Technical Specifications and not shown on the Drawings or vice versa, shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in Drawings, or Technical Specifications, the matter shall be immediately submitted to the Owner, without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

13. Shop Drawings

- 13.1 All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Engineer in 5 copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the contract time shall be granted by reason of his failure in this respect.
- 13.2 Any drawings submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.
- 13.3 If a shop drawing is in accordance with the contract or involves only a minor adjustment in the interest of the Owner not involving a change in contract price or time; the engineer may approve the drawing. The approval shall not relieve the Contractor from his responsibility for adherence to the contract or for any error in the drawing.

14. Requests for Supplementary Information

- 14.1 It shall be the responsibility of the Contractor to make timely requests of the Owner for any additional information not already in his possession which should be furnished by the Owner under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the Engineer may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provision of this section.

15. Materials and Workmanship

- 15.1 Unless otherwise specifically provided for in the technical specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new

and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the technical specifications as "equal to" any particular standard, the Engineer shall decide the question of equality.

- 15.2 The Contractor shall furnish to the Owner for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval full information concerning all other materials or articles which he proposes to incorporate.
- 15.3 Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
- 15.4 Materials specified by reference to the number or symbol of a specific standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in the technical specifications shall have full force and effect as though printed therein.
- 15.5 The Owner may require the Contractor to dismiss from the work such employee or employees as the Owner or the Engineer may deem incompetent, or careless, or insubordinate.

16. Samples, Certificates and Tests

- 16.1 The Contractor shall submit all material or equipment samples, certificates, affidavits, etc., as called for in the contract documents or required by the Engineer, promptly after award of the contract and acceptance of the Contractor's bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the Engineer. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time.
- 16.2 Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Engineer in making a prompt decision regarding the acceptability of the sample. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.
- 16.3 Approval of any materials shall be general only and shall not constitute a waiver of the Owner's right to demand full compliance with Contract requirements. After actual deliveries, the Engineer will have such check tests made as he deems necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and articles have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the Engineer will have the right to cause their removal and replacement by proper materials or to demand and secure such repair by the Contractor as is equitable.
- 16.4 Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

- 16.4.1 The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the Engineer;
- 16.4.2 The Contractor shall assume all costs of re-testing materials which fail to meet contract requirements;
- 16.4.3 The Contractor shall assume all costs of testing materials offered in substitution for those found deficient;
- 16.4.4 The Owner will pay all other expenses.

17. Permits and Codes

- 17.1 The Contractor shall give all notices required by and comply with all applicable laws, ordinances, and codes of the Local Government. All construction work and/or utility installations shall comply with all applicable ordinances, and codes including all written waivers. Before installing any work, the Contractor shall examine the drawings and technical specifications for compliance with applicable ordinances and codes and shall immediately report any discrepancy to the Owner. Where the requirements of the drawings and technical specifications fail to comply with such applicable ordinances or codes, the Owner will adjust the Contract by Change Order to conform to such ordinances or codes (unless waivers in writing covering the difference have been granted by the governing body or department) and make appropriate adjustment in the Contract Price or stipulated unit prices.
- 17.2 Should the Contractor fail to observe the foregoing provisions and proceed with the construction and/or install any utility at variance with any applicable ordinance or code, including any written waivers (notwithstanding the fact that such installation is in compliance with the drawings and technical specifications), the Contractor shall remove such work without cost to the Owner.
- 17.3 The Contractor shall at his own expense, secure and pay for all permits for street pavement, sidewalks, shed, removal of abandoned water taps, sealing of house connection drains, pavement cuts, buildings, electrical, plumbing, water, gas and sewer permits required by the local regulatory body or any of its agencies.
- 17.4 The Contractor shall comply with applicable local laws and ordinances governing the disposal of surplus excavation, materials, debris and rubbish on or off the Project Area and commit no trespass on any public or private property in any operation due to or connected with the Improvements contained in this Contract.
- 17.5 The Contractor will be required to make arrangements for and pay the water, electrical power, or any other utilities required during construction.
- 17.6 During construction of this project, the Contractor shall use every means possible to control the amount of dust created by construction. Prior to the close of a day's work, the Contractor, if directed by the Owner, shall moisten the bank and surrounding area to prevent a dusty condition.

18. Care of Work

- 18.1 The Contractor shall be responsible for all damages to person or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance.
- 18.2 The Contractor shall provide sufficient competent watchmen, both day and night, including Saturdays, Sundays, and holidays, from the time the work is commenced until final completion and acceptance.

- 18.3 In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the Owner is authorized to act at his discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the Owner.
- 18.4 The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.
- 18.5 The Contractor shall shore up, brace, underpin, secure, and protect as maybe necessary, all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the improvements included in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjoining or adjacent property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the Owner from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the Owner may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.

19. Accident Prevention

- 19.1 No laborer or mechanic employed in the performance of this Contract shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety as determined under construction safety and health standards promulgated by the Secretary of Labor.
- 19.2 The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his prosecution of the work.
- 19.3 The Contractor shall maintain an accurate record of all cases of death, occupational disease, or injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.
- 19.4 The Contractor shall indemnify and save harmless the Owner from any claims for damages resulting from property damage, personal injury and/or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.
- 19.5 The Contractor shall provide trench safety for all excavations more than five feet deep prior to excavation. All OSHA Standards for trench safety must be adhered to by the Contractor.
- 19.6 The contractor shall at all times conduct his work in such a manner as to insure the least possible inconvenience to vehicular and pedestrian traffic. At the close of the work each day, all streets where possible in the opinion of the Owner, shall be opened to the public in order that persons living in the area may have access to their homes or businesses by the use of the streets. Barricades, warning signs, and necessary lighting shall be provided to the satisfaction of the Owner at the expense of the Contractor.

20. Sanitary Facilities

20.1 The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, a sufficient number of enclosed temporary toilets shall be conveniently placed as required. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

21. Use of Premises

21.1 The Contractor shall confine his equipment, storage of materials, and construction operations to the contract limits as shown on the drawings and as prescribed by ordinances or permits, or as may be desired by the Owner, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

21.2 The Contractor shall comply with all reasonable instructions of the Owner and all existing state and local regulations regarding signs, advertising, traffic, fires, explosives, danger signals, and barricades.

22. Removal of Debris, Cleaning, Etc.

22.1 The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for work, and put the whole site of the work and public rights of way in a neat and clean condition.

23. Inspection

23.1 All materials and workmanship shall be subject to inspection, examination, or test by the Owner and Engineer at any and all times during manufacture or construction and at any and all places where such manufacture or construction occurs. The Owner shall have the right to reject defective material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the Owner may by contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any Monies which may be due the Contractor, without prejudice to any other rights or remedies of the Owner.

23.2 The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. All tests by the Owner will be performed in such manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the technical specifications.

23.3 The Contractor shall notify the Owner sufficiently in advance of back filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent of the Owner, the Contractor shall uncover for inspection and recover such facilities at his own expense, when so requested by the Owner.

23.4 Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all

necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his subcontractors, the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

- 23.5 Inspection of materials and appurtenances to be incorporated in the improvements included in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the technical specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
- 23.6 Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the Owner or its agents shall relieve the Contractor or his sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

24. Review by Owner

- 24.1 The Owner and its authorized representatives and agents shall have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, material invoices, and other relevant data and records pertaining to this Contract, provided, however that all instructions and approval with respect to the work will be given to the Contractor only by the Owner through its authorized representatives or agents.

25. Final Inspection

- 25.1 When the Improvements included in this Contract are substantially completed, the Contractor shall notify the Owner in writing that the work will be ready for final inspection on a definite date which shall be stated in the notice. The Owner will make the arrangements necessary to have final inspection commenced on the date stated in the notice, or as soon thereafter as is practicable.

26. Deduction for Uncorrected Work

- 26.1 If the Owner deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the Owner and subject to settlement, in case of dispute, as herein provided.

27. Insurance

- 27.1 The Contractor shall not commence work under this contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner.
- 27.1.1 Compensation Insurance: The Contractor shall procure and shall maintain during the life of this contract Worker's Compensation Insurance as required by the State of Texas for all of his employees to be engaged in work at the site of the project under this contract and, in case of any such work sublet, the Contractor shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the employees to be

engaged in such work unless such employees are covered by the protection afforded by the Contractor's Worker's Compensation Insurance.

27.1.2 Contractor's Public Liability and Property Damage Insurance and Vehicle Liability Insurance: The Contractor shall procure and shall maintain during the life of this contract Contractor's Public Liability Insurance, Contractor's Property Damage Insurance and Vehicle Liability Insurance in the following amounts: [REDACTED]

27.1.3 Proof of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates and date of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by the Owner."

28. Warranty of Title

28.1 No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed by him to the Owner free from any claims, liens, or charges. Neither the Contractor nor any person, firm, or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all sub-contracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

29. Warranty of Workmanship and Materials

29.1 Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements included in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of 12 months from the date of final acceptance of the work.

30. Compliance with Air and Water Acts

30.1 In compliance with the Clean Air Act, as amended, 41 U.S.C. Sec. 7401 et. seq., and the regulations of the Environmental Protection Agency with respect thereto, the Contractor agrees that:

30.1.1 Any facility to be utilized in the performance of this contract or any subcontract shall not be a facility listed on the EPA List of Violating Facilities pursuant to 40 CFR 15.20.

30.1.2 He will comply with all requirements of Section 114 of the Clean Air Act, as amended.

30.1.3 Materials utilized in the project shall be free of any hazardous materials, except as may be specifically provided for in the specifications.

30.2 If the Contractor encounters existing material on sites owned or controlled by the Owner or in material sources that are suspected by visual observation or smell to contain hazardous materials, the Contractor shall immediately notify the Engineer and the Owner. The Owner will be responsible for testing for and removal or disposition of hazardous materials on sites owned or controlled by the Owner. The Owner may suspend the work, wholly or in part during the testing, removal or disposition of hazardous materials on sites owned or controlled by the Owner.

31. Equal Employment Opportunity

31.1 The Contractor will not discriminate against any employee or the applicant for employment because of race, color, religion, sex, gender, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, gender, or national origin. Such action shall include, but not be limited to the following: employment, promotion, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the owner.

31.2 The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

31.3 The Contractor will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this contract so that such provisions will be binding upon each subcontractor, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

31.4 The Contractor shall take affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions.

31.5 Contractors are encouraged to participate in voluntary associations which assist in fulfilling their affirmative action obligations.

31.6 The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority.

31.7 The Contractor shall not use the affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

31.8 The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts.

31.9 Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents.

32. Affirmative Action for Workers with Disabilities

32.1 The Contractor will not discriminate against any employee or applicant for employment because of disability in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals

with disabilities without discrimination based upon their disability in all employment practices such as the following: employment, promotion, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

33. Section 109 of the Housing and Community Development Act of 1974

33.1 No person in the United States shall on the ground of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in part with funds made available under this title.

34. The Provision of Local Training, Employment, and Business Opportunities

34.1 To the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns which are located in, or owned in substantial part by persons residing in the area of the project.

34.2 The Contractor will include this clause in every subcontract for work in connection with the project.

35. Non Segregated Facilities

35.1 The Contractor certifies that he does not and will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not and will not permit his employees any segregated facilities at any of his establishments, or permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. As used in this paragraph the term "segregated facilities" means any waiting rooms, work areas, rest rooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise.

36. Job Offices

36.1 The Contractor and his subcontractors may maintain such office and storage facilities on the site as are necessary for the proper conduct of the work. These shall be located so as to cause no interference to any work to be performed on the site. The Owner shall be consulted with regard to locations.

36.2 Upon completion of the improvements, or as directed by the Owner, the Contractors shall remove all such temporary structures and facilities from the site, and leave the site of the work in the condition required by the Contract.

37. Partial Use of Site Improvements

37.1 The Owner may give notice to the Contractor and place in use those sections of the improvements which have been completed, inspected and can be accepted as complying with the technical specifications and if in its opinion, each such section is reasonably safe, fit, and convenient for the use and accommodation for which it was intended, provided:

37.1.1 The use of such sections of the Improvements shall in no way impede the completion of the remainder of the work by the Contractor.

37.1.2 The Contractor shall not be responsible for any damages or maintenance costs due directly to the use of such sections.

37.1.3 The period of guarantee stipulated in the Section 29 hereof shall not begin to run until the date of the final acceptance of all work which the Contractor is required to construct under this Contract.

38. Contract Documents and Drawings

38.1 The Local Public Agency will furnish the Contractor without charge 2 copies of the Contract Documents, including Technical Specifications and Drawings on a computer disk. Additional copies requested by the Contractor will be furnished at cost.

39. Contract Period

39.1 The work to be performed under this contract shall commence within the time stipulated by the Owner in the Notice to Proceed, and shall be fully completed within **CALENDAR** days thereafter.

40. Liquidated Damages

40.1 Since the actual damages for any delay in completion of the work under this contract are impossible to determine, the Contractor and his Sureties shall be liable for and shall pay to the Owner the sum of Two Hundred and Fifty Dollars (\$250.00) as fixed, agreed and liquidated damages for each **CALENDER** day of delay from the above stipulated time for completion.

FEDERAL LABOR STANDARDS PROVISIONS

U.S. Department of Housing
And Urban Development

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215- 0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or

any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section I(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section I(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor,

and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

BIDDER CONTACT INFORMATION

(IFB 14-018/KJS) Jefferson County New Health Clinic- (TDRA- Round I Disaster Project Now Funded by GLO)

_____	Point of contact for this offer:
Company Name	
_____	_____
Address	Name (Printed)
_____	_____
City State Zip	Phone Fax
_____	_____
Signature of Point of Contact	E-mail

Title	

Bid bond return address:

CONTRACTOR'S LOCAL OPPORTUNITY PLAN
Completed by all contractors if Contract exceeds \$100,000.00

_____ agrees to implement the following specific
(Name of Company)

affirmative action steps directed at increasing the utilization of lower income residents and businesses within the _____ of _____.

- A. To ascertain from the Locality's program official the exact boundaries of the Section 3 covered project area and where advantageous, seek the assistance of local officials in preparing and implementing the affirmative action plan.
- B. To attempt to recruit from within the Grantee/Locality the necessary number of lower income residents through: Local advertising media, signs placed at the proposed site for the project, and community organizations and public or private institutions operating within or serving the project area such as Service Employment and Redevelopment (SER), Opportunities Industrialization Center (OIC), Urban League, Concentrated Employment Program, Hometown Plan, or the U.S. Employment Service.
- C. To maintain a list of all lower income area residents who have applied either on their own or on referral from any source, and to employ such persons, if otherwise eligible and if a vacancy exists.
- D. To insert the Section 3 Contract Provisions clause in all subcontracts over \$100,000; to obtain Tables A and B from said subcontractors, and to obtain all documentation for completion of Tables C and D prior to final payment.
- E. To formally contact unions, subcontractors and trade associations to secure their cooperation for this program.
- F. To insure that subcontracts (greater than \$10,000.00), which are typically let on a negotiated rather than a bid basis in areas other than the covered project area, are also let on a negotiated basis, whenever feasible, in a covered project area
- G. To insure that all appropriate project area business concerns are notified of pending sub-contractual opportunities.
- H. To maintain records, including copies of correspondence, memoranda, etc., which document that all of the above affirmative action steps have been taken.
- I. To appoint or recruit an executive official of the company or agency as Equal Employment Opportunity (EEO) Officer to coordinate the implementation of this Section 3 plan.
- J. To list on Table A, information related to proposed subcontracts to be awarded to Section 3 businesses.
- K. To list on Table B, all projected workforce needs for all phases of this project by occupation, trade, skill level and number of positions, and to update these projections based on the extent to which hiring meets these Local Opportunity Objectives.

L. To submit prior to final payment, Tables C and D to the _____ which includes all applicable hires and subcontractors utilized on this project.

M. For employment, 30 percent of all "new hires, at all levels, in conjunction with the project must be Section 3 Residents. As stated previously, the extension of employment opportunities to Section 3 Residents does not preclude the necessity for meeting the qualifications of the job

N. For contracting, at least 10 percent of the total dollar amount for all Section 3 covered contracts for construction awarded through this grant, and at least 3 percent of the total dollar amount of all Section 3 covered contracts must be targeted to Section 3 business concerns

For D. and E. above, loans, grants, contracts, and subsidies for less than \$100,000.00 will be exempt.

For M. and N. above, if these numerical goals cannot be reached, the contractor will have the burden of demonstrating why it was not feasible to meet the goals. This will include documentation of ALL efforts to comply and any impediments encountered despite efforts undertaken.

As officers and representatives of _____ we the undersigned have
(Name of Construction Company)

read and fully agree to this Plan, and become party to the full implementation of the program and its provisions.

We appoint _____ as our EEO Officer
(Name of Appointee)

Signature of Appointing Officer

Title

Date

CONTRACTOR/SUBCONTRACTOR'S SECTION 3 TABLE A

**PROPOSED SUBCONTRACT/MATERIAL PURCHASE
BREAKDOWN**

DRS CONTRACT NUMBER: _____ GLO CONTRACT #: _____

PROJECT NAME: _____

CONSTRUCTION CONTRACTOR: _____

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
TYPE OF CONTRACT (BUSINESS OR PROFESSION)	TOTAL NUMBER OF CONTRACTS	TOTAL APPROXIMATE DOLLAR AMOUNT	ESTIMATED NUMBER OF CONTRACTS TO PROJECT AREA BUSINESSES*	ESTIMATED DOLLAR AMOUNT TO PROJECT AREA BUSINESSES*

*The Project Area is coextensive with the County of _____'s boundaries.

EEO Officer's Signature

Date

CONTRACTOR/SUBCONTRACTOR'S
SECTION 3 TABLE B

ESTIMATED PROJECT WORKFORCE BREAKDOWN

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Job Category	Total Estimated Positions	No. Positions Currently Occupied By Permanent Employees	No. Positions Not Currently Occupied	No. Positions To Be Filled w/LIPAR*
Officers/Supervisors				
Professionals				
Technicians				
Housing Sales/Rental/Mgmt.				
Office Clerical				
Service Workers				
Others				

TRADE:

Journeyman				
Apprentices				
Maximum No. Trainees				
Others				

TRADE:

Journeyman				
Apprentices				
Maximum No. Trainees				
Others				

TRADE:

Journeyman				
Apprentices				
Maximum No. Trainees				
Others				

*Lower Income Project Area Residents. Individuals residing within the City/County of _____ whose family income does not exceed 80% of the median income in the State.

(EEO Officer's Signature)

(COMPANY NAME)

USE ADDITIONAL PAGES IF NECESSARY

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

Name of Bidder: _____ Date Organized: _____

Address: _____ Date Incorporated _____

Number of Years in contracting business under present name _____:

CONTRACTS ON HAND:

Contract	Amount \$	Completion Date

Type of work performed by your company: _____

Have you ever failed to complete any work awarded to you? _____

Have you ever defaulted on a contract? _____

List the projects most recently completed by your firm (include project of similar importance):

Project	Amount \$	Mo/Yr Completed

Major equipment available for **this** contract: _____

Attach resume(s) for the principal member(s) of your organization, including the officers as well as the proposed superintendent for the project.

Credit available: \$ _____ Bank reference: _____

The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the _____ in verification of the recitals comprising this Statement of Bidder's Qualifications.

Executed this _____ day of _____, 2014.

By: (signature) _____ Title: _____
(print name) _____

CONTRACTOR CERTIFICATIONS

U.S. Department of Housing and Urban Development

CERTIFICATION OF BIDDER REGARDING CIVIL RIGHTS LAWS AND REGULATIONS

INSTRUCTIONS

CERTIFICATION OF BIDDER REGARDING Executive Order 11246 and Federal Laws Requiring Federal Contractor to adopt and abide by equal employment opportunity and affirmative action in their hiring, firing, and promotion practices. This includes practices related to race, color, gender, religion, national origin, disability, and veterans' rights.

NAME AND ADDRESS OF BIDDER (include ZIP Code)

CERTIFICATION BY BIDDER

Bidder has participated in a previous contract or subcontract subject to Civil Rights Laws and Regulations.

Yes No

The undersigned hereby certifies that:

- The Provision of Local Training, Employment, and Business Opportunities clause (Section 3 provision) is included in the Contract. A written Section 3 plan (Local Opportunity Plan) was prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$100,000).
- The Non Segregated Facilities clause (Section 109 provision) is included in the Contract. No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.
- The Equal Employment Opportunity clause is included in the Contract (if bid equals or exceeds \$10,000).
- The Affirmative Action for Handicapped Workers clause is included in the contract.

Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended?

Yes No

NAME AND TITLE OF SIGNER (Please type)

SIGNATURE

DATE

SECTION 504 CERTIFICATION

POLICY OF NONDISCRIMINATION ON THE BASIS OF DISABILITY

The _____ does not discriminate on the basis of disability in the admission or access to, or treatment or employment in, its federally assisted programs or activities.

(Name) _____

(Address) _____

City State Zip

Telephone Number () _____ - _____ Voice

() _____ - _____ TDD

has been designated to coordinate compliance with the nondiscrimination requirements contained in the Department of Housing and Urban Development's (HUD) regulations implementing Section 504 (24 CFR Part 8. dated June 2, 1988).

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM CONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS

TO (appropriate recipient)	DATE
	PROJECT NUMBER (if any)
C/O	PROJECT NAME

1. The undersigned, having executed a contract with _____
_____ for the construction of the above-identified project, acknowledges that:

- (a) The Labor Standards provisions are included in the aforesaid contract,
- (b) Correction of any infractions of the aforesaid conditions, including infractions by any of his subcontractors and any lower tier subcontractors, is his responsibility.

2. He certifies that:

- (a) Neither he nor any firm, partnership or association in which he has substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6(b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5) or pursuant to Section 3(a) of the Davis-Bacon Act, as amended.
- (b) No part of the aforementioned contract has been or will be subcontracted to any subcontractor if such subcontractor or any firm, corporation, partnership or association in which such subcontractor has a substantial interest is designated as an ineligible contractor pursuant to any of the aforementioned regulatory or statutory provisions.

3. He agrees to obtain and forward to the aforementioned recipient within ten days after the execution of any subcontract, including those executed by his subcontractors and any lower tier subcontractors, a Subcontractor's Certification Concerning Labor Standards and Prevailing Wage Requirements executed by the subcontractors.

4. He certifies that:

- (a) The legal name and the business address of the undersigned are:

(b) The undersigned is:

(1) A SINGLE PROPRIETORSHIP	(3) A CORPORATION ORGANIZED IN THE STATE OF
(2) A PARTNERSHIP	(4) OTHER ORGANIZATION (Describe)

(c) The name, title and address of the owner, partners or officers of the undersigned are:

NAME	TITLE	ADDRESS

(d) The names and addresses of all other persons having a substantial interest in the undersigned, and the nature of the interest are:

NAME	ADDRESS	NATURE OF INTEREST

(e) The names, addresses and trade classifications of all other building construction contractors in which the undersigned has a substantial interest are:

NAME	ADDRESS	TRADE CLASSIFICATION

Date _____

_____ (Contractor)

By _____

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of TEXAS

County of JEFFERSON

_____, being first duly sworn, deposes and says that:

- (1) He is _____ of _____, the Bidder that has submitted the attached Bid;
- (2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- (3) Such Bid is genuine and is not a collusive or sham Bid;
- (4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with another Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix an overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ (Local Public Agency) or any person interested in the proposed Contract; and
- (5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

Title

Subscribed and sworn to me this _____ day of _____.

By: _____

Notary Public

My commission expires _____

BID FORM

Bid Description	Lump Sum Bid
The construction of a new Jefferson County Health Clinic / Adult Probation Office Building on 4 th Street, Port Arthur, Texas	\$

Acknowledgment of Addenda (if any):

Addendum 1 _____ Date Received _____

Addendum 2 _____ Date Received _____

Addendum 3 _____ Date Received _____

Contract execution Time: 270 Calendar Days

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned, _____ as PRINCIPAL, and _____, as SURETY are held and firmly bound unto _____ hereinafter called the "Owner", in the penal sum of _____ Dollars, (\$_____), 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 _____, for _____

NOW, THEREFOR, 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 therefor, 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 local Public Agency 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 _____ day of _____, 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: _____
Affix
Corporate
Seal

Attest:

By: _____
Affix
Corporate
Seal

Attest:

By: _____

Countersigned

By _____

* Attorney-in-Fact, State of _____

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.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor or Company)

(Address)

A _____, hereinafter called Principal,
(Corporation / Partnership)

and _____
(Name of Surety Company)

(Address)

Hereinafter called Surety, are held and firmly bound unto

(Name of Recipient)

(Recipient's Address)

Hereinafter called OWNER, in the penal sum of \$ _____

Dollars, \$ _____ in lawful money of the United States, for this payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONFIDENTIALITY OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the _____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

(Project Name)

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, SUB-CONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUB-CONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way

affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counter-parts, each on of (Number) which shall be deemed an original, this the _____ day of _____.

ATTEST: _____
(Principal)

(Principal Secretary) By _____ (s)

(SEAL)

(Witness as to Principal) (Address)

(Address)

ATTEST: _____
(Surety)

(Witness as to Surety) By _____
(Attorney in Fact)

(Address) (Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

_____ (Name of Contractor or Company)

_____ (Address)

a _____ hereinafter called Principal, and

_____ (Name of Surety Company)

_____ (Address)

hereinafter called Surety, are held and firmly bound unto

_____ (Name of Recipient)

_____ (Recipient's Address)

hereinafter called OWNER, in the penal sum of \$ _____ Dollars (\$ _) in lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, successors, and assigns, jointly and severally, firmly in these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER dated the ____ day of _____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW THEREFORE, if the Principal shall well, truly and faithfully perform its duties in all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which shall be deemed an original, on this the _____ day of _____.

ATTEST: _____
(Principal)

_____ By _____ (s)
(Principal Secretary)

(SEAL)

_____ (Witness as to Principal) _____ (Address)

_____ (Address) _____

ATTEST: _____
(Surety)

_____ By _____
(Witness as to Surety) (Attorney in Fact)

_____ (Address) _____ (Address)

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

ATTORNEY'S REVIEW CERTIFICATION
(Recommended)

I, the undersigned, _____, the duly authorized and acting legal representative of the _____, do hereby certify as follows:

I have examined the attached contract(s) and surety bonds and am of the opinion that each of the agreements may be duly executed by the proper parties, acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties; and that the agreements shall constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions and provisions thereof.

Attorney's signature: _____ Date: _____

Print Attorney's Name: _____

CONFLICT OF INTEREST QUESTIONNAIRE

For vendor or other person doing business with local government entity	
<p>This questionnaire is being filed in accordance with chapter 176 of the Local Government Code by a person doing business with the governmental entity.</p> <p>By law this questionnaire must be filed with the records administrator of the local government not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. See Section 176.006 Local Government Code.</p> <p>A person commits an offense if the person violates Section 176.0006, Local Government Code. An offense under this section is a Class C misdemeanor.</p>	OFFICE USE ONLY
<p>1. Name of person doing business with local governmental entity.</p>	
<p>2. <input type="checkbox"/> Check this box if you are filing an update to a previously filed questionnaire.</p> <p style="text-align: center; font-size: small;">(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than September 1 of the year for which an activity described in Section 176.006(a), Local Government Code, is pending and not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)</p>	
<p>3. Describe each affiliation or business relationship with an employee or contractor of the local government entity who makes recommendations to a local government officer of the local governmental entity with respect to expenditure of money.</p>	
<p>4. Describe each affiliation or business relationship with a person who is a local government officer and who appoints or employs a local government officer of the local governmental entity that is the subject of this questionnaire.</p>	

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ
Page 2

For vendor or other person doing business with local government entity

5. Name of local government officer with whom filer has affiliation or business relationship. (Complete this section only if the answer to A, B, or C is YES.)

This section, item 5 including subparts A, B, C & D, must be completed for each officer with whom the filer has affiliation or business relationship. 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 from the filer of the questionnaire?

Yes No

B. Is the filer of the questionnaire receive or likely to receive taxable income from or at the direction of the local government officer named in this section AND the taxable income is not from the local government entity?

Yes No

C. Is the filer of the questionnaire affiliated with a corporation or other business entity that the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

Yes No

D. Describe each affiliation or business relationship:

6. Describe any other affiliation or business relationship that might cause a conflict of interest.

7.

Signature of person doing business with the governmental entity

Date

GOOD FAITH EFFORT (GFE) DETERMINATION CHECKLIST

This information must be submitted with your bid.

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.

Printed Name of Authorized Representative

Signature

Title

Date

HISTORICALLY UNDERUTILIZED BUSINESS (HUB) SUBCONTRACTING PARTICIPATION DECLARATION FORM

PAGE 1 OF 4

This information must be submitted with your bid.

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 SUBCONTRACTOR 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: _____

HISTORICALLY UNDERUTILIZED BUSINESS (HUB) SUBCONTRACTING PARTICIPATION DECLARATION FORM

PAGE 3 OF 4

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: _____

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: _____

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 _____ [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.):	
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:	

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.

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 _____ COUNTY OF _____

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

on this day personally appeared _____, who

(Name)

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

“I, _____ am a duly authorized officer of/agent

(Name)

for _____ and have been duly authorized to execute the

(Name of firm)

foregoing on behalf of the said _____.

(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: _____

Fax: _____ Telephone# _____

by: _____ Title: _____

(Print name)

Signature: _____

SUBSCRIBED AND SWORN to before me by the above-named

_____ on

this the _____ day of _____, 2014.

_____ Notary Public in and for the State of _____



Texas General Land Office **EXHIBIT F**
Community Development Block Grant (CDBG)
Disaster Recovery Program

Code of Federal Regulations
Title 24- Housing and Urban Development

Volume: 1

Date: 2003-04-01

Original Date: 2003-04-01

Title: Section 135.38- Section 3 Clause

Context: Title 24- Housing and Urban Development. Subtitle B- Relating to Housing and Urban Development . Chapter 1- Office of Assistant Secretary for Equal Opportunity, Department. Part 135 Economic Opportunities for Low-and Very Low-Income Persons. Subpart B- Economic Opportunities for Section 3 Residents and Section 3 Business Concerns.

§ 135.38 Section 3 clause.

All section 3 covered contracts shall include the following clause (referred to as the section 3 clause):

- A.** The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- B.** The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.
- C.** The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- D.** The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.
- E.** The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.
- F.** Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

- G.** With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).



Texas General Land Office
 Community Development Block Grant (CDBG)
 Disaster Recovery Program

**Contractor Certification of Efforts to Fully Comply
 with Employment and Training Provisions of Section 3**

Economic Opportunities for Low and Very Low-Income Persons

THE BIDDER REPRESENTS AND CERTIFIES AS PART OF ITS BID/OFFER THAT IT:

<input type="checkbox"/> Is a Section 3 Business Concern. A Section 3 Business Concern means a business concern: <ol style="list-style-type: none"> 1. That is 51% or more owned by Section 3 Resident(s); or 2. Whose permanent, full-time employees include persons, at least 30% of whom are currently Section 3 Residents, or 3. That provides evidence of a commitment to subcontract in excess of 25% of the dollar value of all subcontracts to be awarded to Section 3 Business Concerns, that meet the qualifications set forth in paragraphs 1 or 2 herein. 																			
<input type="checkbox"/> Is NOT a Section 3 Business Concern, but who has and will continue to seek compliance with Section 3 by certifying the following efforts to be undertaken. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="text-align: center; padding: 5px;">EFFORTS TO AWARD SUBCONTRACTOR TO SECTION 3 CONCERNS (Check ALL that apply)</th> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By contacting business assistance agencies, minority contractors associations and community organizations to inform them of the contracting opportunities and requesting their assistance in identifying Section 3 businesses which may solicit bids for a portion of the work.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By advertising contracting opportunities by posting notices, which provide general information about the work to be contracted and where to obtain additional information, in the common areas of the applicable development(s) owned and managed by the Housing Authority.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By providing written notice to all known Section 3 Business Concerns of contracting opportunities. This notice should be in sufficient time to allow the Section 3 Business Concerns to respond to bid invitations</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By following up with Section 3 Business Concerns that have expressed interest in the contracting opportunities.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By coordinating meetings at which Section 3 Business Concerns could be informed of specific elements of the work for which subcontract bids are being sought.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By conducting workshops on contracting procedures and specific contracting opportunities in a timely manner so that Section 3 Business Concerns can take advantage of contracting opportunities.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By advising Section 3 Business Concerns as to where to seek assistance to overcome barriers such as inability to obtain bonding, lines of credit, financing, or insurance and aiding Section 3 Businesses in qualifying for such bonding, financing, insurance, etc....</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> Where appropriate, by breaking out contract work into economically feasible units to facilitate participation by Section 3 businesses.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By developing and using a list of eligible Section 3 Business Concerns.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By actively supporting and undertaking joint ventures with Section 3 Businesses.</td> </tr> <tr> <th style="text-align: center; padding: 5px;">EFFORTS TO PROVIDE TRAINING AND EMPLOYMENT TO SECTION 3 RESIDENTS</th> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By entering into a "first source" hiring agreements with organizations representing Section 3 Residents.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By establishing training programs, which are consistent with the requirements of the Department of Labor, specifically for Section 3 Residents in the building trades.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By advertising employment and training positions to dwelling units occupied by Category 1 and 2 residents.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By contacting resident councils and other resident organizations in the affected housing development to request assistance in notifying residents of the training and employment positions to be filled.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By arranging interviews and conducting interviews on the job site.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By undertaking such continued job training efforts as may be necessary to ensure the continued employment of Section 3 Residents previously hired for employment opportunities.</td> </tr> <tr> <td style="padding: 5px;"><input type="checkbox"/> By posting job vacancies in Work-In-Texas or with my local Workforce Solutions Center</td> </tr> </table>	EFFORTS TO AWARD SUBCONTRACTOR TO SECTION 3 CONCERNS (Check ALL that apply)	<input type="checkbox"/> By contacting business assistance agencies, minority contractors associations and community organizations to inform them of the contracting opportunities and requesting their assistance in identifying Section 3 businesses which may solicit bids for a portion of the work.	<input type="checkbox"/> By advertising contracting opportunities by posting notices, which provide general information about the work to be contracted and where to obtain additional information, in the common areas of the applicable development(s) owned and managed by the Housing Authority.	<input type="checkbox"/> By providing written notice to all known Section 3 Business Concerns of contracting opportunities. 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<input type="checkbox"/> By arranging interviews and conducting interviews on the job site.																			
<input type="checkbox"/> By undertaking such continued job training efforts as may be necessary to ensure the continued employment of Section 3 Residents previously hired for employment opportunities.																			
<input type="checkbox"/> By posting job vacancies in Work-In-Texas or with my local Workforce Solutions Center																			

Contractor Name/Business Name: _____

Authorized Representative Name: _____

Signature: _____ **Date:** _____



EXAMPLES OF EFFORTS

[Code of Federal Regulations]
[Title 24, Volume 1]
[Revised as of April 1, 2003]
From the U.S. Government Printing Office via GPO Access
[CITE: 24CFR135.92]
[Page 704-707]

TITLE 24--HOUSING AND URBAN DEVELOPMENT
CHAPTER I--OFFICE OF ASSISTANT SECRETARY FOR EQUAL OPPORTUNITY,
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
PART 135--ECONOMIC OPPORTUNITIES FOR LOW- and VERY LOW-INCOME PERSONS

Table of Contents

Appendix to Part 135

I. EXAMPLES OF EFFORTS TO OFFER TRAINING AND EMPLOYMENT OPPORTUNITIES TO SECTION 3 RESIDENTS

- (1) Entering into "first source" hiring agreements with organizations representing Section 3 residents.
- (2) Sponsoring a HUD-certified "Step-Up" employment and training program for section 3 residents.
- (3) Establishing training programs, which are consistent with the requirements of the Department of Labor, for public and Indian housing residents and other section 3 residents in the building trades.
- (4) Advertising the training and employment positions by distributing flyers (which identify the positions to be filled, the qualifications required, and where to obtain additional information about the application process) to every occupied dwelling unit in the housing development or developments where category 1 or category 2 persons (as these terms are defined in Sec. 135.34) reside.
- (5) Advertising the training and employment positions by posting flyers (which identify the positions to be filled, the qualifications required, and where to obtain additional information about the application process) in the common areas or other prominent areas of the housing development or developments. For HAs, post such advertising in the housing development or developments where category 1 or category 2 persons reside; for all other recipients, post such advertising in the housing development or developments and transitional housing in the neighborhood or service area of the section 3 covered project.
- (6) Contacting resident councils, resident management corporations, or other resident organizations, where they exist, in the housing development or developments where category 1 or category 2 persons reside, and community organizations in HUD assisted neighborhoods, to request the assistance of these organizations in notifying residents of the training and employment positions to be filled.

- (7) Sponsoring (scheduling, advertising, financing or providing in-kind services) a job informational meeting to be conducted by an HA or contractor representative or representatives at a location in the housing development or developments where category 1 or category 2 persons reside or in the neighborhood or service area of the section 3 covered project.
- (8) Arranging assistance in conducting job interviews and completing job applications for residents of the housing development or developments where category 1 or category 2 persons reside and in the neighborhood or service area in which a section 3 project is located.
[[Page 705]]
- (9) Arranging for a location in the housing development or developments where category 1 persons reside, or the neighborhood or service area of the project, where job applications may be delivered to and collected by a recipient or contractor representative or representatives.
- (10) Conducting job interviews at the housing development or developments where category 1 or category 2 persons reside, or at a location within the neighborhood or service area of the section 3 covered project.
- (11) Contacting agencies administering HUD Youthbuild programs, and requesting their assistance in recruiting HUD Youthbuild program participants for the HA's or contractor's training and employment positions.
- (12) Consulting with State and local agencies administering training programs funded through JTPA or JOBS, probation and parole agencies, unemployment compensation programs, community organizations and other officials or organizations to assist with recruiting Section 3 residents for the HA's or contractor's training and employment positions.
- (13) Advertising the jobs to be filled through the local media, such as community television networks, newspapers of general circulation, and radio advertising.
- (14) Employing a job coordinator, or contracting with a business concern that is licensed in the field of job placement (preferably one of the section 3 business concerns identified in part 135), that will undertake, on behalf of the HA, other recipient or contractor, the efforts to match eligible and qualified section 3 residents with the training and employment positions that the HA or contractor intends to fill.
- (15) For an HA, employing section 3 residents directly on either a permanent or a temporary basis to perform work generated by section 3 assistance. (This type of employment is referred to as "force account labor" in HUD's Indian housing regulations. See 24 CFR 905.102, and Sec. 905.201(a)(6).)
- (16) Where there are more qualified section 3 residents than there are positions to be filled, maintaining a file of eligible qualified section 3 residents for future employment positions.
- (17) Undertaking job counseling, education and related programs in association with local educational institutions.
- (18) Undertaking such continued job training efforts as may be necessary to ensure the continued employment of section 3 residents previously hired for employment opportunities.
- (19) After selection of bidders but prior to execution of contracts, incorporating into the contract a negotiated provision for a specific number of public housing or other section 3 residents to be trained or employed on the section 3 covered assistance.
- (20) Coordinating plans and implementation of economic development (e.g., job training and preparation, business development assistance for residents) with the planning for housing and community development.

EQUAL OPPORTUNITY GUIDELINES FOR CONSTRUCTION CONTRACTORS

1. What are the responsibilities of the offeror or bidder to insure equal employment opportunity?

The offeror or bidder must comply with the "Equal Opportunity Clause" and the "Standard Federal Equal Opportunity Construction Contract Specifications."

2. Are construction contractors required to insure a comfortable working environment for all employees?

Yes, it is the construction contractor's responsibility to provide an environment free of harassment, intimidation, and coercion to all employees and to notify all foremen and supervisors to carry out this obligation, with specific attention to minority or female individuals.

3. To alleviate developing separate facilities for men and women on all sites, can a construction contractor place all women employees on one site?

No, two or more women should be assigned to each site when possible.

4. Are construction contractors required to make special outreach efforts to Section 3 or minority and female recruitment sources?

Yes, construction contractors must establish a current list of Section 3, minority and female recruitment sources. Notification of employment opportunities, including the availability of on-the-job training and apprenticeship programs, should be given to these sources. The efforts of the construction contractors should be kept in file.

5. Should records be maintained on the number of Section 3 residents, minority and females applying for positions with construction contractors?

Yes, records must be maintained to include a current list of names, addresses and telephone numbers of all Section 3, minority and female applicants. The documentation should also include the results of the applications submitted.

6. What happens if a woman or minority is sent to the union by the Contractor and is not referred back to the Contractor for employment?

If the unions impede the construction contractor's responsibility to provide equal employment opportunity, a written notice should be submitted to ORCA.

7. What efforts are made by construction contractors to create entry-level positions for Section 3 residents, women and minorities?

Construction contractors are required to develop on-the-job training programs, or participate in training programs, especially those funded by the Department of Labor, to create positions for Section 3 residents, women and minorities and to meet employment needs.

8. Are any efforts made by the Contractor to publicize their Equal Employment Opportunity (EEO) policy?

Yes, the construction contractor is responsible for notifying unions and sources of training programs of their equal employment opportunity policy. Unions should be requested to cooperate in the effort of equal opportunity. The policy should be included in any appropriate manuals, or collective bargaining agreements. The construction contractor is encouraged to publicize the equal employment opportunity policy in the company newspaper and annual report. The Contractor is also responsible to include the EEO policy in all media advertisement.

9. Are any in-service training programs provided for staff to update the EEO policy?

At least annually a review of the EEO policy and the affirmative action obligations are required of all personnel employees of a decision-making status. A record of the meeting including date, time, location, persons present, subject matter discussed, and disposition of the subject matter should be maintained.

10. What recruitment efforts are made for Section 3 residents, minorities and women?

The construction contractor must notify, both orally and in writing, Section 3, minority and female recruitment sources one month prior to the date of acceptance for apprenticeship or other training programs.

11. Are any measures taken to encourage promotions for minorities and women?

Yes, an annual evaluation should be conducted for all minority and female personnel to encourage these employees to seek higher positions.

12. What efforts are taken to insure that personnel policies are in accordance with the EEO policy?

Personnel policies in regard to job practices, work assignments, etc. should be continually monitored to insure that the EEO policy is carried out.

13. Can women be excluded from utilizing any facilities available to men?

No, all facilities and company activities are non-segregated except for bathrooms or changing facilities to insure privacy.

14. What efforts are made to utilize minority and female contractors and suppliers?

None, however records are kept of all offers to minority and female construction contractors.

15. If a construction contractor participates in a business related association that does not comply with affirmative action standards, does that show his/her failure to comply?

No, the construction contractor is responsible for its own compliance.

16. Will a construction contractor be in violation of EEO policy and affirmative action if he sets up one set of goals to include minorities and women?

Yes. There is a separate goal for minorities and a separate single goal for women. The construction contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women both minority and non-minority.

17. Can a construction contractor hire a subcontractor who has been debarred from government contracts pursuant to EEO?

No. The construction contractor must suspend, terminate or cancel its contract with any Subcontractor who is in violation of the EEO policy.

18. What effort has been taken by the construction contractor to monitor all employment to insure the company EEO policy is being carried out?

The construction contractor must designate a responsible individual to keep accurate records of all employees that includes specific information required by the government.

**CERTIFICATION OF BIDDER REGARDING SECTION 3
AND SEGREGATED FACILITIES**

Name of Prime Contractor

Project Name & Number

The undersigned hereby certifies that

- (a) Section 3 provisions are included in the Contract
- (b) A written Section 3 plan was prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$10,000).
- (c) No segregated facilities will be maintained.

Name

Name & Title of Signer (Print or Type)

Signature

Date

CERTIFICATION REGARDING LOBBYING FOR CONTRACTS, GRANTS, LOANS, AND COOPERATIVE AGREEMENTS

The undersigned _____ of _____
certifies, to the best of its knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan or cooperative agreement.

- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form -- LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, and contracts under grants, loans, and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more that \$100,000 for each such failure.

Signed: _____ Date: _____

Title: _____

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether sub-awardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Use the SF-LLLA Continuation Sheet for additional information if the space on the form is inadequate. Complete all items (that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to Influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter (he year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if It Is, or expects to be, a prime or sub-award recipient. Identify the tier of the sub-awardee, e.g., the first sub-awardee of the prime is the 1st tier. Sub-awards Include but are not limited to subcontracts, sub-grants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Sub-awardee," then enter the full name, address, city, Slate and zip code of the prime Federal recipient. Include Congressional District, If known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, Slate and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.
(b) Enter (he full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial

(MI).

11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box (es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box (es). Check all boxes that apply. If other, specify nature.
14. Provides specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with Federal officials. Identify the Federal official(s) or employee(s) contacted or the officer(s), employee(s), or Member(s) of Congress that were contacted.
15. Check whether or not a SF-LLLA Continuation Sheet(s) Is attached.
16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

DISCLOSURE OF LOBBYING ACTIVITIES

APPROVED BY OMB 0348-0046

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352 (See reverse for public burden disclosure.)

1. Type of Federal Action:		2. Status of Federal Action:		3. Report Type:						
a. contract		a. bid/offer/application		a. initial filing b. material change						
b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance		b. initial award c. post-award		For Material Change Only: year _____ quarter _____ date of last report _____						
4. Name and Address of Reporting Entity: Prime _____ • Sub-awardee _____ Tier _____ if known _____			5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:							
6. Federal Department/Agency:			7. Federal Program Name/Description:							
			CFDA Number, if applicable:							
8. Federal Action Number, if known:			9. Award Amount, if known:							
			\$ _____							
10. a. Name and Address of Lobbying Entity (if individual, last name, first name, MI): (attach Continuation Sheet(s) SF-LLLA, if necessary)			b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI): (attach Continuation Sheet(s) SF-LLLA, if necessary)							
11. Amount of Payment (check all that apply): \$ _____ actual _____ planned _____			13. Type of Payment (check all that apply): a. retainer _____ * b. one-time fee _____ c. commission _____ d. contingent fee _____ e. deferred _____ Of. other: _____							
12. Form of Payment (check all that apply): a. cash _____ b. in-kind: specify: nature _____ value _____										
14. Brief Description of Services Performed or to be Performed and Date(s) of Service, including officer(s), employee(s), or Member(s) contacted, for Payment Indicated in Item 11: (attach Continuation Sheet(s) SF-LLLA, if necessary)										
15. Continuation Sheet(s) SF-LLLA attached:			Yes		No					
16. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered info. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than 510,000 and not more than 5100,000 for each such failure.										
						Signature: _____				
						Print Name: _____				
						Title: _____				
Telephone No.:				Date:						
Authorized for Local Reproduction										
Federal Use Only:										

GRANTEE CONTRACT

SECTION 22. SPECIAL CONDITIONS

J. Public buildings, facilities, and centers constructed with TDRA TxCDBG-DRS assistance shall have permanent signage placed in a prominent visible public area with the wording provided below. The formatting of such signage will be at local discretion to best fit the architectural design of the facility constructed but should be legible from at least three (3) feet distance.

Other construction projects, e.g., water transmission lines, sewer collection lines, drainage, roadways, housing rehabilitation, etc. utilizing TDRA TxCDBG-DRS funding shall have temporary signage erected in a prominent location at the construction project site or along a major thoroughfare within the locality as directed by the owner.

Project Sign Wording:

“This project is funded by the Texas Department of Rural Affairs of the State of Texas, to provide for disaster recovery and restoration of infrastructure for communities impacted by the 2008 hurricanes. Funds allocated by the United States Department of Housing and Urban Development through the Community Development Block Grant Program.”

TITLE 29 LABOR

Subtitle A - Office of the Secretary of Labor

PART 3 - CONTRACTORS AND SUBCONTRACTORS ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES

Sec.

- 3.1 Purpose and scope
- 3.2 Definitions
- 3.3 Weekly statement with respect to payment of wages
- 3.4 Submission of weekly statements and the preservation and inspection of weekly payroll records.
- 3.5 Payroll deductions permissible without application to or approval of the Secretary of Labor.
- 3.6 Payroll deductions permissible with the approval of the Secretary of Labor.
- 3.7 Applications for the approval of the Secretary of Labor
- 3.8 Action by the Secretary of Labor upon applications.
- 3.9 Prohibited payroll deductions.
- 3.10 Methods of payment of wages.
- 3.11 Regulations part of contract.

AUTHORITY: The provisions of this Part 3 issued under *R.S. 161, sec. 2, 48 Stat. §48; Reorg. Plan No. 14 of 1950, 64 Stat. 1267, 5 U.S.C. Appendix; 5 U.S.C. 301; 40 U.S.C. 276c.*

SOURCE: The provisions of this Part 3 appear at 29 F.R. 97, Jan. 4, 1964, unless otherwise noted.

Section 3.1 Purpose and Scope.

This part prescribes “anti-kickback” regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. 276c), popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction, prosecution, completion, or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States. The part is intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statutes dealing with Federally-assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid on work covered thereby; sets forth the circumstances and procedures governing the making of payroll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

Section 3.2 Definitions.

As used in the regulations in this part:

- (a) The terms “building” or “work” generally include construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The terms

include, without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, powerlines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals; dredging, shoring, scaffolding, drilling, blasting, excavating, clearing, and landscaping. Unless conducted in connection with and at the site of such a building or work as is described in the foregoing sentence, the manufacture or furnishing of materials, articles, supplies, or equipment (whether or not a Federal or State agency acquires title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured or furnished) is not a "building" or "work" within the meaning of the regulations in this part.

- (b) The terms "construction," "prosecution," "completion," or "repair" mean all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting and decorating, the transporting of materials and supplies to or from the building or work by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work, by persons employed at the site by the contractor or subcontractor.
- (c) The terms "public building" or "public work" include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.
- (d) The term "building or work financed in whole or in part by loans or grants from the United States" includes building or work for whose construction, prosecution, completion, or repair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term includes building or work for which the Federal assistance granted is in the form of loan guarantees or insurance.
- (e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completion, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is "employed" and receiving "wages," regardless of any contractual relationship alleged to exist between him and the real employer.
- (f) The term "any affiliated person" includes a spouse, child, parent, or other close relative of the contractor or subcontractor; a partner or officer of the contractor or subcontractor; a corporation closely connected with the contractor or subcontractor as parent, subsidiary or otherwise, and an officer or agent of such corporation.
- (g) The term "Federal agency" means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentalities of the United States and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies, and instrumentalities.

(29 FR 97, Jan. 4, 1964, as amended at 33 FR 32575, Nov. 27, 1973)

Section 3.3 Weekly statement with respect to payment of wages.

- a. As used in this section, the term "employee" shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervisors of such employees.
- (b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with

respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer of employee of the contractor or subcontractor who supervises the payment of wages, and shall be on form WH 348, "Statement of Compliance," or on an identical form on the back of WH 347, "Payroll (For Contractors Optional Use)" or on any form with identical wording. Sample copies of WH 347 and WH 348 may be obtained from the Government contracting or sponsoring agency, and copies of these forms may be purchased at the Government Printing Office,

- (c) The requirements of this section shall not apply to any contract of \$2,000 or less.
- (d) Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

{29 F.R. 95, Jan. 4, 1964, as amended at 33 F.R. 10186, July 17, 1968}

Section 3.4 Submission of weekly statements and the preservation and inspection of weekly payroll records.

- (a) Each weekly statement required under §3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.
- (b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 Payroll deductions permissible without application to or approval of the Secretary of Labor.

- (a) Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor: Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State withholding income taxes and Federal social security taxes.
- (b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest. A "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.
- (c) Any deduction of amounts required by court process to be paid to another, unless, the deduction is in favor of the contractor, subcontractor or any affiliated person, or when collusion or collaboration exists.

- (d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions, or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, That the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either: (i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; (3) no profit or other benefit is otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of commission, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.
- (e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.
- (f) Any deduction requested by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.
- (g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasigovernmental agencies, such as the American Red Cross.
- (h) Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.
- (i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments: Provided, however, That a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.
- (j) Any deduction not more than for the "reasonable cost" of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standards Act of 1938, as amended, and Part 531 of this title. When such a deduction is made the additional records required under §516.27(a) of this title shall be kept.
- (j) Any deduction for the cost of safety equipment of nominal value purchased by the employee as his own property for his personal protection in his work, such as safety shoes, safety glasses, safety gloves, and hard hats, if such equipment is not required by law to be furnished by the employer, if such deduction is not in violation of the Fair Labor Standards Act or prohibited by other law, if the cost on which the deduction is based does not exceed the actual cost to the employer where the equipment is purchased from him and does not include any direct or indirect monetary return to the employer where the equipment is purchased from a third person, and if the deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance; or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees.

(36 F.R. 9770, May 28, 1971.)

Section 3.6 Payroll deductions permissible with the approval of the Secretary of Labor.

- (a) Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under §3.5. The Secretary may grant permission whenever he finds that:
- (b) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in the form of a commission, dividend, or otherwise;
- (c) The deduction is not otherwise prohibited by law;
- (d) The deduction is either (1) voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and
- (e) The deduction serves the convenience and interest of the employee.

Section 3.7 Applications for the approval of the Secretary of Labor.

- (a) Any application for the making of payroll deductions under §3.6 shall comply with the requirements prescribed in the following paragraphs of this section:
- (b) The application shall be in writing and shall be addressed to the Secretary of Labor. The application need not identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions on all current and future contracts of the applicant for a period of 1 year. A renewal of permission to make such payroll deduction will be granted upon the submission of an application which makes reference to the original application, recites the date of the Secretary of Labor's approval of such deductions, states affirmatively that there is continued compliance with the standards set forth in the provisions of §3.6, and specifies any conditions which have changed in regard to the payroll deductions.

{36 F.R. 9770. May 28, 1971.}

- (c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of §3.6. The affirmation shall be accompanied by a full statement of the facts indicating such compliance.
- (d) The application shall include a description of the proposed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.
- (e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 Action by the Secretary of Labor upon applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provisions of §3.6; and shall notify the applicant in writing of his decision.

Section 3.9 Prohibited payroll deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under §3.6 are prohibited.

Section 3.10 Methods of payment of wages.

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this part. No other methods of payment shall be recognized on work subject to the Copeland Act.

Section 3.11 Regulations part of contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see §5.5(a) of this subtitle.

CERTIFICATION OF PROPOSED **SUBCONTRACTOR**
REGARDING SECTION 3 AND SEGREGATED FACILITIES

Name of Subcontractor

Project Name

Contract Number(s)

The undersigned hereby certifies that:

- (a) Section 3 provisions are included in the Contract;
- (b) A written Section 3 plan was prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$100,000);
- (c) Tables A and B were prepared and submitted as part of the bid proceedings (if bid equals or exceeds \$100,000); and
- (d) No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.

Name & Title of Signer (Print or Type)

Signature

Date

SECTION 3 CERTIFICATION OF SELECTED BIDDER
Completed by Prime
Contractor Only

Name of Prime Contractor

Project Name and Number

The undersigned hereby certifies that:

(Complete Section I or II)

Section I

A. The positions listed under part B that have been filled by _____
(Name of Prime Contractor)
since being notified of contract selection on _____
(Date of Award/Selection))

Were not filled to circumvent the contractor's obligations to provide employment opportunities, including training positions, for Section 3 residents, as required by Section 3 residents of the Housing & Urban Development Act of 1968 and the implementing regulations, 24 CFR Part 135.

B. Employment Positions filled since _____
(Date of Contract Award/Selection)

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

OR

Section II

No employment positions have been filled since _____
(Date of Contract Award/Selection)

Name of Signatory (print or type)

Title of Signatory

Signature

Date

NOTICE: This certification must be made BEFORE contract execution (24 CFR 135 135.38(e))



Texas General Land Office
 Community Development Block Grant (CDBG)
 Disaster Recovery Program

CERTIFICATION FOR BUSINESS CONCERNS
Seeking Section 3 Preference in Contracting and
Demonstration of Capability

Economic Opportunities for Low and Very Low-Income Persons

Grantee/Subrecipient:	Contract Number:	Date:
<input type="text"/>	<input type="text"/>	<input type="text"/>

CONTRACTOR INFORMATION

Name of Business

Address of Business

- Type of Business: Corporation Partnership Non-Profit Consortium
 Sole Proprietorship Joint Venture

Attach the following documentation as evidence of Section 3 eligible status:
 (Definition of "Section 3 Business Concern" in 24 CFR 135 describes the three alternative qualifications.)

For Business claiming status as a Section 3 resident-owned enterprise:

- | | |
|---|---|
| <input type="checkbox"/> Copy of resident lease | <input type="checkbox"/> Copy of receipt of public assistance |
| <input type="checkbox"/> Copy of evidence of participation in a public assistance program | <input type="checkbox"/> Other evidence |

For business entity as applicable:

- | | |
|---|---|
| <input type="checkbox"/> Copy of Articles of Incorporation | <input type="checkbox"/> Certificate of Good Standing |
| <input type="checkbox"/> Assumed Business Name Certificate | <input type="checkbox"/> Partnership Agreement |
| <input type="checkbox"/> List of owners/stockholders and % ownership of each appointed officers | <input type="checkbox"/> Corporation Annual Report |
| <input type="checkbox"/> Organization chart with names and titles and brief function statement | <input type="checkbox"/> Latest Board minutes |
| | <input type="checkbox"/> Additional documentation |

For business entity claiming Section 3 status by subcontracting 25 percent of the dollar awarded to qualified Section 3 business(es):

- List of subcontracted Section 3 business(es) and subcontract amount

For business claiming Section 3 status, by claiming at least 30 percent of their workforce are currently Section 3 residents or were Section 3 eligible residents within 3 years of date of first employment with the business:

- | | |
|---|---|
| <input type="checkbox"/> List of all current full-time employees | <input type="checkbox"/> List of employees claiming Section 3 status |
| <input type="checkbox"/> PHA/IHA Residential lease less than 3 years from day of employment | <input type="checkbox"/> Other evidence of Section 3 status less than 3 years from date of employment |

Evidence of ability to perform successfully under the terms and conditions of the proposed contract:

- | | |
|---|--|
| <input type="checkbox"/> Current financial statement | <input type="checkbox"/> Statement of ability to comply with public policy |
| <input type="checkbox"/> List of owned equipment | |
| <input type="checkbox"/> List of all contracts for the past two years | |

Authorized Name and Signature _____

Date _____

Attested By: _____

(Corporate Seal)

SECTION 3 INCOME LIMITS

All residents of public housing developments of the Housing Authority of _____

Qualify as Section 3 Residents.

Alternatively, individuals residing in the

City of _____

or County of _____

Who meet the income limits set forth below, can also qualify for Section 3 status.

A picture identification card and proof that illustrates applicant is a current resident of the subject area.

HUD updates area median income (AMI) annually and income limits vary by county. To find the latest income limits visit HUD's website: www.huduser.org/portal/datasets/il.html

Eligibility Guideline

Number in Household	Very Low Income (50% AMI)	Low Income (80%)
1 Individual		
2 Individuals		
3 Individuals		
4 Individuals		
5 Individuals		
6 Individuals		
7 Individuals		
8 Individuals		

Signature Field

Date

Print Name



Texas General Land Office
 Community Development Block Grant (CDBG)
 Disaster Recovery Program

SECTION 3
RESIDENT EMPLOYMENT OPPORTUNITY DATA
ELIGIBILITY FOR PREFERENCE

Economic Opportunities for Low and Very Low-Income Persons

Grantee/Subrecipient:	Contract Number:	Date:
<input type="text"/>	<input type="text"/>	<input type="text"/>

ELIGIBILITY FOR PREFERENCE

A Section 3 Resident seeking the preference in training and employment provided by this part shall certify, or submit evidence to the Subrecipient, Grantee, Contractor or Subcontractor, if requested, that the person is a Section 3 Resident, as defined in Section CFR 135.5. (An example of evidence of eligibility for the preference is evidence of receipt of public assistance, or evidence of participation in a public assistance program.)

Section 3 Resident Certification
for Worker Seeking Preference in Training
and Employment

RESIDENT COMPLETES THIS SECTION:

I, _____, am a legal resident of the _____

_____ and meet the income eligibility guidelines for a low- or very-low-income person as published on HUD'S income limits www.huduser.org/portal/datasets/il.html and documented on the reverse side of this form.

My permanent address is: _____

I have attached the following documentation as evidence of my status:

- | | |
|---|---|
| <input type="checkbox"/> Copy of Lease | <input type="checkbox"/> Copy of receipt of public assistance |
| <input type="checkbox"/> Copy of Evidence of participation in a public assistance program | <input type="checkbox"/> Other Evidence |

Resident Signature _____ Date _____

Print Name _____



Exhibit L

Posting Job Vacancies at WorkInTexas.com

And Connecting Section 3 Residents with Section 3 Jobs

Posting Job Vacancies at WorkInTexas.com
Required Language for Job Title and Job Description

Grantees and Subrecipients:

As required by the GLO Section 3 Policy, all Grantees, Subrecipients and their contractors who are receiving DR funding must post their job vacancies with the state's free job matching system – WorkInTexas.com. There are two ways to do this. You can self-register an employer account and post jobs directly online or you can contact your local Workforce Solutions Office. Staff is available to assist with account registration and/or can post jobs on your behalf at WorkIntexas.com

Specifically, Grantees, Subrecipients and Contractors must:

- Register with WorkInTexas.com;
- Register with their Local Workforce Solutions Center and/or Work-in-Texas Website;
- Post all DR related job postings at WorkInTexas.com; and
- Include the word SEC3 in the job title and job description.

-SAMPLE-

Job Title-

SEC3 Construction Laborer

Job Description-

SEC3

Looking for a general laborer to work in housing construction. Construction experience a plus.

Included with this document is a list of tips that Grantees, Subrecipients and contractors can use in posting job vacancies provided by Texas Workforce Commission.

Tips for Employers Posting Jobs in WorkInTexas.com
Provided by Texas Workforce Commission

WorkInTexas.com is a job matching site rather than a job lead generation site. We compare required job posting qualifications and job seeker qualifications with data in WorkInTexas.com to find quality matches. We believe we're providing better customer service by making sure your jobs attract qualified candidates before providing contact information to you or the job seeker. Recruiting can be difficult and expensive and we don't want to waste anyone's time. So, ensuring your job posting is as good and complete as possible is rule #1.

Rule #1 – Take the time. Quality in means quality out, so spend the extra time up front making sure you've included as much detail as possible. The more complete your job posting, the better your matching results will be. And, a good job posting will keep you from missing out on good matches down the road.

Rule #2 – Choose occupations wisely. Job “matching” is based on behind-the-scenes computer logic, but it all boils down to the occupations you choose. The more occupations you select, the more job seekers you'll attract (match) to your job posting, and vice versa.

Rule #3 – Include pay, even if you choose to suppress it from job seeker view. It will narrow your results, and possibly increase the quality of your matches. Also, job matches are based on minimum salary, even if maximum salary is provided, so consider posting the actual salary amount you're willing to pay to ensure better job matches (matches will be restricted if the pay is too low).

Rule #4 – Using “Keywords” can help you reduce the number of job seekers matched with your job posting. Keywords are single words or phrases you can enter to clarify specific qualifications you're looking for, such as computer languages, licenses, or certifications.

Rule #5 – Use “Screening Questions.” These are questions you can add to your posting that job seekers must answer before they contact you or apply. Answers do not limit anyone's ability to apply, but the information does offer you a unique opportunity to pre-screen and evaluate interested applicants.

Rule #6 – View your job posting to see what job seekers will see. This is a great self-test of the quality and completeness of your job opportunity. If it looks short on detail to you, imagine what a job seeker will think. Take the time to go back and enter more information.

Rule #7 – Use Site Help. It's our version of a “tutorial” and explains in general terms the major functions in WorkInTexas.com.

If you're looking for Veterans (only)

- All jobs entered in WorkInTexas.com are automatically made available to veterans only for the first two days.
- When posting your job, you can choose to make it available to veterans only for the lifetime of the posting by selecting “Veterans Only – Yes.”
- Veteran applicants who apply for your job will be marked with an American Flag icon, indicating that they are eligible U.S. Military Veterans in good standing.

Registering and Searching For Job Vacancies at WorkInTexas.com For Section 3 Residents

.....

Dear Section 3 Resident,

As required by the GLO Section 3 Policy, all Grantees, Subrecipients and their contractors who are receiving DR funding post their job vacancies with their Local Workforce Solutions Center and/or Work-in-Texas.

To help connect you to these job opportunities you must:

- Register as a job seeker with WorkInTexas.com and/or contact the local Workforce Solutions Office for assistance with registration;
- After you complete basic registration, it is important you add a Section 3 related keyword to your profile. To do so follow these steps:
 1. Click on the My Portfolio tab, in the top navigation
 2. Click on Keywords in the Job Matching Criteria section
 3. In the Keyword to add field enter: sec3 Enter 0 for both years and months experience
 4. Click the Add Keyword button

Job Match Keywords

* indicates required information

* **Keyword to add** SEC3

* **Experience** 0 years 0 months

Add Keyword Previous

In addition, you can search for existing Section 3 job vacancies by selecting the Browse Jobs menu on the title bar then by Text. In the Enter Text line type the word: "**SEC3**", then hit search.

If you need help, please contact your local Workforce Solutions Center. You may search for one here:
<http://www.twc.state.tx.us/dirs/wdas/directory-offices-services.html?mid=0.07262226541895678>



Texas General Land Office
 Community Development Block Grant (CDBG)
 Disaster Recovery Program

**NEW HIRES SECTION 3
 MONTHLY COMPLIANCE REPORT**

Reporting Month:

Economic Opportunities for Low and Very Low-Income Persons

This form is distributed to the General Contractor (GC) at the Pre-Construction Meeting. GC is also required to provide this form to any subcontractor firms that they anticipate hiring for this project.

CONTRACTOR INFORMATION

Name of Business:

Address of Business:

Authorized Representative for this contract:

Authorized Signatory:

ADDITIONALLY, PLEASE REVIEW AND COMPLY WITH STEPS 1 - 3 BELOW:

1. You must **sign and date** this form for the each applicable reporting month in connection with awarded project and deliver to:

2. When you **hire** a Section 3 resident in connection with this project, you must also complete this form and submit it to the Section 3 Coordinator identified above. Even if there were no **new hires** this form **must be completed and submitted to the Section 3 Coordinator identified above.**

I have not hired any new employees during the reporting Month specified.

I have hired Section 3 employees and/or non-Section 3 employees during the reporting month shown here.

The following is a list of the new hires and the trades:

	New Hire Name	Job Category/Trade	Full-time? Yes or No
1.			<input style="width: 100%; height: 20px;" type="text"/>
2.			<input style="width: 100%; height: 20px;" type="text"/>
3.			<input style="width: 100%; height: 20px;" type="text"/>
4.			<input style="width: 100%; height: 20px;" type="text"/>

I have taken one or more of the following recruitment steps to hire a Section 3 Resident with the highest training and employment priority ranking. Provide a brief description of actions taken:

I have taken steps to find a Section 3 Resident in the applicable targeted areas where the project(s)/assistance will take place. List areas:

- Placed signs or posters at prominent places in each of the above listed areas. *Photographs were taken to document this action.*

I have advertised to fill vacancy(ies) at the site(s), where work is taking place, in connection with this project. List advertisements (name publication, e.g. Work in Texas, Houston Chronicle, and/or website(s):

- Distributed employment flyers to the administrative office of the local Public Housing Authority.
- Provided notice of positions available to the Texas Workforce Commission for potential applicants. *Provide copy of notice.*
- Contacted employment referrals or Youthbuild Program referrals. List contacts:

- Contacted with applicable parties to ensure that any HUD Youthbuild programs currently operating in the project(s) area/ assistance will take place.
- Kept a log of all applicants and indicate the reasons why Section 3 Residents who applied were not hired.
- Retained copies of any employment applications completed by public housing, Section 8 certificate or voucher holders or other Section 3 Residents.
- Sent a notice about Section 3 training and employment requirements and opportunities to labor organizations or to worker representatives with whom our firm has a collective bargaining or other agreement.

3. Verification

- I have attached proof of all checked items.

Authorized Name and Signature

Date/Time Field

Attested By:

Summarize what happened? Attach additional information if necessary

--

	Date:

Instructions for the Complaint Register
Section 3 of the Housing and Urban Development Act of 1968

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB number.

The information is given voluntarily and provides the basis for HUD's investigation of the complaint to determine if the allegations of noncompliance are valid. The Department will use the information provided as the basis for its determination of jurisdiction over a complainant's allegations. All information collected complies with the Privacy Act of 1974 and OMB Circular A-108. The information is not of a sensitive nature. The information is unique to the processing an allegation of noncompliance with the Section 3 statute or implementing regulations.

This form is to be used to report allegations of noncompliance with Section 3 of the Housing and Urban Development Act of 1968, as amended and implementing regulations at 24 CFR Part 135.

What does Section 3 of the Housing and Urban Development Act of 1968 provide?

The law describes the HUD programs directly affected by Section 3, receiving Federal financial assistance from the Department, and dictates how these programs are to provide employment and other economic opportunities for low and very low income persons.

What does the law cover?

Section 3 applies to any Public and Indian Housing programs that receive: (1) developmental assistance pursuant to section 5 of the U. S. Housing Act of 1937; (2) operating assistance pursuant to section 5 of the U.S. Housing act of 1937; or (3) modernization grants pursuant to section 14 of the U.S. Housing Act of 1937, and to housing and community development assistance extended for: (1) housing rehabilitation (including reduction and abatement of lead based paint hazards); (2) housing construction or (3) other public construction projects; and for which the contract and subcontract exceeds \$100,000.

What can you do about violations of the Law?

Remember, Section 3 applies to the awarding of jobs, training programs, and contracts, generated from projects receiving HUD financial assistance. If you believe that, as a low-income person or a Section 3 business concern, the responsibilities to provide economic opportunities under Section 3 have been violated, you have a right to file a complaint within 180 days of the last alleged occurrences of noncompliance.

Complain to the Assistant Secretary for Fair Housing and Equal Opportunity, Department of Housing and Urban Development, by filing this form by mail or in person. The information received will be used by HUD to determine jurisdiction under Section 3.

HUD will send the complaint to the appropriate HUD recipient for resolution. If resolution by the recipient fails, HUD will investigate. If HUD finds that the complaint has merit, it will try to end the violation by informal resolution. If conciliation fails, HUD may initiate other steps to enforce the law, including but not limited to suspension and debarment of the recipient or contractors as applicable.

You can obtain assistance in learning about Section 3 or in filing a complaint at the HUD Office listed below:

Assistant Secretary
HUD Fair Housing and Equal Opportunity
451 7th Street SW
Washington, DC 20410
(202)-708-3633

Privacy Act of 1974 (P.L.93-579)

Authority: Section 3 of the Housing and Urban Development Act of 1968, as amended by the Housing and Community Development Act of 1968, as amended by the Housing and Community Development Act of 1992, U.S.C. 1701u and implementing regulations at 24 CFR Part 135.

Purpose: The information requested on this form is to be used to investigate and process Section 3 complaints.

Use: The information requested will be used to process a complaint filed under Part 135. HUD may disclose certain information for Federal, State, and local agencies when relevant to civil, criminal, or regulatory investigations and prosecutions. It will not be otherwise disclosed or released outside of HUD, except as required and permitted by law.

Penalty: Failure to provide some or all of the requested information will result in delay or denial of HUD assistance.

Disclosure of this information is voluntary.



HURRICANNE RECOVERY PROJECT

This project is funded by the General Land Office of the State of Texas to provide for disaster recovery and restoration of infrastructure for Communities impacted by the 2008 hurricanes.



Funds allocated by the United States Department Of Housing and Urban Development through the Community Development Block Grant Program.

WWW.GLO.TEXAS.GOV

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Jefferson County Office Building - Port Arthur Texas**SECTION 00003**
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Jefferson County Bidding Requirements

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01019	Contract Considerations
01039	Coordination and Meetings
01300	Submittals
01400	Quality Control
01410	Testing Laboratory Services
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01600	Material and Equipment
01700	Contract Closeout

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02055	Soil Materials
02316	Excavating
02318	Backfilling
02750	Portland Cement Concrete Paving

DIVISION 3 - CONCRETE

03300	Cast-in-Place Concrete
-------	------------------------

DIVISION 4 - MASONRY

04100	Mortar for Face Brick
04160	Joint Reinforcement and Lintels
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DIVISION 5 - STEEL

05100	Structural Steel
05200	Steel Joists/Girders
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Jefferson County Office Building - Port Arthur Texas

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DIVISION 6 - WOOD AND PLASTICS

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07213 Batt Insulation

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Jefferson County Office Building - Port Arthur Texas**DIVISION 10 - EQUIPMENT**

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16460	Dry Type Transformer
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END OF SECTION 00003

Jefferson County Office Building - Port Arthur Texas

SECTION 01010
SUMMARY OF WORK**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Description of Project.
- B. Contractor use of site and premises.
- C. Future work.
- D. Owner occupancy.

1.2 DESCRIPTION OF PROJECT

- A. This project is a new office building, of approximately 14,300 SF, with all related utilities and parking areas as shown and described in the Construction Documents. Work of this Contract includes all related services and materials required for a complete and operable building complying with all the requirements of the City of Port Arthur, Jefferson County, the State of Texas and United States. In addition, systems include a Fire Protection System complying with the regulations of NFPA 13 and a Fire Alarm / Smoke Alarm System complying with NFPA 72. Both life safety protection systems shall meet all requirements of the City of Port Arthur and in be full compliance with the Texas Accessibility Standards and Americans with Disabilities Act.

1.3 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow:
 - 1. Owner occupancy.
 - 2. Work by Others.
 - 3. Use of site and premises by County Employees and employees of Drainage District 7 for access to adjacent Pump Station.
- B. Construction Operations: Limited to areas noted on Drawings.
- C. Time Restrictions for Performing Work: In accordance with City of Port Arthur Requirements.
- D. Utility Outages and Shutdown: Provide Forty Eight (48) hour notice to all affected parties and Owner prior to any utility interruptions.

1.4 FUTURE WORK

- A. Project is designed for future installation of Owner provided and Installed Equipment and Furnishings.
- B. Provide blocking required and/or requested for future installation of wall hung equipment.
- C. Provide Wall Boxes along with Ring and String for all Data and Telephone Connections shown on Drawings.
- D. Provide all slabs, bollards, conduits and utility conduit connections required for the future installation of the Emergency Generator.

1.5 OWNER OCCUPANCY

- A. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.
- B. Schedule the Work to accommodate this requirement.

Jefferson County Office Building - Port Arthur Texas

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01010

Jefferson County Office Building - Port Arthur Texas**SECTION 01019**
CONTRACT CONSIDERATIONS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Schedule of values.
- B. Application for payment.
- C. Change procedures.
- D. Measurement and payment - unit prices

1.2 SCHEDULE OF VALUES

- A. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic media printout will be considered.
- B. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- C. Revise schedule to list approved Change Orders, with each Application For Payment.

1.3 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on AIA Form G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet. Contractor's electronic media driven form.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: One Month.
- D. Waiver of Lien by General Contractor for amount included in Application and Partial Waiver of Lien by Subcontractors for previous Applications.
- E. Include additional forms required by Owner as agreed to during contract negotiations.

1.4 CHANGE PROCEDURES

- A. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201.
- B. The Owner may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within ten (10) working days.
- C. The Contractor may propose changes by submitting a request for change to the Architect/Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price

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- and Contract Time with full documentation.
- D. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for a Change Order as approved by Owner.
 - E. Unit Price Change Order: For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis.
 - F. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Owner will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
 - G. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
 - H. Execution of Change Orders: Contractor will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.5 MEASUREMENT AND PAYMENT - UNIT PRICES

- A. Authority: Measurement methods are delineated in the individual specification sections.
- B. Take measurements and compute quantities. The Owner will review measurements and quantities.
- C. Unit Quantities: Quantities and measurements indicated in the Bid Form are for contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment.
- D. Payment Includes: Full compensation for required labor, products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.
- E. Defect Assessment: Replace the Work, or portions of the Work, not conforming to specified requirements. If, in the opinion of the Owner, it is not practical to remove and replace the Work, the Owner will direct an appropriate remedy or adjust payment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01019

Jefferson County Office Building - Port Arthur Texas**SECTION 01039**
COORDINATION AND MEETINGS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Coordination.
- B. Field Engineering.
- C. Alteration project procedures.
- D. Cutting and patching.
- E. Preconstruction conference.
- F. Progress meetings.
- G. Preinstallation conferences.

1.2 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owners partial occupancy.
- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.3 FIELD ENGINEERING

- A. Employ a Land Surveyor registered in the State of Texas and acceptable to the Owner.
- B. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.
- C. Submit a copy of registered site drawing and certificate signed by the Land Surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

1.4 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in product Sections; match existing products and work for patching and extending work.
- B. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity.

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- C. Remove, cut, and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original 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 finishes.
- E. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
- F. 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 Architect.
- G. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition.
- H. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- I. Finish surfaces as specified in individual product Sections.

1.5 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements which affects:
 - 1. Structural integrity of element.
 - 2. Integrity of weather-exposed or moisture-resistant elements.
 - 3. Efficiency, maintenance, or safety of element.
 - 4. Visual qualities of sight-exposed elements.
 - 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching, to complete Work, and to:
 - 1. Fit the several parts together, to integrate with other Work.
 - 2. Uncover Work to install or correct 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.
- D. Execute work by methods which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.
- E. Cut rigid materials using masonry saw or core drill.
- F. Restore Work with new products in accordance with requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- H. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- I. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.
- J. Identify any hazardous substance or condition exposed during the Work to the Architect for decision or remedy.

1.6 PRECONSTRUCTION CONFERENCE

- A. Owner will schedule a conference after Notice of Award.
- B. Attendance Required: Owner, Architect/Engineer, and Contractor.

1.7 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum semi-

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- monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies within two working days to Architect, Owner, participants, and those affected by decisions made.
 - C. Attendance Required: Job Superintendent, Major Subcontractors and Suppliers, Owner, Owner's Representative, Architect as appropriate to agenda topics for each meeting.

1.8 PREINSTALLATION CONFERENCES

- A. When required in individual specification Section, convene a preinstallation conference at work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific Section.
- C. Notify Owner and Construction Project Manager seven days in advance of meeting date.
- D. Prepare agenda, preside at conference, record minutes, and distribute copies within two working days after conference to participants, with two copies to Architect.
- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01039

Jefferson County Office Building - Port Arthur Texas**SECTION 01300**
SUBMITTALS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Shop drawings.
- E. Product data.
- F. Samples.
- G. Manufacturers' instructions.
- H. Manufacturer's Certificates and Windstorm Design Engineering.

1.2 RELATED SECTIONS

- A. Section 01019 - Contract Considerations: Schedule of Values.
- B. Section 01700 - Contract Closeout: Contract warranty and manufacturer's certificates and closeout submittals.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Owner accepted form.
- B. Contractor shall log all submittals, identifying Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- C. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- D. Schedule submittals to expedite the Project, and deliver all submittals to Owner for routing to consultants.
- E. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- F. Provide space for Contractor and Architect/Engineer review stamps.
- G. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- H. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial progress schedule in duplicate within 15 days after date established in Notice to Proceed for Architect review.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

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- D. Submit a horizontal bar chart with separate line for each major section of Work or operation identifying first work day of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- F. Indicate estimated percentage of completion for each item of Work at each submission.
- G. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances.

1.5 PROPOSED PRODUCTS LIST

- A. Within 15 days after date of Notice to Proceed, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards.

1.6 SHOP DRAWINGS

- A. Submit in the form of one loose reproducible opaque copy and five bound (5) opaque copies of all required submittal information.
- B. After review, reproduce and distribute in accordance with Article on Submittal Procedures above and for Record Documents described in Section 01700 - Contract Closeout.

1.7 PRODUCT DATA

- A. Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Owner after submittal review.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
- C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700 - Contract Closeout.

1.8 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors or in custom colors selected as indicated in the individual sections, textures, and patterns for Architect selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number of samples specified in individual specification Sections; one of which will be retained by Architect.
- E. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

1.9 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing,

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in quantities specified for Product Data.

- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.10 MANUFACTURER'S CERTIFICATES AND WINDSTORM DESIGN ENGINEERING

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect for review, in quantities specified for Product Data.
- B. When required and/or specified in individual Specification Sections, submit manufacturers' Windstorm Engineering Data sealed by an Engineer registered in the State of Texas for review, in quantities specified for Product Data.
- C. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- D. Certificates may be recent or previous test results on material or Product, but must be acceptable to .

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not used

END OF SECTION 01300

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SECTION 01400
QUALITY CONTROL**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Quality assurance and control of installation.
- B. References.
- C. Field samples.
- D. Mock-up.
- E. Manufacturers' field services and reports.

1.2 RELATED SECTIONS

- A. Section 01300 - Submittals: Submission of Manufacturers' Instructions and Certificates.
- B. Section 01410 - Testing Laboratory Services.
- C. Section 01600 - Material and Equipment: Requirements for material and product quality.

1.3 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Construction Project Representative before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.4 REFERENCES

- A. Conform to reference standard by date of issue current on date for receiving bids.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Construction Project Representative before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications Sections for review.
- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified in individual Sections to be removed, clear area when instructed by Construction Project Representative.

Jefferson County Office Building - Port Arthur Texas**1.6 MOCK-UP**

- A. Tests will be performed under provisions identified in this section.
- B. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Where mock-up is specified in individual Sections to be removed, clear area when instructed by Construction Project Representative.

1.7 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. Submit qualifications of observer to Construction Project Representative 30 days in advance of required observations. Observer subject to approval of Construction Project Representative and Owner.
- B. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.
- C. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Submit report within 10 working days of observation to Construction Project Representative for review.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used.

END OF SECTION 01400

Jefferson County Office Building - Port Arthur Texas**SECTION 01410**
TESTING LABORATORY SERVICES**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Selection and payment.
- B. Quality Assurance.
- C. Contractor Submittals.
- D. Laboratory Responsibilities.
- E. Laboratory Reports.
- F. Limits on Testing Laboratory Authority.
- G. Contractor Responsibilities.
- H. Schedule of Inspections and Tests.

1.2 RELATED SECTIONS

- A. Information Available to Bidders: Soil Investigation Data.
- B. General Conditions: Inspections, testing, and approvals required by public authorities.
- C. Section 01300 - Submittals: Manufacturer's certificates.
- D. Section 01400 - Quality Control.
- E. Section 01700 - Contract Closeout: Project Record Documents.
- F. Individual Specification Sections: Inspections and tests required, and standards for testing.

1.3 REFERENCES

- A. ANSI/ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
- B. ANSI/ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.4 SELECTION AND PAYMENT

- A. Contractor shall employ and pay for services of an independent testing laboratory to perform all Materials Testing and Field Observation required by Jefferson County and the City of Port Arthur.
- B. Employment of testing laboratory shall in no way relive Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.5 QUALITY ASSURANCE

- A. Comply with requirements of ANSI/ASTM E329 and ANSI/ASTM D3740.
- B. Laboratory: Authorized to operate in State of Texas.
- C. Laboratory Staff: Maintain a full time registered Engineer on staff to review services.
- D. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

Jefferson County Office Building - Port Arthur Texas**1.6 CONTRACTOR SUBMITTALS**

- A. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time Registered Professional Engineer, Engineering Specialists and responsible Corporation Officer.
- B. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards (NBS) during most recent tour of inspection, with memorandum of remedies of any deficiencies reported by the inspection.

1.7 LABORATORY RESPONSIBILITIES

- A. Test samples of mixes submitted by Contractor.
- B. Provide qualified personnel at site. Cooperate with Construction Project Representative and Contractor in performance of services.
- C. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.
- D. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- E. Promptly notify Construction Project Representative and Contractor of observed irregularities or non-conformance of Work or Products.
- F. Perform additional inspections and tests required by Construction Project Representative.
- G. Attend preconstruction conferences and progress meetings.

1.8 LABORATORY REPORTS

- A. After each inspection and test, promptly submit one copy of laboratory report to Construction Project Representative, Owner and two copies of laboratory reports to Contractor.
- B. Include:
 - 1. Date issued,
 - 2. Project title and number,
 - 3. Name of inspector,
 - 4. Date and time of sampling or inspection,
 - 5. Identification of product and Specifications Section,
 - 6. Location in the Project,
 - 7. Type of inspection or test,
 - 8. Date of test,
 - 9. Results of tests,
 - 10. Conformance with Contract Documents.
- C. When requested by Construction Project Representative, provide interpretation of test results.

1.9 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of the Work.
- C. Laboratory may not assume any duties of Contractor.
- D. Laboratory has no authority to stop the Work.

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1.10 CONTRACTOR RESPONSIBILITIES

- A. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing, along with proposed mix designs.
- B. Cooperate with laboratory personnel, and provide access to the Work and to manufacturer's facilities.
- C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
- D. Notify Construction Project Representative and laboratory 24 hours prior to expected time for operations requiring inspection and testing services.
- E. Pay costs of testing laboratory services on approval of invoices by Construction Project Representative.
- F. Arrange with laboratory and pay for additional samples and tests required by Contractor beyond specified requirements.

1.11 SCHEDULE OF INSPECTIONS AND TESTS

- A. Refer individual specification sections for documentation and materials testing requirements.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01410

Jefferson County Office Building - Port Arthur Texas**SECTION 01500**
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, protection of the Work, and water control.
- C. Construction Facilities: Access roads, parking, progress cleaning, project signage, and temporary buildings.

1.2 RELATED SECTIONS

- A. Section 01700 - Contract Closeout: Final cleaning.

1.3 TEMPORARY ELECTRICITY

- A. Provide and pay for power service required from Utility source.
- B. Provide power outlets for construction operations, with branch wiring and distribution boxes located at each floor. Provide flexible power cords as required.
- C. Provide main service disconnect and overcurrent protection at convenient location.
- D. Permanent convenience receptacles may be utilized during construction.
- E. Provide adequate distribution equipment, wiring, and outlets to provide single phase branch circuits for power and lighting.
 - 1. Provide 20 ampere duplex outlets, single phase circuits for power tools.
 - 2. Provide 20 ampere, single phase branch circuits for lighting.

1.4 TEMPORARY LIGHTING

- A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level required for individual construction operation.
- B. Provide and maintain 1 watt/sq ft lighting to exterior staging and storage areas after dark for security purposes.
- C. Provide and maintain 0.25 watt/sq ft H.I.D. lighting to interior work areas after dark for security purposes.
- D. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- E. Maintain lighting and provide routine repairs.
- F. Permanent building lighting may be utilized during construction.

1.5 TEMPORARY HEAT

- A. New equipment shall not be used. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operations.
- A. Enclose building prior to activating temporary heat in accordance with Article 1.13 - Exterior Enclosures in this Section.

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- B. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.
- C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.6 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.7 TEMPORARY TELEPHONE SERVICE

- A. Provide, maintain and pay for telephone service to field office at time of project mobilization.

1.8 TEMPORARY WATER SERVICE

- A. Provide, maintain and pay for suitable quality water service required for construction operations.
- B. Extend branch piping with outlets located so water is available by hoses with threaded connections. Provide temporary pipe insulation to prevent freezing.

1.9 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures.

1.10 TEMPORARY CONSTRUCTION BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations and demolition.
- B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.
- C. Provide protection for plant life designated to remain. Replace damaged plant life.
- D. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.11 TEMPORARY FENCING

- A. Construction: Contractor's option.
- B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.12 TEMPORARY WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide silt fencing and water barriers as required by authorities having jurisdiction to protect site from soil erosion.

Jefferson County Office Building - Port Arthur Texas**1.13 TEMPORARY EXTERIOR ENCLOSURES**

- A. Provide temporary insulated weather-tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification Sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.
- B. Provide temporary roofing as required for acceptable working conditions and protection for Products.

1.14 TEMPORARY INTERIOR ENCLOSURES

- A. Provide temporary partitions and ceilings as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.
- B. Construction: Framing and [reinforced polyethylene] [plywood] [gypsum board] sheet materials with closed joints and sealed edges at intersections with existing surfaces; insulated to R 13 rating for enclosures protected heated areas, with STC rating of 35 in accordance with ASTM E90, maximum Flame Spread Rating of 75 in accordance with ASTM E84.
- C. Paint surfaces exposed to view from Owner occupied areas.

1.15 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.16 PROJECT SECURITY

- A. Provide security and facilities to protect Work from unauthorized entry, vandalism, or theft.
- B. Coordinate with Owner's security program.

1.17 PROJECT ACCESS ROADS, FIRE PROTECTION AND MUD CONTROL

- A. Construct and maintain temporary roads accessing public thoroughfares to serve construction area.
- B. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.

Jefferson County Office Building - Port Arthur Texas**1.18 PROJECT PARKING**

- A. Arrange for temporary all weather surface parking areas to accommodate construction personnel.
- B. When site space is not adequate, provide additional off- site parking.
- C. Do not allow vehicle parking on existing pavement.

1.19 PROJECT PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.20 PROJECT IDENTIFICATION

- A. Provide 8 w x 6 h foot project sign of exterior grade plywood and wood frame construction, painted, with exhibit lettering by professional sign painter, to Owner design and colors.
- B. List title of project, names of Owner, Design Consultants, Contractor, and major Subcontractors.
- C. Erect on site at location indicated established by Owner.
- D. No other signs are allowed without Owner permission except those required by law.

1.21 PROJECT FIELD OFFICES AND SHEDS

- A. Office: Lockable entrance, operable windows, weather-tight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture, drawing rack and drawing display table.
- B. Provide space for project meetings, with table and chairs to accommodate 6 persons.

1.22 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Final Application for Payment inspection.
- B. Remove underground installations to a minimum depth of 2 feet. Grade site as indicated.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.23 SITE SECURITY AND PROTECTION

- A. General: Provide facilities and services as necessary to effectively protect project from losses and persons from injury during the course of construction.
- B. Fire Protection: In addition to temporary water service for construction, and the placing of permanent fire protection facilities in operating condition at earliest feasible date, provide fire extinguishers of types and sizes recommended by NFPA and required by governing bodies. Provide Type A extinguishers in Field Offices and for similar exposures; Type ABC

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- in construction areas. Locate extinguishers on each story of construction, near each entrance and stairway. Prohibit smoking except in marked, non-hazardous areas.
- C. Barricades: Provide barricades at hazardous locations complete with signs, general lighting, warning lights and similar devices where appropriate or required by regulations.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01500

Jefferson County Office Building - Port Arthur Texas**SECTION 01600**
MATERIAL AND EQUIPMENT**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Products.
- B. Transportation and handling.
- C. Storage and protection.
- D. Product options.
- E. Substitutions.

1.2 RELATED SECTIONS

- A. Instructions to Bidders: Product options and substitution procedures.
- B. Section 01400 - Quality Control: Product quality monitoring.

1.3 PRODUCTS

- A. Products is defined as new materials, machinery, components, fixtures, and systems forming the Work. Products do not include machinery and equipment used in preparation, fabrication, conveying and erection of the Work. Products may also include existing materials and/or components required for reuse or reinstallation.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacture, for components being replaced.

1.4 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure that Products comply with requirements, quantities are correct, and Products are undamaged.
- C. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.5 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturers' instructions, with seals and labels intact and legible.

1.6 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any Product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for

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Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.7 SUBSTITUTIONS

- A. Owner will consider requests for Substitutions only within 15 days after notification date established as the Notice to Proceed.
- B. Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request for substitution constitutes a representation that the General Contractor:
 - 1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified Product.
 - 2. Will provide the same warranty for the Substitution as for the specified Product.
 - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
 - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
 - 5. Will reimburse Owner and Architect/Engineer for all review or redesign services associated with substitution.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Substitution Submittal Procedure:
 - 1. Submit three copies of Request for Substitution for consideration. Limit each request to one proposed Substitution.
 - 2. Submit shop drawings, product data, and certified test results attesting to the proposed Product equivalence. Burden of proof is on proposer.
 - 3. The Architect/Engineer will notify Contractor in writing of decision to accept or reject request.
- G. Acceptance of substituted materials by the Owner and Architect/Engineer constitutes a representation that:
 - 1. Accepted substitutions requested by the General Contractor remain his responsibility and he alone shall be responsible for the correct function, operation, performance and accommodation of other listed articles, materials equipment.
 - 2. The General Contractor shall bear all costs associated and in conjunction with any and all changes arising out of the use of substituted materials and/or equipment.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 01600

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SECTION 01700
CONTRACT CLOSEOUT**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Warranties.
- G. Spare parts and maintenance materials.

1.2 RELATED SECTIONS

- A. Section 01500 - Construction Facilities and Temporary Controls: Progress cleaning.

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Construction Project Representative's inspection.
- B. Provide submittals to Construction Project Representative that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- D. Owner will occupy building as specified in Section 01010.

1.4 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to a sanitary condition.
- D. Replace filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.5 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

Jefferson County Office Building - Port Arthur Texas**1.6 PROJECT RECORD DOCUMENTS**

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and Modifications.
- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish [first] [main] floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
- F. Delete Architect title block and seal from all documents.
- G. Submit documents to Construction Project Representative with claim for final Application for Payment.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit two sets prior to final inspection, bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.
- B. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, date of substantial completion, and subject matter of binder when multiple binders are required.
- C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, type on 30 pound white paper.
- E. Part 1: Directory, listing names, addresses, and telephone numbers of Construction Project Representative, Contractor, Subcontractors, and major equipment suppliers.
- F. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - 1. Significant design criteria.
 - 2. List of equipment.
 - 3. Parts list for each component.
 - 4. Operating instructions.
 - 5. Maintenance instructions for equipment and systems.
 - 6. Maintenance instructions for special finishes, including recommended cleaning

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- methods and materials and special precautions identifying detrimental agents.
- G. Part 3: Project documents and certificates, including the following:
 - 1. Shop drawings and product data.
 - 2. Air and water balance reports.
 - 3. Certificates.
 - 4. Photocopies of warranties and bonds.
 - H. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with Construction Project Representative's comments. Revise content of documents as required prior to final submittal.
 - I. Submit final volumes revised, within ten days after receipt of Construction Project Representative's comments.

1.8 WARRANTIES

- A. Provide duplicate notarized copies.
- B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.
- C. Provide Table of Contents and assemble in three D side ring binder with durable plastic cover.
- D. Submit prior to final Application for Payment.
- E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

1.9 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

END OF SECTION 01700

Jefferson County Office Building - Port Arthur Texas**SECTION 02055**
SOIL MATERIALS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Subsoil and topsoil materials.
- B. Source Quality Control.

1.2 RELATED SECTIONS

- A. Section 02318 - Backfilling.

1.3 REFERENCES

- A. AASHTO T180 - Moisture-Density Relations of Soils Using a 10-lb (4.54 kg) Rammer and an 18-in. (457 mm) Drop.
- B. ANSI/ASTM D698 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, Using 5.5 lb (2.49 Kg) Rammer and 12 inch (304.8 mm) Drop.
- C. ANSI/ASTM D1556 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- D. ANSI/ASTM D1557 - Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10 lb (4.54 Kg) Rammer and 18 inch (457 mm) Drop.
- E. ASTM D2167 - Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
- F. ASTM D2487 - Classification of Soils for Engineering Purposes.
- G. ASTM D2922 - Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
- H. ASTM D3017 - Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Samples: Submit, in air-tight containers, 10 lb. sample of each type of fill to testing laboratory.
- C. Materials Source: Submit name of imported materials suppliers. Provide materials from same source throughout the work. Change of source requires Architect/Engineer approval.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

- A. Subsoil: Conforming to Requirements of Soils Engineer as defined in the Soils Report and State of Texas Highways Department Standards.

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2.2 SOURCE QUALITY CONTROL

- A. Tests and analysis of soil material will be performed in accordance with ANSI/ASTM D698.
- B. If tests indicate materials do not meet specified requirements, change material and retest at no cost to Owner.

PART 3 EXECUTION

3.1 STOCKPILING

- A. Stockpile materials on site.
- B. Stockpile in sufficient quantities to meet project schedule and requirements.
- C. Separate differing materials with dividers or stockpile apart to prevent mixing.
- D. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.2 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.
- B. If a borrow area is indicated, leave area in a clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION 02055

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SECTION 02316
EXCAVATING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Excavating for slabs-on-grade, and paving.
- B. Excavating for site structures.
- C. Field Quality Control.
- D. Protection.

1.2 FIELD MEASUREMENTS

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Locate, identify, and] protect utilities that remain, from damage.
- C. Notify utility company to locate, remove and relocate utilities as required.
- D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and vehicular traffic.

3.2 EXCAVATION

- A. Underpin adjacent structures which may be damaged by excavation work.
- B. Excavate subsoil required to accommodate slabs-on-grade, paving and site structures, and construction operations.
- C. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- D. Hand trim excavation. Remove loose matter.
- E. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume. Larger material will be removed under Section 02202.
- F. Notify Owner of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- G. Correct areas over-excavated.
- H. Stockpile excavated material in area designated on site and remove excess material not being reused, from site.

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3.3 FIELD QUALITY CONTROL

- A. Provide for visual inspection of bearing surfaces.

3.4 PROTECTION

- A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation, from freezing.

END OF SECTION 02316

Jefferson County Office Building - Port Arthur Texas**SECTION 02318**
BACKFILLING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Fill under slabs-on-grade.
- B. Fill under walkway paving.

1.2 RELATED SECTIONS

- A. Section 02055 - Soil Materials.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Fill Type: As specified in Section 02055.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify subdrainage, dampproofing or waterproofing installation has been inspected.

3.2 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of in situ compaction.

3.3 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.

END OF SECTION 02318

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SECTION 02750
PORTLAND CEMENT CONCRETE PAVING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Concrete sidewalks, stair steps, integral curbs, gutters, median barriers, parking areas, and roads.
- B. Aggregate base course.

1.2 RELATED SECTIONS

- A. Section 02318 - Backfilling: Compacted subbase for paving.
- B. Section 07900 - Sealants: Sealant for joints.
- C. Section 09900 - Painting: Pavement markings.

1.3 REFERENCES

- A. ACI 301 - Specifications for Structural Concrete for Buildings.
- B. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- C. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- D. ASTM A497 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- E. ASTM A615 - Deformed and Plain Billet-Steel for Concrete Reinforcement.
- F. ASTM C33 - Concrete Aggregates.
- G. ASTM C94 - Ready Mix Concrete.
- H. ASTM C150 - Portland Cement
- I. ASTM C260 - Air-Entraining Admixtures for Concrete.
- J. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
- K. ASTM C494 - Chemical Admixtures for Concrete.
- L. ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.
- M. ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

1.4 SUBMITTALS FOR REVIEW

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Product Data: Provide data on joint filler, admixtures, and curing compounds.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301.
- B. Obtain cementitious materials from same source throughout.

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1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable City of Port Arthur and State of Texas Highway Department standards for paving work on public property.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.1 FORM MATERIALS

- A. Form Materials: Conform to ACI 301.

2.2 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615; 40 ksi yield grade; deformed billet steel bars; unfinished.
- B. Welded Steel Wire Fabric: Plain type, ASTM A185; in flat sheets; unfinished.
- C. Dowels: ASTM A615; 40 ksi yield grade, plain steel, unfinished.

2.3 CONCRETE MATERIALS

- A. Concrete Materials: As specified in Section 03300 and in accordance with State of Texas Highways Department standards.
- B. Fine and Coarse Mix Aggregates: ASTM C33.
- C. Water: Potable, not detrimental to concrete.

2.4 ACCESSORIES

- A. Curing Compound: ASTM C309, Type 1, Class A.
- B. Joint Sealers: Specified in Section 07900.

2.5 CONCRETE MIX - BY PERFORMANCE CRITERIA

- A. Provide concrete to the following criteria:
 - 1. Compressive Strength: 3500 psi @ 28 days.
- B. Use accelerating admixtures in cold weather only when approved by County Engineer. Use of admixtures will not relax cold weather placement requirements.
- C. Use calcium chloride only when approved by County Engineer.
- D. Use set retarding admixtures during hot weather only when approved by County Engineer.

2.6 SOURCE QUALITY CONTROL AND TESTS

- A. Test samples in accordance with ACI 301.

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PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify base conditions under provisions of Section 01039.
- B. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct.

3.2 SUBBASE

- A. Prepare subbase in accordance with City of Port Arthur and State of Texas Highways Departments standards.

3.3 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.
- B. Coat surfaces of manhole, catch basins and other cast iron frames with oil to prevent bond with concrete pavement.
- C. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.4 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.5 REINFORCEMENT

- A. Place reinforcement at mid-height of slabs-on-grade.
- B. Interrupt reinforcement at [contraction] [expansion] joints.
- C. Place dowels to achieve pavement and curb alignment as detailed.
- D. Provide doweled joints 24 inch o.c. at transverse joints, interruptions of concrete and against existing concrete and buildings.

3.6 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301, City of Port Arthur and State of Texas Highways Department standards.

3.7 JOINTS

- A. Place expansion and/or contraction joints at 20 foot intervals. Align curb, gutter, and sidewalk joints.
- B. Place joint filler between paving components and building or other appurtenances. Recess top of filler 1/4 inch for sealant placement by Section 07900.
- C. Provide scored joints at equal intervals between sidewalks and curbs.

Jefferson County Office Building - Port Arthur Texas**3.8 FINISHING**

- A. Sidewalk Paving: Light broom, radius to 1/4 inch radius, and trowel joint edges.
- B. Curbs and Gutters: Light broom.
- C. Direction of Texturing: Transverse to pavement direction.
- D. Place sealer on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.9 JOINT SEALING

- A. Separate pavement from vertical surfaces with 1/2 inch thick joint filler.
- B. Place joint filler in pavement pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- C. Extend joint filler from bottom of pavement to within 1/4 of finished surface. Conform to Section 07900 for finish joint sealer requirements.

3.10 TOLERANCES

- A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- B. Maximum Variation From True Position: 1/4 inch.

3.11 FIELD QUALITY CONTROL

- A. Three concrete test cylinders will be taken for every 100 or less cu yds of each class of concrete placed each day.
- B. One additional test cylinder will be taken during cold weather and cured on site under same conditions as concrete it represents.
- C. One slump test will be taken for each set of test cylinders taken.
- D. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.12 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

3.13 SCHEDULES

- A. Refer Paving Site Plan for pavement thickness and reinforcing requirements for individual paving areas.

END OF SECTION 02750

SECTION 03300 — CAST-IN-PLACE CONCRETE

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section of the Specifications pertains to all other labor, material, equipment and service necessary for and incidental to furnishing, mixing and placing of cast-in-place building concrete.
- B. Notify other Sub-Contractors whose work is connected or influenced by concrete work. Verify that related work is completed before deposit of concrete in forms. Assist these Sub-Contractors in setting of items to be cased into the concrete. Take due precaution to protect and assume responsibility for items after set.

PART 2 — PRODUCTS

2.1 MATERIALS

- A. Portland Cement: ASTM C150, Type I or III.
- B. Coarse Aggregate: Shall be durable hard rock meeting requirements of ASTM C-33.
 - 1. Piers maximum aggregate size of 1-1/2".
 - 2. All other concrete shall have maximum aggregate size of 3/4 inch.
- C. Fine Aggregate: Clean, hard, durable, uncoated natural sand free of silt, loam, clay, and iron particles, meeting requirements of ASTM C-33.
- D. Water: Potable, free from injurious amounts of organic materials or other deleterious substances.
- E. Admixture: No admixtures shall be used unless approved by the Architect.
- F. Waterstops: Shall be equal to Greenstreak Group, Inc., St. Louis, Missouri 63122. Waterstops shall be PVC type embedded across or along joints to form a watertight diaphragm that prevents the passage of water or fluids through the joint. See Architectural and Structural details.

2.2 CONCRETE REQUIREMENTS

- A. All concrete shall be ready-mixed concrete. Mix and deliver in accordance with ASTM C-94. Concrete shall be delivered at a minimum of 50°F and a maximum of 90°F. Mix not less than one minute after materials are in mixer. Concrete shall not be transported or used after 45 minutes has elapsed from time of initial mixing. Supplier of transit-mixed concrete shall have a plant of sufficient capacity, and adequate transportation facilities to assure continuous delivery at required rate. Frequency of deliveries to project site shall be such as to provide for a continuous concrete placement throughout any one pour. Furnish duplicate delivery tickets with each load of concrete. One set of delivery tickets shall be given to the Architect. Note on the ticket the gallons of water added at the site.
- B. Provide laboratory designed and tested mixes producing the following minimum 28-day compressive strengths:
- Portland Cement Concrete:
- For piers, 3000 psi with 5" to 7" slump, slabs on grade, 3000 psi with 4" to 6" slump (max. aggregate 1 1/2", min. cement/yd.-5.0 sks, max. water/sack-6.0 gal.), elevated floors, 4000 psi with slump as required for pumping.
- For all other concrete except topping; 3000 psi with 4" to 6" slump
- C. Proportion cement, aggregate admixture and water to attain plasticity and compressive strength in accordance with Recommended Practice for Selecting Proportions for Concrete, ACI 211.1-81, and proportion for the exposure required.
- D. Each type of cement shall be from a single source to reduce color differences.
- E. Submit laboratory mix design certificates to Architect for approval prior to placement of any concrete. Do not change approved design mixes except by written approval from the Architect.
- F. *Special pattern or Stamped Concrete shall meet or exceed 3500 psi with color hardening process yielding a surface strength of 5000 psi*

2.3 CONTROL TEST FOR CONCRETE

- A. Construction Manager shall pay for the services of a commercial testing laboratory to perform cylinder tests and take samples of concrete during the placing operations. Selected laboratory shall be approved by the Architect.
- B. Make test cylinders on the job, during work, in accordance with ASTM C-31 and C-39. Laboratory to take four (4) standard cylinders at the beginning of each day's pour. Testing Lab to take additional cylinders where required due to quantity being poured, or when deemed necessary by the Architect.

- C. Take one set of (4) cylinders for each 50 cubic yards of concrete required for piers, grade beams and floor slabs, but not less than one set for each day's pour. Four (4) cylinders shall be taken from one mixer truck.
- D. Each cylinder report shall state the slump at the time the cylinder was taken. Additional slump tests, when deemed necessary by the Architect, during the days of concreting, shall be made by the Testing Laboratory.
- E. Plainly and permanently identify cylinders by number, date, type and strength of concrete, location in structure, and delivery ticket number.
- F. Laboratory to cure cylinders. Test two cylinders at seven (7) days and the others at twenty-eight (28) days.
- G. The Testing Laboratory shall submit reports on the results of test breaks direct to Architect, Construction Manager and Engineer & Town of Argyle (Fire Lanes Only). Show on reports either "SPECIFICATION FULLY MET" or "SPECIFICATION NOT MET" and comments.
- H. These tests in no way relieve the Construction Manager of his responsibility for the satisfactory performance of the Work in full conformance with the requirements of the Contract.

2.4 CONCRETE TEST FAILURE

- A. When reports indicate concrete fails to conform to strength requirements, or when tests of field-cured cylinders indicate deficiencies in protection and curing, the Architect may require cored cylinder tests in accordance with ASTM C-42. If such tests confirm that strength requirements have not been met load tests in accordance with ACI 318 may be required by the Architect. If the above tests indicate the strength requirements have not been met, the defective parts shall be removed and replaced, or shall be reinforced as directed by the Architect at Construction Manager's expense, including costs of tests.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Inspection prior to placing concrete: Do not place concrete until foundations, forms, reinforcing steel, pipes, conduits, sleeves, hangers, anchors, inserts, dampproofing and other work required to be built into concrete has been inspected and approved by the Architect. Notify Architect at least twenty-four (24) hours in advance of required inspection. Preparatory work shall be completed by noon of previous day of scheduled pours to allow time for adequate inspections. Unsatisfactory work shall be corrected prior to pouring concrete. Do not place concrete, under any circumstances, except in the presence of the Architect.

B. Placing Concrete:

1. Do not pour concrete until forms have been thoroughly soaked.
2. Provide elevated runways clearing all reinforcing steel and other embedded work. Convey concrete from the mixer to the point of deposit without separation of ingredients. Do not allow more than one-half (1/2) hour to elapse between the placing of successive layers at any one point in a continuous pour. Remove any accumulations of wet concrete splashed on the reinforcing steel or the form surfaces before the work proceeds. Keep all conveying equipment clean and free of hardened concrete.
3. Conveying Concrete: Convey concrete from the mixer to the place of final deposit by methods which will prevent the separation or loss of the ingredients. Concrete to be conveyed by pumping will require approval of the Architect for each class of concrete specified before being used.
4. Equipment: Equipment for chuting, pumping, and pneumatically conveying concrete shall be of such size and design as to assure a practically continuous flow of concrete at the delivery end without separation of the materials, and all of the details thereof shall be submitted to the Architect for approval in advance of the use of such equipment. The use of gravity-flow or aluminum chutes or conveyors for transporting concrete horizontally will not be permitted.
5. Deposit concrete in accordance with ACI Building Code 318 and as nearly as practicable in its final position to avoid segregation due to rehandling or flowing, and do not pour concrete with more than six (6) feet free fall. Carefully work concrete around reinforcement and embedded fixtures and into the corners of forms. Allow only experienced personnel to use vibrators as hereinafter specified. Keep a sufficiently large number of men tamping and puddling at all times to avoid honeycomb.
 - a. Beams: Pour beams continuously where possible.
 - b. Slabs: Place slabs in one continuous operation without joints within the areas established for a continuous pour.
6. Check the setting of floor drains, clean-outs and electrical boxes before placing floor slab concrete so that these items will finish flush with the floor without varying the intended floor elevations and slopes. Floors must slope to drains as called for on Drawings.
7. Compact the concrete with ramming and spading tools during placing to work the coarse aggregate away from the forms and to produce a solid mass without air pockets and honeycomb completely surrounding the reinforcement. Do not disturb any embedded work. Use mechanical vibrators, of an approved type. Supplement vibrators by forking, spading and rodding by hand methods in corners and angles of forms and also along form surfaces while concrete is

plastic under vibrating action. Do not apply vibrating equipment directly to the forms and reinforcing. Use only internal immersion type vibrators. No form vibrators will be permitted.

8. Level the top surface of slabs with straight edges over gauge strips not more than eight (8) feet apart, and grade as required, level the top of foundations for the reception of work to be erected thereon. Remove all wood spreaders, blocking and screeds as the concrete is poured and before it sets.
9. If any emergency makes it necessary to stop a concrete pour, form the joint with a vertical bulkhead as directed by the Architect. Remove the bulkhead as soon as the concrete has attained its initial set and clean the surfaces of all laitance and leave rough. Before placing adjacent concrete, wet the surface thoroughly and scrub in near cement grout for bond.
10. Do not jar the forms or reinforcement or place any strain on projecting metal after the concrete has taken its initial set. Do not permit loading or traffic of any kind on the construction until the concrete has hardened.
11. Place Waterstops prior to pouring.

C. Depositing Concrete in Inclement Weather:

1. The Architect reserves the right to order postponement of concrete placing operations when impending weather conditions may result in rainfall or low temperatures which will impair the quality of the finished work. In case rainfall should occur after placing operations are started, the Construction Manager shall provide ample covering to protect the work.
2. Concrete shall be mixed and placed only when temperature is at least 40°F. and rising, unless suitable means are provided for maintaining a temperature of at least 50°F. for a period of seven (7) days after placing. Methods of heating and protecting concrete shall be subject to Architect's approval.
3. When hot weather conditions exist that would seriously impair the quality and strength of concrete, do not place concrete. Temperature of the concrete at placement shall not exceed 90°F. Under conditions such as high wind or excessively dry, hot weather, at the option of the Architect, the concrete temperature may be required not to exceed 85°F.
4. When temperature of the outside air is less than 40°F., observe the recommendation of ACI Standard 306-66 "Recommended Practice for Cold Weather Concreting" and when the temperature is above 90°F., ACI Standard 305 "Recommended Practice for Hot Weather Concreting" after approval of Architect.

D. Concrete Finishes:

1. General:
 - a. Work and screed floors to level and true surfaces, except where drainage or slopes are indicated the fall shall be 1/8 inch per foot of the slope shown. Test with a 16 foot straight edge, or shorter in restricted places, and limit surface variations to not more than 1/8 inch in 10 feet.
 - b. Exposed concrete finishes shall be protected from damage and soiling by other trades. Mask surfaces with polyethylene film as required. Exposed concrete floors to receive stained or sealed finish shall be covered to protect against spillages of grease, paint, pitch, and other harmful substances.
2. Monolithic Trowel finishes: In any rooms where the concrete is exposed or to be surfaced with resilient floor tile, screed the concrete to true, level surface and compact the concrete with a "jitter-bug" or steel trowel the surface until a dense, even surface, with no coarse aggregate visible, has been obtained. Hand float to a true, even plane surface and finally steel trowel at the proper time, and a sufficient number of times to produce a smooth, dense and hard burnished surface.
3. Light Broom finish: Finish all slabs exposed in entrance platforms as noted in paragraph D.1.b above and then give a light broom finish that is uniform in texture. Exposed vertical surfaces and edges shall be tooled smooth and then given a light broom finish.
4. Light Rubbed Finish: Lightly rub all exposed vertical exterior concrete surfaces with cement or abrasive brick and water to leave a surface uniform in color and texture.
5. Floor Leveling Compound: Latex mix with Portland Cement and sand, as made by Camp's.
6. Removing Forms and Patching:
 1. General: Remove forms as directed by Architect, in a manner as to insure the complete safety of the structure and with sufficient care to avoid scarring or otherwise damaging the exposed surfaces. Immediately after forms have been removed, cut back all metal ties 3/4 inch and point the holes in exposed surfaces with cement and sand mortar to match the color and finish of the concrete.
 2. Defective Work: Examine the concrete for defects immediately after the forms have been removed. Any concrete work not formed as shown on the Drawings or which shows defects or if out of alignment shall be considered as not conforming with the intent of these Specifications, and such concrete

work shall be removed from the job unless the Architect grants permission to patch the defective area. Permission to patch any area shall not be considered as a waiver of the Architect's right to require removal of the defective work should the patching not restore the quality and appearance of the work to his satisfaction. Exposed concrete shall not have bulges, and shall be cleaned of all fins and burrs. Repair honeycomb by wetting and pointing with cement-sand mortar.

3. Special Pattern or Stamped Concrete shall have color and pattern selected and approved by the Owner & Architect.

E. Cleaning:

1. On completion of work, thoroughly clean all exposed cement finish surfaces, remove all stains and all cement, and/or plaster droppings. Clean with an approved cleaning compound and with fine steel wool. Wash exposed concrete floors with soap suds and clean with water.

END OF SECTION 03300

SECTION 04100 – MORTAR FOR FACE BRICK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Portland Cement: ASTM C150, Type I or III.
- B. Lime: Hydrated ASTM C207.
- C. Sand Aggregate: ASTM C144.
- D. Water: Clean and free from deleterious amounts of acids, alkalis, or organic materials.

2.2 STORAGE OF MATERIALS

- A. Store cementitious materials and aggregates in such a manner as to prevent deterioration or intrusion of foreign material. Do not use any material that has become unsuitable for good construction.

2.3 FACE BRICK MORTAR MIX

- A. Mix mortar with sufficient water for a minimum of three (3) minutes and a maximum of five (5) minutes in a drum-type batch mixer.
- B. Prepare mortar according to ASTM C270-89, Type S shall be:

TYPE S MORTAR - (Face Brick)

Portland Cement	1 part
Lime (Hydrated or Putty)	1/2
Sand	4 1/2 times the sum of volumes of cement and lime used.

TYPE M MORTAR - (CMU)

Portland Cement	1 part
Lime	1/4
Damp loose agg.	3 part

- C. Mortar color shall be as selected by Architect. Prepare sample panel (4' x 4') with selected brick. Panel to be retained on site until project completion.

END OF SECTION 04100

SECTION 04160 - JOINT REINFORCEMENT AND LINTELS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Installation for adjustable systems shall comply with ACI 530.

1.3 JOINT REINFORCEMENT

- A. Continuous wire reinforcing and ties for masonry. Provide welded wire units prefabricated in straight lengths of not less than 10 feet with matching corner and tee units. Fabricate from cold-drawn steel wire complying with ASTM A 82, with deformed, continuous side rods and plain cross-rods, and a unit width of 1-1/2 inches to 2 inches less than thickness of wall or partition.
 1. For single wythe masonry, provide units fabricated as follows: Truss type fabricated with single pair of 9-gauge side rods and continuous 9-gauge diagonal cross-rods spaced not more than 16 inches o.c.e.w.
 2. For multi-wythe masonry, provide units fabricated as follows: Truss type fabricated with single pair of 9-gauge side rods and continuous 9-gauge diagonal cross-rods not more than 16 inches o.c. For composite exterior walls with concrete masonry back-up, fabricate units with 9-gauge side rods and adjustable veneer anchors @16" o.c. for embedment in the outside wythe. For exterior walls provide formed drip.
 3. For use in interior partition walls, fabricate from mill galvanized wire.
 4. For use in exterior walls, hot-dip galvanized after fabrication with 1.5 oz. zinc coating complying with ASTM A153, Class B2.
 5. Manufacturers offering products to comply with the requirements include the following:
 - AA Wire Products, Dur-O-Wall and Hohmann and Barnard.

1.4 LINTELS

- A. Construct lintels where shown and install loose lintels of A-36 steel and other materials where shown or required for openings in masonry.
- B. Provide masonry lintels where shown and wherever openings of more than 1'-0" are shown without structural steel or other supporting lintels. Provide precast or formed-in-place masonry lintels. Thoroughly cure precast lintels before handling and installation. Temporarily support formed-in-place lintels.
 - 1. Unless otherwise shown, provide one reinforcing bar for each four inch of wall thickness and of a size number not less than the number of feet of opening width.
 - 2. For hollow masonry unit walls, use specially formed U-shaped lintel units with reinforcing bars placed as shown and filled with Type "M" mortar or concrete grout.
- C. Provide minimum bearing at each jamb, of four inches for openings less than 6'-0" wide, and eight inches for wider openings.
- D. Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcing placed in two horizontal joints approximately six (6) inches apart, both immediately above the lintel and immediately below the sill. Extend reinforcing a minimum of 2'-0" beyond jamb of the opening, bridging control joints where provided.

END OF SECTION 04160

SECTION 04180 – MASONRY CONTROL JOINTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section of the Specifications pertains to all labor, materials, equipment and service necessary for and incidental to the furnishing and installing of masonry control joints.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Backer-Rod: Sonneborn Sonofoam Backer-Rod. Select a size that will cause about 30% compression in the joints.
- B. Sealant: Sonneborn Sonolastic, one-part elastomeric, polysulfide sealant.
- C. Primer: Sonneborn Sonolastic Primer 759 Primer.
- D. Color as selected by Architect.

PART 3 – EXECUTION

3.1 EXECUTION

- A. Masonry control joints shall be 3/8 inch to 1/2 inch wide. Install backer-rod, primer and sealant per manufacturer's printed recommendations. Provide joints as shown on the Drawings or as directed by Architect.

END OF SECTION 04180

SECTION 04181 – MASONRY EXPANSION JOINTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section of the Specifications pertains to all labor, material, equipment and service necessary for and incidental to the furnishing and installing continuous expansion joints in concrete masonry units and face brick.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Expansion Joints:
 - 1. *Face Brick or Concrete Masonry Units:* Install Sonofoam backer rods in the one inch joint, prime with #759 Sonolastic Primer and seal with Sonolastic One Part Elastomeric Polysulfide Sealant per Sonneborn's printed recommendations. Joints shall be as shown on the Drawings or as directed by the Architect.
 - 2. Color as selected by Architect.

END OF SECTION 04181

SECTION 04220 – CONCRETE MASONRY UNIT

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section of the Specifications pertains to all labor, material, scaffolding, tools, equipment and service necessary for and incidental to completion of lightweight concrete masonry unit work for back-up of exterior walls, furrings, partitions, lintels, bond beams, etc., as shown on the Drawings and/or specified herein or as otherwise required to complete the work.
- B. Do cutting and patching of masonry work for other trades and build in materials furnished by others.
- C. Furnish and install ties relative to masonry work for tie to metal framing.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Concrete Masonry Units: Similar to Haydite Autoclave blocks as manufactured by Palestine Masonry Block & Featherlite, Inc. Concrete masonry units shall conform to the requirements of the local Building Code and with ASTM C-90, latest edition, Grade N-1. All units shall be of the same color and surface texture. Six (6) inch CMU shall be used for openings where existing vents are to be removed in CMU Walls at existing Gym and walls for new Field House.
- B. Lightweight concrete block lintels may be built in place or precast at the Construction Manager's option. Standard horizontal cell units may be used.

2.2 SCAFFOLDING

- A. Construct and erect scaffolding in a safe and substantial manner and conform to all governing ordinances and regulations.

2.3 LAYING CONCRETE UNIT MASONRY

- A. Lay all masonry units dry, plumb, level and true to line. Lay units in running bond (unless otherwise shown) in straight uniform course. Fill completely with mortar all head joints and bed joints, of the face shells only. Use enough mortar to cause excess mortar to ooze out on both sides of the face shell in each head joint and bed joint.
- B. Provide hot dipped galvanized horizontal wall reinforcing in alternate courses of concrete masonry units beginning approximately eight (8) inches above floor line. Truss-Tri mesh design consisting of 3/16" side/center rods and #9 gauge cross rods. Make all reinforcing continuous. Lap side rods at least six (6) inches at splices, and provide prefabricated corners. Install wall reinforcement per manufacturer's recommendations.
- C. Cut masonry units with a motor-driven saw. Cuts shall be made completely through units rather than to score and break. Construct all necessary openings and chases for pipes, wiring, ducts, panels, boxes, fixtures and cabinets as may be required by other trades. Where weight of items to be attached to wall is heavy, cells shall be filled with grout to produce a wall sufficiently rigid to support the attached item.
- D. Provide vertical reinforcing and concrete fill as shown on Drawings.

2.4 PRECAUTIONS

- A. Do not lay masonry in freezing weather unless suitable means are provided to heat material, protect from cold and frost and insure that mortar will harden without freezing. Do not use anti-freeze ingredients.

2.5 CONCRETE UNIT MASONRY MORTAR (TYPE M)

- A. Portland Cement: Shall be an approved brand meeting ASTM-C-150.
- B. Masonry Cement: Shall be an approved brand meeting ASTM-C91, Type II.
- C. Lime: Shall be an approved brand meeting ASTM-C-207, Type S hydrated lime.
- D. Sand: Shall be an approved type meeting ASTM-C90-75.
- E. Water: Clean Town water.

2.6 PAINTING AND CLEANING

- A. Before completion of the Work, all defects in joints of exposed masonry surfaces shall be raked out as necessary, filled with mortar and retooled.
- A. Exposed surfaces shall be rubbed with a concrete brick, brushed with a masonry cleaning brush with natural fiber and washed with clean water. Surfaces shall be clean, free of mortar daubs, dirt, stains and discoloration with tight mortar joints throughout.
- B. Masonry Cleaners: Sure Klean® Masonry Cleaners as manufactured by Prosoco, Inc. or approved equal.

<u>Substrate</u>	<u>Color/Type</u>	<u>Cleaning Solution</u>
Brick	Red	Sure Klean® 600 Detergent
	Light	Sure Klean® Vana Trol®
	Dark	Sure Klean® Vana Trol®
	Glazed	Sure Klean® Vana Trol®
CMU	Burnished/Ground Face	Sure Klean® Burnished Custom Masonry Cleaner
Architectural Concrete	Natural Color/Smooth	Sure Klean® Light Duty Concrete Cleaner
	Textured	Sure Klean® Custom Masonry Cleaner
Stone Construction	Cast Stone	Sure Klean® Light Duty Concrete Cleaner

2.7 CLEAN-UP

- A. Clean-up trash and debris caused by the Work of this Section, keeping premises, streets, sidewalks and adjacent property clean and neat at all times. Dispose of waste materials off site at approved locations.

END OF SECTION 04220

SECTION 05100 – STRUCTURAL STEEL

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section of the Specifications pertains to all other labor, material, equipment and service necessary for and incidental to the furnishing and installing of structural steel.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. All materials to be of domestic manufacture new and free of splices.
- B. Structural Steel: Per ASTM A992 (FY=50.0 ksi).
- C. Connection Material shall be A36 Steel
- D. Paint: Federal Specification TT-P-645. Shop Coat shall be Grey Oxide.
- E. High Strength Bolts: Per ASTM A 325, as endorsed by AISC.

2.2 WORKMANSHIP

- A. Structural Steel Fabrication and Erection: All structural steel materials, fabrication, assembly, erection and painting shall be in accordance with the 2005, Thirteenth Edition of American Institute of Steel Construction Specifications for Design, Fabrication and Erection of Structural Steel for Buildings (ASD) and American Institute of Steel Construction Code of Standard Practice, except as otherwise specified or noted. Punch and tap shapes where required for attachment of other materials. Accurately set and properly secure structural steel work in place. Properly locate anchor bolts and anchors built into connecting work; being pre-set where practicable.

- B. Sharp kinks or bends shall be cause for rejection. Do not heat structural steel for bending, flattening or straightening unless followed by properly controlled annealing. Drifting to enlarge holes will not be permitted. Ream holes that must be enlarged. Do not torch cut holes for structural connections. Poorly matched holes shall be cause for rejection. Do no welding or final bolting until frame has been properly aligned.
- C. Shop Painting: Remove loose scale, rust, and other foreign materials from fabricated steel before application of shop paint. Clean in accordance with Steel Structure Painting Council SP-2 "Hand Tool Cleaning", or SP-3 "Power tool Cleaning", or SP-7 "Brush-off Blast Cleaning". Remove oil, grease and similar *contaminates* in accordance with SSPC SP-1 "Solvent Cleaning". Apply one coat of primer paint by spray, dipping, or other method to provide a continuous, dry paint film, thickness of not less than 0.75 mil. Do not paint areas to be welded in the field.
1. After erection, all welds and rust areas shall have the rust removed and repainted. Base steel to be painted in all instances.
- D. Welding:
1. Welds by qualified welders only, per standard Qualification Procedure of American Welding Society. Construction Management to ascertain that all field operators are carrying on their person proof of above qualifications.
 2. Provide welding equipment of sufficient capacity and maintain in good working condition.
 3. Use American Welding Society E-70XX electrodes on ASTM A992 (FY=50.0 ksi) and A36 steel throughout fabrication and erection. Keep electrodes DRY and issue to welders in small quantities.
 4. Do not remove erection bolts, supplied by fabricator, after welding connections. Dip bolts exposed to outdoors in primer prior to placing.
 5. Keep surfaces to be welded free from loose scale, slag, rust, grease, paint, and other foreign materials. Mill scale withstanding vigorous wire brushing may remain.
 6. Do no welding until joint elements are bolted and adjusted to dimensions shown on Drawings, with allowance for any weld shrinkage expected.
 7. Heavy sections and those having a high degree of restraint are to be welded with low hydrogen electrodes. Do not splice without prior approval.
 8. Do no welding when temperature of base metal is at or below 32°F.

- E. Use of a cutting torch in the erection or fitting of structural steel in the field will not be permitted.
- F. Erect steel true and plumb. Use temporary bracing wherever necessary to insure safety and proper alignment of frame and leave in place until all permanent members are erected and final connections made.

2.3 TESTING AND INSPECTION

- A. After all structural steel has been erected, field inspection of the structural steel shall be performed by a laboratory approved by the Architect. Cost of the inspection shall be included in the Construction Management's base bid.

2.4 SHOP AND ERECTION DRAWINGS

- A. Submit three (3) prints and one (1) sepia of shop and erection drawings to Architect after being checked and approved by the Construction Management in accordance with Article 4 of the General Conditions and Supplementary General Conditions. Architect's review shall be secured before starting fabrication.
- B. Detail shop drawings shall show each item with holes, welds, coped areas, special cuts and similar items necessary for fabricating work in the shop.
- C. Erection plans to show all necessary dimensions, details, notes, location, size, field welds, mark of each item, or each shop assembly of the structural steel worker to erect the structural steel, steel joists and metal decking without referring to the details or Contract Drawings.
- D. Contract drawings shall not be reproduced or used in any manner for shop details, sections or erection drawings.

2.5 CONNECTIONS

- A. All structural steel connections not specifically detailed on the Drawings shall be designed by the Construction Management, under the direct supervision of a Registered Professional Engineer, on the Structural Drawings and shall be shown in detail on the shop drawings.
- B. Connections shall be designed in accordance with the requirements specified on the Structural Drawings.
- C. Submit design calculations for the connections designed by the Construction Management, prior to or with the structural steel shop drawings. Calculations shall bear the seal of a Registered Professional Engineer, licensed in the State of Texas. Shop drawings containing connections for which calculations have not been received shall be returned unchecked as an incomplete submittal. Calculations will be retained for the Architect's file, and will not be approved or returned. Design calculations shall include the following:

1. Beam Connections - Submit connection calculation for each different beam connection used and detailed on the shop drawings. Each connection calculation shall identify the location or locations for which the connection applies by indicating the following; the beam mark(s) from the Structural Drawings, the piece mark(s) from the shop drawings, the beam size, the design loading(s), and the end of the beam to which the connection applies. Conditions which are similar may be grouped together so as to utilize a single connection design, (provided each is identified as noted above). However, for each different connection condition detailed on the shop drawings a separate, complete design calculation shall be submitted.

END OF SECTION 05100

SECTION 05200 – STEEL JOISTS/GIRDERS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section of the Specifications pertains to all other labor, material, equipment and service necessary for and incidental to the furnishing and installing of steel joists/girders, including bridging, ceiling extensions, top chord extensions and accessories as required.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Joists/girders shall conform to the latest Specifications of the Steel Joist Institute.
- B. Bridging: Provide bridging complying with S.J.I. Specifications, and as shown on the Drawings.
- C. Shop paint shall be one coat of Grey Oxide per Steel Joist Institute Specifications, unless otherwise noted.

2.2 FABRICATION

- A. Joist/Girders shall be fabricated per S.J.I. Standards.
- B. Shop Painting: Painting shall be in accordance with Steel Joist Institute's latest adopted painting specification.
- C. Welding: Field welding shall be in accordance to American Welding Society's "Code for Welding of Building Construction". Welding shall be performed by an operator qualified by A.W.S. "Standard Qualification Procedure". Construction Manager to ascertain that all field operators are carrying on their person proof of above qualification. Shop welding shall be in accordance with Steel Joist Institute's Technical Digest the Latest Edition.

PART 3 – EXECUTION

3.1 ERECTION

- A. Exercise care at all times in handling and placing. Secure in place with bridging installed prior to applying any construction loads. Coordinate joist/girder locations in conflict with other trades.
- B. Prior to application of decking, brace in accordance with recommendations of the manufacturer of the decking used.
- C. Anchor all edges of bridging rows at walls or to parallel structural members.
- D. After joist/girder installation, touch up all field welds and abraded or rusty surfaces on joists and steel supporting members. Wire brush surfaces and clean with solvent before painting. Use the same type of paint as used for shop painting.

3.2 SHOP AND ERECTION DRAWINGS

- A. Submit three (3) prints and one (1) sepia of shop and erection drawings to Architect after being checked and approved by the Construction Manager in accordance with Article 4 of the General Conditions and Supplementary General Conditions. Architect's review shall be secured before starting fabrication.
- B. Detail shop drawings to show all necessary dimensions, details, notes, welds, special cuts and similar items. These plans shall be sufficiently complete for the structural steel worker to erect the steel joists/girders without referring to the details or Contract Drawings.

3.3 TESTING AND INSPECTION

- A. After all steel joists/girders have been erected, a laboratory approved by the Architect shall perform complete field inspection of the steel joists. Cost of inspection shall be paid from Testing Allowance.

END OF SECTION 05200

SECTION 05300 – METAL DECKING FOR ROOF

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. The work under this Section of the Specifications consists of furnishing all material, labor and equipment necessary for the installation of the metal decking.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Shall meet Steel Deck Institute Standards for 1 ½” depth, 22-gauge, prime coat, intermediate rib deck, typical unless otherwise noted.

PART 3 – EXECUTION

3.1 EXECUTION

- A. Deck shall be placed in accordance with Steel Deck Institute Standards and manufacturer's recommendations.
- B. Glass Fiber for perforated rib fillers shall be installed by roofing sub-contractor.

END OF SECTION 05300

SECTION 05500 — MISCELLANEOUS METALS

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section of the Specifications pertains to all other labor, material, equipment and service necessary for and incidental to the furnishing and installing of miscellaneous metal items as shown on the Drawings and/or specified below.
- B. The following is a general list of the items to be furnished under this Section of the Specifications. Other items of ornamental or miscellaneous iron shown or noted on the Plans and not specifically mentioned elsewhere in these Specifications shall be furnished as though specifically described herein.

PART 2 — PRODUCTS

2.1 MATERIALS

- A. Architectural and miscellaneous steel not otherwise indicated or specified:
Mild Steel.
- B. Aluminum: Casting alloys as recommended and required for purpose intended.
- C. Paint: Federal Specification TT-P-636.

2.2 GENERAL REQUIREMENTS

- A. Conform to the latest edition of the following for applicable standards for materials and performance:
 - 1. ASTM A-36 (structural steel).
 - 2. ASTM B-24-54T (aluminum).
 - 3. ASTM 48-48 (Class 40 iron).
 - 4. Metal shall be made with structural properties to sustain safely or withstand strains and stresses normally subjected; clean, straight, with sharply defined profiles; curved work to true radii; and, unless other particularly noted with smooth finishes.

5. All exposed fastenings shall be of the same materials, color and finish as the metal to which applied, unless otherwise shown. All ferrous fastenings shall be galvanized or cadmium plated.

2.3 WORKMANSHIP

- A. Form steel and aluminum to shape and size, with sharp lines or angles. Shear and punch, leave clean, true lines and surfaces. Weld or rivet permanent connections. Do not use screws or bolts where they can be avoided. Where used, heads shall be countersunk, screwed up tight and threads nicked to prevent loosening. Curved work shall be evenly sprung.
- B. Conceal fastenings where practicable. Thickness of metal and details of assembly and support shall give ample strength and stiffness. Form joints exposed to weather to exclude water. Provide holes and connections for the work of other trades.

2.4 PAINTING AND PROTECTIVE COATING

- A. Clean properly and give one coat of rust resisting paint to all ferrous metal. After erection all welds and rust areas shall have the rust removed and repainted. Base steel to be painted in all cases.
- B. Coat anchors that are built into masonry or concrete with asphalt paint unless specified to be galvanized. Where hot-dip galvanized or zinc-coated metal is required, do not paint unless specifically called for, but touch up all abraded places and welding with aluminum paint. Hot-dip galvanize or zinc coat, where specified, in accordance with the Standard Specifications of the American Hot Dip Galvanizers Association.

2.5 SHOP DRAWINGS

- A. Submit three (3) prints and one (1) sepia of shop drawings to Architect for approval showing all items of miscellaneous metals. Show material, size, and thickness, fabrication, method of anchorage and finish.

2.6 FIELD MEASUREMENTS AND COORDINATION

- A. Take field measurements. Verify dimensions at site as may be necessary to insure that work fits actual conditions. Assume responsibility for accuracy of such dimensions and for proper fitting and assembly of work.
- B. Consult with other Sub-Contractors furnishing and installing adjoining material. Obtain from them necessary details to insure neat assembly and connections.

2.7 MISCELLANEOUS FERROUS ITEMS (Miscellaneous Items are not limited to the following)

- A. Knee Braces: Furnish and install steel angle knee braces to adequately support steel frames for doors, side-lights and glazed walls.

- B. Anchors: Provide all anchors, sleeves, bolts, nuts, clip angles, plates and the like required in connection with the items of work included in this Section.
- C. Ladders: Provide the ship's ladder to detail, fabricated of steel bars, flats, and angles with all joints welded and all exposed welds and sharp edges dressed smooth. Anchor with bolts into structural steel or weld to structure. Ladders shall meet OSHA requirements.
- D. Loose Lintels: Shall conform to ASTM-A36 sizes shall be as shown on the Drawings or as otherwise required with minimum 8" bearing at each end.
- E. Catch Basins: Furnish and install square grates where indicated, type and size as shown on Drawings with frames as manufactured by McKinley Iron Works.
- F. Roof Openings: Furnish & install steel framing as required for all penetrations through the roof. Contractor shall coordinate these openings with all trades.

2.8 MISCELLANEOUS NON-FERROUS ITEMS

- A. Access Doors: Stainless Steel, 16-gauge door and frame with concealed hinge and cylinder lock with two keys provided for each door. All access doors shall be keyed alike. All access doors shall be product of one manufacturer and shall be Style "MS" as manufactured by Milcor, or equal approved by Architect. If access doors occur in firewalls, access doors shall be fire rated.
- B. Stainless Steel handrails, guardrails and pipe railings shall be provided as detailed.
 - 1. All joints and connections shall be flush and smooth. All connections between aluminum parts shall be continuously welded, and all rough edges and exposed welds shall be ground smooth and dressed down to profile.
 - 2. For railings, space the support standards as shown. Install standards into sleeves set in the concrete or as otherwise detailed or approved.
 - 3. All Handrails shall conform to the 2003 International Building Code.
 - 4. All handrails shall return to adjacent wall surfaces.
- C. Stair Nosing: Shall be equal to Balco Inc., Wichita, KS at Phone: (800) 767-0082; Fax: (316) 945-0789. Nosing shall be DST-330 two component mill finish aluminum, 3 ¼: wide. Architect shall select abrasive color from standard chart. CM @ Risk shall properly protect all nosing until final acceptance by the Owner.

END OF SECTION 05500

Jefferson County Office Building - Port Arthur Texas**SECTION 06112**
FRAMING AND SHEATHING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Floor and Wall framing.
- B. Floor and Wall sheathing.
- C. Miscellaneous framing and sheathing.
- D. Telephone and electrical panel back boards.
- E. Concealed wood blocking for support of toilet and bath accessories and wall cabinets.

1.2 RELATED SECTIONS

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Section 01600 - Material and Equipment: Transport, handle, store, and protect products.
- C. Section 03300 - Cast-in Place Concrete: Setting anchors in concrete.

1.3 REFERENCES

- A. ALSC (American Lumber Standards Committee) - Softwood Lumber Standards.
- B. ANSI A208.1 - Mat-Formed Wood Particleboard.
- C. APA (American Plywood Association).
- D. AWPA (American Wood Preservers Association) C1 - All Timber Products - Preservative Treatment by Pressure Process.
- E. NFPA (National Forest Products Association).
- F. SPIB (Southern Pine Inspection Bureau).
- G. WCLIB (West Coast Lumber Inspection Bureau).
- H. WWPA (Western Wood Products Association).

1.4 SUBMITTALS FOR REVIEW

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Product Data: Provide technical data on insulated sheathing, wood preservative materials, and application instructions.

1.5 SUBMITTALS FOR INFORMATION

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Manufacturer's Certificate: Certify that Products conform to specified requirements.

Jefferson County Office Building - Port Arthur Texas**1.6 QUALITY ASSURANCE**

- A. Perform Work in accordance with the following agencies:
 - 1. Lumber Grading Agency: Certified by ALSC.
 - 2. Plywood Grading Agency: Certified by APA.

1.7 DELIVERY, STORAGE, AND PROTECTION

- A. Section 01600 - Material and Equipment: Transport, handle, store, and protect products.
- B. Protect trusses from warping or other distortion by stacking in vertical position, braced to resist movement.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS

- A. Lumber Grading Rules: SPIB and WWPA.
- B. Studding: Hem/Fir species, 19percent maximum moisture content.
- C. Miscellaneous Framing: Stress Group D, Mem/Fir species, 19 percent maximum moisture content, pressure preservative treat all members in contact with concrete.

2.2 SHEATHING MATERIALS

- A. Plywood Wall Sheathing: APA Rated Sheathing Structural II; Exposure Durability 2; sanded.
- B. Particleboard Wall Sheathing: ANSI A208.1 Oriented Strand Board; wood flakes set with waterproof resin binder; sanded face.
- C. Gypsum Wall Sheathing: Moisture resistant, 1/2 inch thick, 24 x 96 inch sized sheets, tongue and groove edges, water repellent paper faces.
- D. Telephone and Electrical Panel Boards: Plywood.

2.3 ACCESSORIES

- A. Fasteners and Anchors:
 - 1. Fasteners: Electro galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
 - 2. Drywall Screws: Bugle head, hardened steel, power driven type, length to achieve full penetration of sheathing substrate.
 - 3. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.
- B. Building Paper: No.15 asphalt felt.

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2.4 FACTORY WOOD TREATMENT

- A. Wood Preservative (Pressure Treatment): AWPA Treatment C1 using water borne preservative with 0.25 percent retainage.

PART 3 EXECUTION

3.1 FRAMING

- A. Set structural members level and plumb, in correct position.
- B. Double members at openings over 24 inches wide. Space short studs over and under opening to stud spacing.
- C. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists. Frame rigidly into joists.

3.2 SHEATHING

- A. Secure roof sheathing with longer edge perpendicular to framing members and with ends staggered and sheet ends over bearing.
- B. Fully engage tongue and groove edges.
- C. Secure wall sheathing with long dimension perpendicular to wall studs, with ends over firm bearing and staggered.
- D. Place building paper horizontally over wall sheathing; weather lap edges and ends.
- E. Install telephone and electrical panel back boards with plywood sheathing material where required. Size the back board by 12 inches beyond size of electrical panel. Size of telephone backboard to be 48" square with bottom edge mounted 36 inches above finished subfloor.

3.3 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Treat site-sawn cuts and penetrations.
- C. Allow preservative to dry prior to erecting members.

3.4 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Surface Flatness of Floor: 1/4 inch in 10 feet maximum, and 1/2 inch in 30 feet maximum.

END OF SECTION

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SECTION 06200
FINISH CARPENTRY**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Finish carpentry items, other than shop prefabricated casework.
- B. Hardware and attachment accessories.

1.2 RELATED SECTIONS

- A. Section 08211 - Flush Wood Doors.
- B. Section 09900 - Painting: Painting and finishing of finish carpentry items.

1.3 REFERENCES

- A. ANSI A135.4 - Basic Hardboard.
- B. ANSI A208.1 - Mat Formed Wood Particleboard.
- C. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- D. AWI - Quality Standards.
- E. AWWA (American Wood Preservers Association) C2 - Lumber, Timbers, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes.
- F. AWWA (American Wood Preservers Association) C20 - Structural Lumber Fire Retardant Treatment by Pressure Process.
- G. BHMA A156.9 - Cabinet Hardware.
- H. FS MMM-A-130 - Adhesive, Contact.
- I. HPMA (Hardwood Plywood Manufacturer's Association) HP - American Standard for Hardwood and Decorative Plywood.
- J. NEMA (National Electric Manufacturers Association) LD3 - High Pressure Decorative Laminates.
- K. NHLA (National Hardwood Lumber Association).
- L. NWWDA (National Wood Window and Door Association) I.S.4 - Water Repellant Preservative Treatment for Millwork.
- M. PS 1 - Construction and Industrial Plywood.
- N. PS 20 - American Softwood Lumber Standard.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories, and to a minimum scale of 1-1/2 inch to 1 ft.
- C. Product Data: Provide data on fire retardant treatment materials and application instructions.
- D. Provide instructions for attachment hardware, and finish hardware.
- E. Samples: Submit four samples of finish plywood, 12 x 12 inch in size illustrating wood grain and specified finish.
- F. Submit 4 samples of wood trim 12 inches long.

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1.5 QUALITY ASSURANCE

- A. Perform work in accordance with AWI Custom quality.

1.6 QUALIFICATIONS

- A. Fabricator: Company specializing in fabricating the products specified in this section with minimum three years documented experience.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire retardant requirements.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Protect work from moisture damage.

1.9 FIELD MEASUREMENTS

- A. Verify that field measurements are as instructed by the manufacturer.

1.10 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with plumbing and electrical rough-in, installation of associated and adjacent components, and telephone and data cabling.

PART 2 PRODUCTS

2.1 LUMBER MATERIALS

- A. Softwood Lumber: PS 20; Graded in accordance with AWI Custom; White Birch species, maximum moisture content of 6 percent; with flat grain, of quality suitable for transparent finish.
- B. Hardwood Lumber: Graded in accordance with AWI Custom; White Birch species, maximum moisture content of 6 percent; with flat grain, of quality suitable for transparent finish.

2.2 SHEET MATERIALS

- A. Softwood Plywood: PS 1 Grade C-D; Graded in accordance with AWI Custom; veneer core.
- B. Hardwood Plywood: Graded in accordance with AWI Custom; veneer core, type of glue recommended for application; White Birch face species.
- C. Wood Particleboard: ANSI A208.1 Type 1; AWI standard, composed of wood chips, medium density, made with high waterproof resin binders, water resistant adhesive; of grade to suit application; sanded faces.
- D. Hardboard: ANSI A135.4; Pressed wood fiber with resin binder, tempered grade, 1/4 inch thick, smooth two sides.

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- E. Pegboard: Pressed wood fiber with resin binder, tempered grade; 1/4 inch thick with 9/32 inch diameter holes at 1 inch on center.

2.3 PLASTIC LAMINATE MATERIALS

- A. Plastic Laminate: AWI, 0.050 inch General Purpose; color and pattern to be determined from manufacturers standard color selections, and matte surface texture as selected.

2.4 ADHESIVE

- A. Adhesive: FS MMM-A-130 contact adhesive. Type recommended by AWI and laminate manufacturer to suit application.

2.5 FASTENERS

- A. Fasteners: Of size and type to suit application.
- B. Concealed Joint Fasteners: Threaded steel.

2.6 ACCESSORIES

- A. Lumber for Shimming, and Blocking: Softwood lumber of option species.
- B. Glass: Type A, as specified in Section 08800.
- C. Primer: Alkyd primer sealer.
- D. Wood Filler: Solvent base, tinted to match surface finish color.

2.7 WOOD TREATMENT PROCESSES

- A. Wood Preservative by Pressure Treatment (PT Type): AWWA Treatment C2 using water borne preservative with 0.25 percent retainage.
- B. Wood Repellant Preservative Treatment by Dipping Method: NWWDA I.S.4, with 0.25 percent retainage.
- C. Wood Preservative (Surface Application): Clear type.

2.8 SHOP TREATMENT OF WOOD MATERIALS

- A. Shop pressure treat treatment to wood materials requiring UL fire rating preservatives to concealed wood blocking.
- B. Provide UL approved identification on fire retardant treated material.
- C. Deliver fire retardant treated materials cut to required sizes. Minimize field cutting.
- D. Kiln dry wood after pressure treatment to maximum 9 percent moisture content.

2.9 FABRICATION

- A. Fabricate to AWI Custom standards.
- B. Shop assemble work for delivery to site, permitting passage through building openings.
- C. Fit exposed sheet material edges with 3/8 inch matching hardwood edging. Use one piece for full length only.
- D. Cap exposed plastic laminate finish edges with material of same finish and pattern.
- E. Shop prepare and identify components for book match grain matching during site erection.
- F. When necessary to cut and fit on site, provide materials with ample allowance for cutting.

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- Provide trim for scribing and site cutting.
- G. Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
 - H. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

3.2 INSTALLATION

- A. Install work in accordance with AWI Custom Quality Standard.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Install components with screws and with nails trim at 16 inches on center.

3.3 SITE APPLIED WOOD TREATMENT

- A. Apply preservative treatment in accordance with manufacturer's instructions.
- B. Treat site-sawn cuts.
- C. Allow preservative to dry prior to erecting members.

3.4 PREPARATION FOR SITE FINISHING

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: Refer to Section 09900.
- C. Before installation, prime paint surfaces of items or assemblies to be in contact with cementitious materials.

3.5 ERECTION TOLERANCES

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

END OF SECTION 06200

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**SECTION 07213
BATT INSULATION****PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Batt insulation in exterior wall and roof construction.
- B. Batt insulation for filling perimeter window and door shim spaces, and crevices in exterior wall and roof.

1.2 RELATED SECTIONS

- A. Section 07221 - Low Slope Roof Insulation.
- B. Section 09260 - Gypsum Board Systems: Acoustic insulation.

1.3 REFERENCES

- A. ASTM C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- B. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- C. NFPA 255 - Test of Surface Burning Characteristics of Building Materials.
- D. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.4 SYSTEM DESCRIPTION

- A. Materials of This Section: Provide continuity of thermal barrier at building enclosure elements.
- B. Materials of This Section: Provide thermal protection to air seal materials at building enclosure elements.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on product characteristics, performance criteria, limitations.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.6 COORDINATION

- A. Coordinate work under provisions of Section 01039.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Batt Insulation: ASTM C665; preformed glass fiber batt; friction fit, conforming to the following:
 - 1. Thermal Resistance: Refer drawings.
 - 2. Batt Size: Width to match stud spacing.
 - 3. Facing: Foil faced.
 - 4. Flame/Smoke Properties: 25/450 in accordance with ASTM E84.

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- B. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch wide.
- C. Insulation Fasteners: Steel impale spindle and clip on flat metal base, self adhering backing, length to suit insulation thickness, capable of securely and rigidly fastening insulation in place; as recommended by insulation manufacturer.
- D. Wire Mesh: Galvanized steel, hexagonal wire mesh.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that substrate, adjacent materials, and insulation are dry and ready to receive insulation.

3.2 INSTALLATION

- A. Install insulation in accordance with insulation manufacturer's instructions.
- B. Install in exterior walls, roof, and ceiling spaces without gaps or voids. Do not compress insulation.
- C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
- D. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.
- E. Install with factory applied vapor retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.
- F. Friction fit batts between studs. Staple or nail facing flanges in place at maximum 6 inches o.c. in wood stud framing. Tape in place in metal stud framing.
- G. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

END OF SECTION 07213

Jefferson County Office Building - Port Arthur Texas**SECTION 07221**
LOW SLOPE ROOF INSULATION**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Board insulation under metal panel roof system.

1.2 RELATED SECTIONS

- A. Division 01: Administrative, procedural, and temporary work requirements.
- B. Section 07413 - Metal Roof Panels and Cladding: Metal Roof System.
- C. Section 07465 - Preformed Metal Siding.
- D. Section 07620 - Sheet Metal Flashing and Trim.
- E. Section 07631 - Gutters and Downspouts.
- F. Section 07900 - Joint Sealers.

1.3 GENERAL

- A. The windstorm design compliance and construction of the roof deck and supporting structure is the responsibility of the general contractor. The structure must be designed to resist all live, dead, snow, wind and construction loadings without excessive deflections as dictated by the governing building codes.
- B. Only skilled, trained workmen familiar with rigid polyisocyanurate products and the various other components of the roofing system be used to perform the required work.
- C. Wind uplift ratings are based on specifications developed by FM Global. Roofing insulation materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The roofing system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift resistance of the roofing system with allowances for appropriate factors of safety.
- D. Do not use wet insulation products within a roofing assembly. Installation of wet insulation or other roofing system components shall cause the manufacturer warranties to become void. Insulation that has become wet may experience dimensional stability problems and every precaution must be taken in order to determine if the insulation is still useable.

Jefferson County Office Building - Port Arthur Texas**1.4 REFERENCES**

- A. ASTM International (ASTM).
 - 1. C209 Test Methods for Cellulosic Fiber Insulating Board.
 - 2. C518 Test Method for Measurement of Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 3. C1289 Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - 4. D41 Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
 - 5. D312 Standard Specification for Asphalt Used in Roofing.
 - 6. D1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
 - 7. D1622 Standard Test Method for Apparent Density of Rigid Cellular Plastics.
 - 8. D2126 Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
 - 9. E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 10. E96 Standard Test Method for Water Vapor Transmission of Materials.
- B. Factory Mutual Insurance Co. (FM):
 - 1. 4450 Approval Standard for Class I Insulated Steel Decks.
 - 2. Approval Guide.
 - 3. RoofNav.
- C. Polyisocyanurate Insulation Manufacturers Association. (PIMA):
 - 1. 101 Technical Bulletin 101 describes the industry accepted procedure for determining R-value for impermeably faced polyisocyanurate products.
- D. Underwriters Laboratories, Inc. (UL):
 - 1. 263 Fire Tests of Building Construction and Materials.
 - 2. 790 Standard Test Methods for Fire Tests of Roof Coverings.
 - 3. 1256 Fire Test of Roof Deck Constructions.
 - 4. UL online certifications directory.

1.5 SUBMITTALS

- A. Submittals for Review:
 - 1. Product Data: Manufacturer's descriptive data and performance characteristics.
 - 2. Samples: Submit 12"x12" samples(s) of each board type required.
 - 3. Reference Manufacturer's data sheets for fastening patterns.
- B. Quality Control Submittals:
 - 1. Certificates: Manufacturer's certification that material meets specification requirements.
 - 2. Certificates of Compliance: Certification from an independent testing laboratory that insulation meets fire hazard classification requirements.

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- C. Low-Emitting Materials: Certify volatile organic compound (VOC) content of sealants and adhesives.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacture: Rmax Operating, LLC; Corporate office: 13524 Welch Road, Dallas, TX 75224, Toll Free Tel: (800) 527-0890, Tel: (972) 387-4500, Fax (972) 385-4673, Web: www.rmaxinc.com, E-mail: rmax@rmaxinc.com .
- B. Substitutions: Refer Division 01.

2.2 INDIVIDUAL MATERIAL

- A. Board Insulation:
1. Product: Multi-Max® FA-3
 - a) Meet ASTM C1289, Type II, Class 1.
 - b) Class 1 rated, tested to FM 4450; as listed in FM Approval Guide.
 - c) Class A rated for external flame, tested to UL 790; as listed in UL Online Certifications Directory. .
 - d) Class A rated for internal flame, tested to UL 1256; as listed in UL Online Certifications Directory. .
 - e) Listed and labeled, tested to UL 263; as listed in UL Online Certifications Directory. .
 - f) Description: Rigid polyisocyanurate foam core utilizing CFC-, HCFC-, and HFC-free blowing agent that has zero ozone depletion potential and negligible global warming potential, bonded to glass fiber/organic mat facings on both sides.
 - g) Physical properties:
 1. Compressive strength: [Grade 1][Grade 2][Grade 3] tested to ASTM D1621.
 2. Nominal Density: 2.0 pcf, tested to ASTM D1622.
 3. Water vapor transmission: Maximum 1.0 perms, tested to ASTM E96.
 4. Water absorption: Maximum 1 percent by volume, tested to ASTM C209.
 5. Dimensional stability: Maximum 2 percent linear change, tested to ASTM D2126 for 7 days at 158 degrees F and 98 percent relative humidity.
 6. Flame spread/smoke developed rating: Maximum 60/160, tested to ASTM E84.
 7. Service Temperature: -40°F to 250°F.
 - h) Thermal resistance: Minimum long-term thermal resistance (LTTR) value of R-22 tested to CAN/ULC-S770.

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- i) Size: 48 x 96 inches.
- 2. Product: Ultra-Max® .
 - a) Meet ASTM C1289, Type II, Class 2. .
 - b) Class 1 rated, tested to FM 4450; as listed in FM Approval Guide.
 - c) Class A rated for external flame, tested to UL 790; as listed in UL Online Certifications Directory. .
 - d) Class A rated for internal flame, tested to UL 1256; as listed in UL Online Certifications Directory. .
 - e) Listed and labeled, tested to UL 263; as listed in UL Online Certifications Directory.
 - f) Description: Rigid polyisocyanurate foam core utilizing CFC-, HCFC-, and HFC-free blowing agent that has zero ozone depletion potential and negligible global warming potential, bonded to polymer filled glass fiber mat facings on both sides. .
 - g) Physical properties.
 - 1. Compressive strength: [Grade 1][Grade 2][Grade 3] tested to ASTM D1621.
 - 2. Nominal Density: 2.0 pcf, tested to ASTM D1622.
 - 3. Water vapor transmission: Maximum 1.0 perms, tested to ASTM E96.
 - 4. Water absorption: Maximum 1 percent by volume, tested to ASTM C209.
 - 5. Dimensional stability: Maximum 2 percent linear change, tested to ASTM D2126 for 7 days at 158 degrees F and 98 percent relative humidity
 - 6. Flame spread/smoke developed rating: Maximum 60/160, tested to ASTM E84.
 - 7. Service Temperature: -40°F to 250°F.
 - h) Thermal resistance: Minimum long-term thermal resistance (LTTR) value of R-22 tested to CAN/ULC-S770. .
 - i) Size: 48 x 96 inches.

2.3 ACCESSORIES

- A. Mechanical Fasteners: Approved for use by FM Global in a Class 1 roof deck assembly. Fasteners must also be acceptable to the membrane supplier. .
 - 1. #12 or #14 FM approved roofing screw with plate.
 - a) SFS Intec Plates .
 - b) OMG Plates .
 - 2. FM approved roofing screw without plates .
 - a) Dekfast Nailboard Fasteners .
 - b) OMG FastenMaster Headlok .
- B. Hot Bitumen: Asphalt used for such applications shall be ASTM D312, Type III or IV. Asphalt should be applied at its recommended equiviscous temperature (EVT) plus or

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minus 25°F. The contractor must be prepared to use sufficient quantities of bitumen in flood coat application to fill all deck low-spots so that insulation panels are firmly embedded. These quantities cannot exceed 30 pounds per square at final application.

- C. Cold Applied Adhesives: Polyurethane and polyisocyanurate foam adhesives approved by insulation manufacturer may be used to secure insulation products to appropriate roof deck surfaces. It is important that the contractor use these adhesives in strict accordance with recommended procedures provided by adhesive manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Site Verification of Conditions. General Contractor and Subcontractors related to installation of materials identified within this specification section and related sections of work of the contract shall verify that site conditions are acceptable for material installation.
1. Do not proceed with material installation until unacceptable conditions are corrected.
- B. The undertaking of installation of materials shall be deemed as acceptance of all field conditions and configurations.

3.2 DELIVERY, STORAGE AND HANDLING

- A. Insulation is shipped in polyethylene wrapped bundles, approximately 48 inches high. These wrapping materials are not adequate for weather protection of the insulation at the job site. Cover the bundles with a tarpaulin or other suitable "breathable" protection cover.
- B. Insulation bundles shall be stored on pallets at least 4 inches above the ground level.
- C. Insulation bundles, when placed on the roof deck for storage, shall be stacked on pallets at least 4 inches above the deck.
- D. Insulation bundles will be unloaded from trucks by a fork-lift truck or similar equipment with suitable forks to slide under bundles. Never roll or tumble bundles off delivery trucks.

3.3 PROJECT CONDITIONS

- A. Do not install insulation on roof deck when water of any type is present. Do not apply insulation material when it is damp or wet.
- B. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacture for optimum result. Do not install products under environmental conditions outside manufacturer's absolute limits.
- C. No insulation or membrane system should be installed on a roof deck until all other trades are finished on the roof. .

Jefferson County Office Building - Port Arthur Texas**3.4 APPLICATION OF ROOF DECKS**

- A. Deck Design:
 - 1. Insulation may be applied over steel decks.
 - 2. The deck shall be adequately tied into the building structure to resist wind uplift forces and prevent lateral movement of various sections. .
 - 3. Roof decks shall be prepared to receive the roofing system as specified and approved by the membrane supplier.
 - 4. The roof deck must be designed for proper drainage.
- B. Deck Surfaces:
 - 1. Deck surfaces shall be smooth.
 - 2. Deck surfaces shall be free of all ponded water or other surface moisture.
 - 3. Deck surfaces shall be swept clean of all debris and trash prior to installing the insulation.
 - 4. Do not leave sawdust or other extraneous materials in the flutes of steel decks.
 - 5. All deck surface irregularities, such as low or high spots, voids or joints between precast units, shall be grouted with appropriate non-shrink grout to return the surface to a proper flat uninterrupted surface to receive the insulation.
- C. Insulation Stops/Deck Penetrations
 - 1. All roof deck openings, edges and eaves shall have treated wood nailers installed as insulation stops. Treated wood nailers should be at least 6 inches wide and of a thickness equal to the thickness of the insulation. Wood preservative treatment chemicals shall be of a type that is compatible with the roof membrane system.
 - 2. All roof deck penetrations or projections, as well as curb construction, shall be completed prior to the application of the insulation.

3.5 MOISTURE CONTROL

- A. Construction processes, such as curing of plaster or concrete or the use of propane-fired heaters, can generate enough moisture under certain conditions to condense in the roofing system and cause permanent damage. Adequate ventilation should be provided to preclude this possibility or a vapor retarder should be used to limit moisture-laden air from migrating into the roofing system. Manufacture will not assume responsibility for insulation performance when installed under these or similar high-moisture conditions.
- B. The use and placement of a vapor retarder within any insulated roofing assembly must follow the recommendations of the National Roofing Contractors Association in the latest edition of the "NRCA Roofing and Waterproofing Manual".
- C. Using two layers of insulation and offsetting joints will further reduce moisture migration into a roofing system.

Jefferson County Office Building - Port Arthur Texas**3.6 INSULATION INSTALLATION**

- A. General Installing Guidelines:
1. Examine deck material for suitability to receive insulation.
 2. Verify that all horizontal roof components such as vents, returns, roof hatches ect. are secured properly and installed in conformance with contract drawings and submittals.
 3. Verify that insulation is dry, clean and free of foreign material that will damage insulation or impede installation.
 4. Do not score, slash or otherwise cut either facing of the insulation product in order to force the panel to conform to deck irregularities or "lay" in a pool of molten mopping bitumen exceeding 30 pounds per square.
 5. Do not shave, rasp or carve facers off any insulation panel.
 6. Do not force rigid insulation to bend over roof ridges, deck irregularities or conform to deck low points such as drainage swales. Insulation panels must be cut, not scored, to fit around such details. Do not cut or trim of insulation panels with the "score and snap" method.
 7. Cant strips for completion of roof edge details must be placed on top of the fully supported insulation product, not underneath.
 8. No more insulation shall be laid than can be covered with the completed membrane system by the end of the work for the day.
- B. Mechanically Attached Fluted Metal Panel / Single-Ply Membranes:
1. Approved products for use:
 - a) Multi-Max FA-3 .
 - b) Ultra-Max .
 2. Insulation shall be pre-attached to wood or steel decks with screw and plate type mechanical fastener as required to comply with TDI windstorm design requirements. The attachment of the membrane shall provide the additional fastening required to restrain the system. Consult membrane supplier specifications for any additional fastener requirements for the insulation.
 3. Consult the membrane supplier for recommendations when using air and/or vapor barriers with mechanically fastened single-plys.
- C. Multi-Layer Insulation Systems:
1. For single-ply systems over insulation mechanically fastened to the roof deck, use a suitable cover board whenever the thickness of the insulation exceeds 3.0", otherwise the insulation should be installed in multiple layers.
 2. For hot-applied BUR and Modified Bitumen systems, two layers of insulation shall be used whenever the total insulation requirement exceeds 3.0". A two layer system may be installed on a roof deck by mechanically attaching the first layer and then attaching the second layer in hot bitumen. Refer to corresponding sections for details of installation for the selected roof membrane.
 3. When the total thickness is 4" or less, the minimum thickness of any layer must be 1.5" to resist a specified wind loads referenced in 1.3(D).
 4. When the total thickness is over 4" and less than or equal to 12", the minimum

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thickness of any layer must be 2" to resist a specified wind loads referenced in 1.3(D).

5. Joints should be offset between the various layers of insulation as well as between the insulation and a cover board.

3.7 ROOF PROTECTION

- A. Completed portions of the membrane/insulation system shall not be used for storage surfaces or work surfaces without adequate protection first placed over the membrane.
- B. Walkways must be laid on any completed area used for access to the construction area or roof top equipment.
- C. Note: Plywood of 3/4" thickness or greater may be used as a temporary protection layer during construction. Thin OSB panels (i.e. thickness less than 3/4-inch) are considered inadequate for proper protection of an installed roofing system.

END OF SECTION 07221

Jefferson County Office Building - Port Arthur Texas**SECTION 07413**
METAL ROOF PANELS AND CLADDING**PART 1 - GENERAL****1.1 SECTION INCLUDES**

- A. Prefinished metal roof system.
- B. Prefinished metal wall system.
- C. Secondary framing to support panels.

1.2 RELATED SECTIONS

- A. Section 05300 - Metal Decking.
- B. Section 07221 - Board Insulation.
- C. Section 07620 - Sheet Metal Flashing and Trim.
- D. Section 07900 - Joint Sealers.

1.3 REFERENCES

- A. ASTM A 653, "Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process," American Society for Testing and Materials, 1998.
- B. ASTM A 792a, "Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process," American Society for Testing and Materials, 1997.
- C. ASTM E 330, "Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference", American Society for Testing and Materials.
- D. ASTM E 1514, "Specification for Structural Standing Seam Steel Roof Panel Systems," American Society for Testing and Materials, 1993.
- E. Cold-Formed Steel Design Manual, American Iron and Steel Institute, Washington, D.C., 2002.
- F. Specification for Structural Steel Buildings - Allowable Stress Design and Plastic Design, American Institute of Steel Construction, Chicago, IL, 1989.
- G. UL 580, "Tests for Uplift Resistance of Roof Assemblies", Underwriter's Laboratories, 1nc., 1994.

1.4 ROOF SYSTEM REQUIREMENTS

- A. Design Requirements:
 - 1. The metal roof system shall be designed by the manufacturer as a complete system. Members and connections not indicated on the drawings shall be the responsibility of the Contractor. All components of the system shall be supplied by the same manufacturer.
 - 2. Roof Panels: Steel panels shall be designed in accordance with the AISI Cold-Formed Steel Design Manual. Aluminum panels shall be designed in accordance with the Aluminum Design Manual.
 - 3. Deflection requirements shall be in accordance with the applicable building code, or as a minimum, L/180 for roof snow load (but not less than 20 psf).
 - 4. Accessories and Fasteners: Accessories and fasteners shall be capable of resisting the specified design wind uplift forces and shall allow for thermal movement of the

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- roof panel system. Exposed fasteners shall not restrict free movement of the roof panel system resulting from thermal forces, except at designed points of roof panel fixity.
5. Design Loads: Design load application shall be in accordance with those defined by the 2012 International Building Code for Port Arthur, Texas.
 6. Dead Loads: The dead load shall be the weight of the metal roof system.
 - a. Collateral Loads shall not be applied to the roof panels.
 7. Live Loads: The panels and concealed anchor clips shall be capable of supporting a minimum uniform live load of 20 psf.
 8. Snow Loads: The design ground snow loads shall be in accordance with those defined by the 2012 International Building Code for Port Arthur, Texas.
 9. Wind Loads: Wind uplift ratings are based on specifications developed by FM Global. Roofing insulation materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The roofing system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift resistance of the roofing system with allowances for appropriate factors of safety.
 10. Thermal Effects: Roof panels shall be free to move in response to the expansion and contraction forces resulting from temperature variation, as specified in the MBMA Metal Roofing Systems Design Manual.
 11. Rainfall Intensity: Exterior gutters and downspouts shall be designed for rainfall intensity based upon a 5-year recurrence interval for a five minute duration. Interior gutters, valleys, curbs and downspouts shall be designed for rainfall intensity based upon a 25-year recurrence interval based on a five minute duration.
- B. Performance Requirements, Exposed Fastener Series Roof Panels:
1. Temporary Concentrated Loads: The panels shall be capable of supporting a 250-pound temporary concentrated load at the panel mid-span in the installed condition. The load shall be applied over the entire panel width. The panels shall support this concentrated load without displaying permanent distortions that would affect the weathertightness of the metal roofing system.
- C. Framing Members Supporting the Metal Roof System:
1. Any additions/revisions to framing members supporting the metal roof system to accommodate the manufacturer/fabricator's design shall be the Contractor's responsibility, and shall be submitted for review and approval by the Engineer of Record.
 2. Framing members and their connections shall be designed in accordance with AISC, AISI and LGSI design specifications applicable. Deflection requirements shall be in accordance with the applicable building code, or as a minimum, the provisions of the AISC Steel Design Guide Series 3 - Serviceability Design Considerations for Low-Rise Buildings.

1.5 WALL AND LINER SYSTEM REQUIREMENTS

- A. Design Requirements for Wall and Liner Systems:
1. System Design: Metal wall and liner system shall be designed by the manufacturer as a complete system. Members and connections not indicated on the Drawings shall be the responsibility of the Contractor. All components of the system shall be supplied by the same manufacturer.
 2. Wall and Liner Panels: Steel panels shall be designed in accordance with the AISI Cold-Formed Steel Design Manual. Aluminum panels shall be designed in

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- accordance with the Aluminum Design Manual.
3. Design Loads: Design load application shall be in accordance with those defined by the 2012 International Building Code for Port Arthur, Texas.
 4. Wind Loads: Wind uplift ratings are based on specifications developed by FM Global. Roofing insulation materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The roofing system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift resistance of the roofing system with allowances for appropriate factors of safety.
 5. Deflection: Deflection requirements shall be in accordance with the applicable building code, or as a minimum, L/90 for wind load but not less than 10 psf.
 6. Accessories and Fasteners: Accessories and fasteners shall be capable of resisting the specified design wind suction forces.
- B. Performance Requirements for R-Panel Wall Panel Systems:
1. Metal wall panel systems shall be tested in accordance with ASTM E 330 for positive and negative loading. Capacity for gauge, span or loading other than those tested may be determined by interpolating between test values only.
- C. Framing Members Supporting the Metal Panel System:
1. Any additions/revisions to framing members supporting the metal panel system to accommodate the manufacturer/fabricator's design shall be the Contractor's responsibility, and shall be submitted for review and approval by the Engineer of Record.
 2. Framing members and their connections shall be designed in accordance with AISC, AISI, and LGSI design specifications as applicable. Deflection requirements shall be in accordance with the applicable building code, or as a minimum, the provisions of the AISC Steel Design Guide Series 3 - Serviceability Design Considerations for Low-Rise-Buildings.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including preparation recommendations, storage and handling requirements, and installation methods.
- C. Shop Drawings: Submit shop drawings showing methods of installation, elevations and plans of roof and wall panels, sections and details, specified loads, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied by the metal panel system manufacturer, and proposed identification of component parts and their finishes. Do not proceed with fabrication prior to approval of shop drawings. Shop drawings shall be prepared and sealed a professional engineer licensed in the jurisdiction of the project, and include the following:
1. Submit engineering calculations defining cladding loads for zones based on specified building codes, allowable clip loads, and required number of fasteners to secure the panel clips to the designated substructure.
 - a. Compute suction loads on clip fasteners with full recognition of prying forces and eccentric clip loading.
 - b. Calculate holding strength of fasteners in accordance with submitted test data provided by fastener manufacturer based on length of embedment and properties of materials.
 2. Submit thermal calculations and details of floating clip, flashing attachments, and accessories, indicating the free movement in response to the expansion/contraction

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- effects.
3. Roofing Snow and Wind Loading: The roof system manufacturer shall provide an attachment schedule signed by a licensed professional engineer and supporting calculations to resist snow and wind loading requirements.
- D. Test Reports: Submit manufacturer's test reports for each system specified.
 - E. Installer Certification: Submit a letter from the manufacturer certifying the installer of the metal panel system as an authorized installer, approved by the manufacturer within the last year prior to the start of the installation of the metal panel system.
 - F. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
 1. Submit samples and color chips for all proposed finishes.
 2. Submit one 12-inch long sample of panel, including clips.
 3. Submit two 3 inch by 5 inch color chip samples of available colors for selection
 - G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
 1. Submit samples and color chips for all proposed finishes.
 2. Submit one 12 inch long sample of panel, including clips.
 3. Submit two 3 inches by 5 inches color chip samples in color selected.
 - H. Roof Inspection for Weathertightness Warranty: Submit with documentation as specified in this Section.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall have a minimum of ten years experience in manufacturing metal roof systems. Panels specified in this section shall be produced in a permanent factory environment with fixed-base roll-forming equipment.
- B. Installer Qualifications: Installer shall have completed five projects of similar scope and magnitude that have been in service for a minimum of two years with satisfactory performance of the roof system. Installer's foreman shall be trained in the proper installation of the specified system, and present at all times when material is being installed.
- C. Regulatory Requirements: Comply with specified performance and local building code requirements. In the event of conflict, comply with the higher performing or more restrictive requirement.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to job site properly packaged to provide protection against transportation damage.
- B. Exercise extreme care in unloading, storing and installing metal panel system to prevent bending, warping, twisting and surface damage.
- C. Store all material and accessories above ground on well supported platforms. Store under waterproof covering. Provide proper ventilation of metal panel system to prevent condensation build-up between each panel or trim/flashing component.
- D. Store products in manufacturer's unopened packaging until ready for installation.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

Jefferson County Office Building - Port Arthur Texas**1.10 WARRANTY**

- A. Finish Warranty: Manufacturer warrants that under normal outdoor atmospheric conditions the roof and wall panels will meet the following requirements:
 - 1. Fluorocarbon (PVDF):
 - a. The paint film will not crack, flake, chip or peel for a period of 45 years.
 - b. The paint will not chalk in excess of number 8 rating for a period of 35 years.
 - c. The paint will not fade in excess of 5 NBS Units for a period of 35 years.
- B. Galvalume Warranty: Galvalume will not rupture, fail structurally or perforate within a period of 25 years and 6 months from shipment from the manufacturing branch.
- C. Roofing Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace metal roof panel assemblies that fail to remain weather tight, including leaks, within specified warranty period
 - 1. 5 years from date of substantial completion.
 - 2. 10 years from date of substantial completion.
 - 3. 20 years from date of substantial completion.
 - 4. Sidelap only warranty.
 - 5. Full system warranty.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Acceptable Manufacturer:
 - 1. Metal Sales Manufacturing Corporation, which is located at: 545 S. 3rd St. Suite 200 ; Louisville, KY 40202; Toll Free Tel: 800-406-7387; Tel: 502-855-4341; Fax: 502-855-4290; Email: request info (info@metalsales.us.com); Web: www.metalsales.us.com
 - 2. Metal Sales - Temple, TX, 3838 North General Bruce Drive, Temple, TX 76501-6505 Toll Free Tel: 800-543-4415, Tel: 254-791-6650, Toll Free Fax: 800-543-4473 Fax: 254-791-6655
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 ARCHITECTURAL ROOF SYSTEMS

- A. Design and engineering is based on the Exposed Fastener Series panel systems as manufactured by Metal Sales Manufacturing Corporation.
 - 1. Application: Roof panel system.
 - 2. Application: Wall panel system.
 - 3. Profile (T-1 Roof): 44 inch width with a 5/8 inch rib height and 1-7/8 inch trapezoid rib width on 7-5/16 inch centers.
 - 4. Profile (T-1 Wall): 44 inch width with a 5/8 inch rib height and 3/4 inch trapezoid rib width on 7-5/16 inch centers.
 - 5. Seam Type: Overlap.
 - 6. Minimum Thickness: Panel to meet all specified design loads, but not less than 22 gauge.
 - 7. Fastening System: Exposed, direct fastened.
 - 8. Panel Base Material: Steel grade 50 per ASTM A 792 for 24 gauge and 22 gauge.
 - 9. Panel Base Material: Steel grade 33 per ASTM A 792 for 20 gauge and 18 gauge.
 - 10. Finish: Acrylic Coated Galvalume (ACG) / A 792 - AZ55.

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11. Finish: Prepainted Galvalume / A 792 - AZ50, Fluorocarbon (PVDF). Primer is 0.2 mil, top coat is 0.8 mil, total dry film thickness is 1.0 mil.
12. Color: Standard, Stocked.

2.3 SECONDARY FRAMING PRODUCTS

- A. Provide framing engineering and construction to comply with Cold-Formed Steel Design Manual, American Iron and Steel Institute, Washington, D.C., Latest Edition.
 1. Standard gauges: 12 gauge.
 2. Standard flange width: 2.5 inch.
 3. Coating: Galvanized.

2.4 MATERIALS

- A. Base Metal:
 1. Prefinished Galvalume sheet, AZ50 coating made up of 55 percent aluminum, 1.6 percent silicon and the balance zinc as described in A792.
 2. Aluminum-zinc coated steel conforming to A792 SQ Grade 50B with AZ55 coating (Galvalume).
 3. Zinc-coated steel, structural quality ASTM A446, Grade A, G90 hot-dip galvanized conforming to ASTM A525.
 4. Steel conforming to A653, G-90 Galvanized, minimum yield 40,000 psi.
 5. Aluminum: Alloy 3105 conforming to ASTM B209, H24 temper.
 6. FLUOROCARBON (PVDF) - Manner of application to be a two coat roll coated system including a premium PVDF top coat over a properly cleaned and pre-treated substrate. Meets both Kynar 500 and Hylar 5000 Specifications.
 - a. SURFACE APPEARANCE - The surface is to be streak free and smooth with no blistering or other imperfections.
 - b. FILM THICKNESS - Topcoat finish consist of a primer with a dry film thickness of 0.20- 0.30 mil. Primary topcoat shall have a dry film thickness of 0.70- 0.80 mil. The reverse side of the panel shall have a primer coat with a dry film thickness of 0.20- 0.30 mil and a pigmented backer coat with a dry film thickness of 0.30- 0.40 mil. Total dry topside film thickness for the system shall be 0.90-1.10 mils. All measurements per accordance with D 1005.
- B. Fasteners:
 1. Fasteners for steel roof panels shall be zinc-coated steel, aluminum, corrosion resisting steel, or nylon-capped steel, type and size as approved by system manufacturer for the applicable requirements. Fasteners for aluminum roof panels shall be aluminum or corrosion resisting steel. Fasteners for structural connections shall provide both tensile and shear ultimate strengths of not less than 750 pounds (340 kg) per fastener. Fasteners for accessories shall be the manufacturer's standard. Exposed roof fasteners shall be sealed or have sealed washers on the exterior side of the covering to waterproof the fastener penetration. Washer material shall be compatible with the screw head; have a minimum diameter of 3/8-inch (9.5 mm) for structural connections; and gasket portion of fasteners or washers shall be neoprene or other equally durable elastomeric material.
 2. Exposed fastener color shall match panel, trim or accessories.
 3. Screws: as determined by manufacturer to suit specified performance requirements.
 4. Blind Rivets: Solid-threaded, sealed stem type with EPDM washer under head.
 5. Exposed rivets shall match color finish of panel.

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- C. Components:
1. Components shall be compatible with the metal panel furnished. Flashing, trim, metal closure strips, caps, gutters, downspouts, roof curbs, and similar metal components shall not be less than the minimum thickness specified by the metal panel system manufacturer. Exposed metal components shall be finished to match the panels or trim, as furnished. Molded closure strips shall be closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride pre-molded to match configuration of the covering and shall not absorb or retain water. Thermal spacer blocks and other thermal barriers at concealed clip fasteners shall be as recommended by the Manufacturer.
- D. Sealants:
1. All tape sealant is to be a pressure sensitive, 100 percent solid, sealing tape with a release paper backing. Provide permanently elastic, non-sagging, non-toxic, non-staining tape sealant approved by the metal panel system manufacturer.
 2. The metal panel system manufacturer shall approve all joint sealant that will come into contact with the metal panel system.
- E. Prefabricated Pipe Flashing and Curbs:
1. Provide the Manufacturer with the dimensions, weights and model number of the units to be supported by the curb(s).
 2. Fabricate curbs of structural quality aluminum, Galvalume, or hot-dipped galvanized sheet. Curbs shall have welded joints unless a two-piece curb is required.
 3. Provide integral base plates and water diverters/crickets. Front base plate shall be extended up-slope from the beginning of the water diverter. Curbs shall be designed for a compatible installation with the panel system.
 4. Curbs shall be constructed to match the roof slope and provide a mounting surface as required by the rooftop unit manufacturer.
 5. Submit roof curb manufacturer's shop drawings to metal roof system Manufacturer for approval before fabrication of curbs.
 6. Any curb structural support system shall allow proper thermal movement of the curb with the roof system.
 7. Pipe flashings provided by metal roof manufacturer shall provide a weather tight joint at projections through the roof, taking into account the thermal movement of the roof and the service temperature of the projection. Pipe flashings shall have an aluminum-flanged base ring.
- F. Accessories:
1. Provide manufacturer's standard accessories and other items essential to completeness of roof installation including anchor clips, trim, ridge and hip caps, closures, flashing, and fascia.
 2. Form flashings from same gauge and finish as metal panels.
- G. Battens: Shall be of same material, finish and length as metal panels.
- H. Waterproof sheet membrane composed of non-skid polyethylene and rubberized asphalt.
1. MS-HT High Temperature underlayment.
- I. Closures:
1. Precut profile closure from cross-linked, closed cell polyethylene composition foam.
 2. Protect and support ridge and hip foam closures by a formed metal closure manufactured from same material, with same color and finish as metal panels.
 3. Ridge closures: Factory-fabricated and hip closures field cut.
 4. Closures, Flashing and Trim: Shall be of same material, gauge, finish and panels.
- J. Round Penetrations: Premolded EPDM boot with metal collar.
- K. Vapor Retarder: Permeance of 0.05 or less as determined by E 96.

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- L. Slip - Sheeting: Red Rosin Paper at areas where roof system contacts weather treated wood blocking.
- M. Felt underlayment (solid substrate) 30 lb, asphalt saturated fiberglass felt, non-perforated.

2.5 FABRICATION FOR SHEET METAL ROOF COMPONENTS

- A. All steel to be correctively leveled and handled to minimize stress and waviness of sheet steel.
- B. Form and fabricate sheets, seams, strips, clips, valleys, ridges, edge treatments, integral flashings, and other components of the metal roof to the profiles, patterns, and drainage arrangements as determined by Architect, to provide permanent leakproof construction, with no oil canning or panel distortion.
 - 1. Fabricate exposed items of prefinished sheet metal, color to match panels.
 - 2. Hem exposed edges on underside 3/8 inch to 1/2 inch miter and seam corners.
 - 3. Provide for thermal expansion and contraction of the Work.
 - 4. Seal joints to achieve leakproof construction per manufacturer's detail.
- C. Provide factory eave notch for eave termination (to be utilized with joggle cleat detail).
- D. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- E. Unless otherwise shown on drawings or specified herein, panels shall be full length. Fabricate flashings and accessories in longest practical lengths.
- F. Metal panels shall be factory formed. Field formed panels are not acceptable.

PART 3 - EXECUTION**3.1 EXAMINATION**

- A. Do not begin installation until substrates have been properly prepared.
- B. The Contractor shall verify installed work of other trades that such work is complete to a point where the metal panel system installation may commence.
- C. Verify that the substructure installation is in accordance with the approved shop drawings and metal panel system manufacturer's requirements.
- D. This specifically includes verifying that secondary structural members and/or decking are installed to meet performance requirements. Coordinate with metal panel system manufacturer to ensure that the substructure is installed to accommodate the appropriate clip spacing.
- E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Roof deck substrate.
 - 1. Insulated metal deck with 5/8 inch minimum thickness nailable substrate.
 - a. Provide one layer of felt with horizontal overlaps and end laps staggered between layers.
 - b. Start application at low point; work up roof laying plies in shingle fashion.
- D. Clean surfaces thoroughly prior to installation.

Jefferson County Office Building - Port Arthur Texas**3.3 INSTALLATION**

- A. Install the metal panel system plumb, true and in correct alignment with support, in accordance with manufacturer's instructions and approved installation drawings.
- B. Installer must be approved by Roof System Manufacturer / Supplier.
- C. Install the metal panel system so that it is weathertight and allows for thermal movements.
- D. Locate and space all exposed fasteners in accordance with the metal panel system manufacturer's recommendations. Use proper torque settings to obtain controlled uniform compression for a positive seal without rupturing the neoprene washer.
- E. Avoid placing pipe penetrations through the panel seams.
- F. Do not allow panels or trim to come into contact with dissimilar materials (i.e. Copper, lead, graphite, treated lumber, mortar, etc.). Water run-off from these materials is also prohibited.
- G. Comply with metal panel system manufacturer's approved installation drawings, instructions and recommendations for installation of curbs. Refer to metal panel system manufacturer's standard installation details. Anchor curbs securely in place with provisions for thermal and structural movement.

3.4 WEATHERTIGHTNESS INSPECTION

- A. The metal roof manufacturer shall provide inspection by their approved technical inspectors to approve the metal roof system installation drawings and inspect the installation of the metal roof system at the following stages of installation:
 - 1. Initial inspection prior to installation of roof panels. The purpose of this inspection is to review the final approved installation drawings, verify substrate installation, review installation procedures, and agree upon the scheduling of the intermediate inspections.
 - 2. Intermediate inspections will include the review of the installed product in compliance with the final approved installation drawings and manufacturer's installation procedures.
 - 3. Final inspection at the completion of all metal roof system work.
- B. The metal roof component manufacturer's inspector shall provide written and photographic reports. The certified installation contractor shall make all necessary corrections, additions or remedial actions to resolve any issues identified in the reports.
- C. The metal roof component manufacturer's inspector shall have the authority to have roof work corrected, as required, to insure the proper installation and weathertightness of the metal roof system, in accordance with the manufacturer's specifications.

3.5 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 07413

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SECTION 07465
PREFORMED METAL SIDING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Preformed metal siding system for walls related flashings and accessory components.

1.2 RELATED SECTIONS

- A. Section 04220 - Concrete Masonry Units: Substrate surface.
- B. Section 05100: Structural Steel: Structural steel building frame.
- C. Section 07213 - Batt Insulation.
- D. Section 07413 - Metal Roof Panels.
- E. Section 07620 - Sheet Metal Flashing and Trim.
- F. Section 07900 - Joint Sealers.

1.3 REFERENCES

- A. ANSI/ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- B. ASTM A606 - Steel Sheet and Strip, Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy, with Improved Corrosion Resistance.

1.4 DESIGN REQUIREMENTS

- A. Wind uplift ratings are based on specifications developed by FM Global. Roofing insulation materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The roofing system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift resistance of the roofing system with allowances for appropriate factors of safety.
- B. Maximum Allowable Deflection of Panel: 1/180.
- C. System to accommodate, without damage to components or deterioration of seals, movement within system; movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; deflection of structural support framing.
- D. Accommodate positive drainage for moisture entering or condensation occurring within panel system, to exterior.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate dimensions, layout, joints, construction details, and methods of anchorage.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

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- B. Installer: Company specializing in performing the Work of this section with minimum three years documented experience approved by material manufacturer.

1.7 PRE-INSTALLATION CONFERENCE

- A. Convene two weeks prior to commencing Work of this section, under provisions of Section 01039.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
- C. Stack pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- D. Prevent contact with materials which may cause discoloration or staining.

1.9 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

1.1 COORDINATION

- A. Coordinate work under provisions of Section 01039.

PART 2 PRODUCTS

2.1 EXTERIOR SHEET MATERIALS

- A. Pre-coated Galvanized Steel: ANSI/ASTM A446, Grade C, G90 zinc coating; shop pre-coated with Kynar 500 coating.

2.2 ACCESSORIES

- A. Gaskets: Manufacturer's standard type suitable for use with system, permanently resilient; ultraviolet and ozone resistant; color as selected from manufacturer's standard color selections.
- B. Sealants: Specified in Section 07900
- C. Fasteners: Manufacturer's standard type to suit application; with soft neoprene washers, steel, hot dip galvanized in accordance with ANSI/ASTM A153; fastener cap same color as exterior panel.
- D. Field Touch-up Paint: As recommended by panel manufacturer.
- E. Bituminous Paint: Asphalt base.

2.3 COMPONENTS

- A. Exterior Sheet: Minimum 22 gage thick pre-coated steel stock; R Panel profile; lapped edges, fitted with continuous gaskets and sealants.
- B. Sub Girts: 22 gage thick steel; to attach panel system to building parapet.
- C. Internal and External Corners: Same material, thickness and finish as exterior sheets; profile to suit system; shop cut and factory mitered to required angles. Mitered internal

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corners to be back braced with 22 gage thick pre-coated sheet stock, to maintain continuity of profile.

- D. Trim, Closure Pieces, Caps, Flashings, and Facia Infills: Same material, thickness and finish as exterior sheets; brake formed to required profiles.
- E. Anchors: Galvanized steel.

2.4 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Form pieces in longest practical lengths.
- C. Panel Profile: R Panel.
- D. Fabricate corners in one continuous piece with minimum 18 inch returns and seal.

2.7 FINISH

- A. Exposed Exterior Surfaces: Color as selected from manufacturer's standard palette.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate framing under provisions of Section 01039.
- B. Verify that building framing members are ready to receive panel system.

3.2 INSTALLATION

- A. Install metal siding system on walls in accordance with manufacturer's instructions.
- B. Protect surfaces in contact with cementitious materials and dissimilar metals with bituminous paint. Allow to dry prior to installation.
- C. Fasten siding to structural supports; aligned, level, and plumb.
- D. Locate joints over supports. End lap minimum 2 inches.
- E. Provide control joints where required by system manufacturer.
- F. Seal and place gaskets to prevent weather penetration. Maintain neat appearance.

3.3 TOLERANCES

- A. Maximum Offset From True Alignment Between Adjacent Members Butting or In Line: 1/16 inch.
- B. Maximum Variation from Plane or Location Indicated on Drawings: 1/4 inch.

3.4 CLEANING

- A. Clean work under provisions of 01700.
- B. Remove site cuttings from finish surfaces.
- C. Clean and wash pre-finished surfaces with mild soap and water, rinse with clean water.

END OF SECTION 07465

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SECTION 07620
SHEET METAL FLASHING AND TRIM**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Parapet, cap, sill, and lintel flashings.
- B. Facias, scuppers, and pitch pockets.
- C. Counterflashings over bituminous base flashings.
- D. Counterflashings for roof hatches.
- E. Flashing sleeves and collars for mechanical and electrical items protruding through roofing membrane.
- F. Counterflashings at roof mounted equipment and vent stacks.

1.2 RELATED SECTIONS

- A. Section 07413 - Metal Roof Panels and Cladding.
- B. Section 07631 - Gutters and Downspouts.
- C. Section 07900 - Joint Sealers.

1.3 REFERENCES

- A. ASTM A525 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.
- B. ASTM D4586 - Asphalt Roof Cement, Asbestos-Free.
- C. NRCA (National Roofing Contractors Association) - Roofing Manual.
- D. SMACNA - Architectural Sheet Metal Manual.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.
- C. Submit two samples 6 x 6 inch in size illustrating metal finish color.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA and NRCA standard details and requirements.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable City of Port Arthur, Jefferson County, and State of Texas requirements and codes for size and method of rain water discharge.
- B. Wind uplift ratings are based on specifications developed by FM Global. Roofing insulation materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The roofing system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift resistance of the roofing system with allowances for appropriate factors of safety.

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1.7 QUALIFICATIONS

- A. Fabricator and Installer: Company specializing in sheet metal flashing work with 3 years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Stack preformed material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- C. Prevent contact with materials which may cause discoloration or staining.

1.9 COORDINATION

- A. Coordinate work under provisions of Section 01039.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

- A. Galvanized Steel: ASTM A446, Grade A, G90 zinc coating; core steel.
 - 1. Zinc Coating (Galvanized) Finish: Mill Phosphatized (paint-grip) except where otherwise indicated.
 - 2. Gage except where otherwise indicated:
 - a) Coping, gravel guards, cleats: 20 gage.
 - b) Counter flashing, pitch pans and other miscellaneous flashings: 24 gage.

2.2 ACCESSORIES

- A. Fasteners: Same material and finish as flashing metal, with soft neoprene washers.
- B. Underlayment: ASTM D2178, No. 30 asphalt saturated roofing felt.
- C. Slip Sheet: Rosin sized building paper.
- D. Underlayment: Single Ply roof flashing material as recommended by roofing system manufacturer.
- E. Primer: Zinc chromate type.
- F. Protective Backing Paint: Zinc chromate alkyd.
- G. Sealant: Specified in Section 07900.
- H. Bedding Compound: As recommended by roofing system manufacturer.
- I. Plastic Cement: ASTM D4586, Type I.
- J. Reglets: Surface mounted type, galvanized steel; ends closed.

2.3 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Fabricate cleats of same material as sheet, minimum 4 inches wide, interlockable with sheet.
- C. Form pieces in longest possible lengths.
- D. Hem exposed edges on underside 1/2; miter and seam corners.
- E. Form material with flat lock seams.
- F. Fabricate corners from one piece with minimum 18 inch long legs; solder for rigidity and seal.

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- G. Fabricate corners from one piece with minimum 18 inch long legs; lock seam for rigidity, seal with sealant.
- H. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- I. Fabricate flashings to allow toe to extend minimum of 2 inches over roofing protective covering. Return and brake edges.

2.4 FINISH

- A. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets in place, and nailing strips located.
- B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.2 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

3.3 INSTALLATION

- A. Conform to drawing details as listed in schedule.
- B. Insert flashings into reglets to form tight fit. Seal flashings into reglets with sealant.
- C. Secure flashings in place using concealed fasteners. Use exposed fasteners only where permitted.
- D. Apply plastic cement compound between metal flashings and felt flashings.
- E. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- F. Seal metal joints watertight.

3.4 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Section 01400.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

END OF SECTION 07620

Jefferson County Office Building - Port Arthur Texas**SECTION 07631**
GUTTERS AND DOWNSPOUTS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Precoated Galvanized steel gutters and downspouts.
- B. Precast concrete splash pads.

1.2 RELATED SECTIONS

- A. Section 07413 - Metal Roof Panels and Cladding.
- B. Section 07620 - Sheet Metal Flashing and Trim.
- C. Section 09900 - Painting: Field painting of metal surfaces.

1.3 REFERENCES

- A. ASTM A446 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
- B. FS TT-C-494 - Coating Compound, Bituminous, Solvent Type, Acid Resistant.
- C. SMACNA - Architectural Sheet Metal Manual.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate locations, configurations, jointing methods, fastening methods, locations, and installation details.
- C. Product Data: Provide data on prefabricated components.
- D. Samples: Submit two samples, 6 inch long illustrating component design, finish, color, and configuration.

1.5 QUALITY ASSURANCE

- A. Conform to SMACNA Manual for sizing components for rainfall intensity determined by a storm occurrence of 1 in 10 years.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable City of Port Arthur, Jefferson County, and State of Texas requirements and codes for size and method of rain water discharge.
- B. Wind uplift ratings are based on specifications developed by FM Global. Roofing insulation materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The roofing system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift resistance of the roofing system with allowances for appropriate factors of safety.

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1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope to drain.
- C. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

1.8 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with downspout discharge pipe inlet.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Pre-Coated Galvanized Steel: ASTM A446, Grade A, G90 zinc coating; 22 gage core steel, shop pre-coated with Kynar 500 coating of color selected from manufacturer's standard color palette.

2.2 COMPONENTS

- A. Gutters: SMACNA Rectangular style profile.
- B. Downspouts: SMACNA Rectangular profile.
- C. Accessories: Profiled to suit gutters and downspouts.
- D. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3000 psi at 28 days, with minimum 5 percent air entrainment.
- E. Downspout Boots: Neenah R-4929-O9C or similar as sized to meet design rainfall and intensity requirements.

2.3 ACCESSORIES

- A. Anchorage Devices: SMACNA requirements.
- B. Gutter Supports: Brackets.
- C. Downspout Supports: Brackets.
- D. Fasteners: Galvanized steel. Finish exposed fasteners same as flashing metal.
- E. Primer: Zinc chromate type.
- F. Protective Backing Paint: Zinc chromate alkyd.

2.4 FABRICATION

- A. Form gutters and downspouts of profiles and size indicated and in compliance with SMACNA requirements.
- B. Fabricate with required connection pieces.
- C. Form sections square, true, and accurate in size, in maximum possible lengths, free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- D. Hem exposed edges of metal.
- E. Fabricate gutter and downspout accessories; seal watertight.

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2.5 FINISHES

- A. Apply bituminous protective backing on surfaces in contact with dissimilar materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work.

3.2 INSTALLATION

- A. Install gutters, downspouts, and accessories in accordance with manufacturer's instructions.
- B. Join lengths with formed seams sealed watertight. Flash and seal gutters to downspouts and accessories.
- C. Slope gutters 1/8 inch per foot minimum.
- D. Seal metal joints watertight.
- E. Connect downspouts to downspout boots system. Seal connection watertight.

END OF SECTION 07631

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SECTION 07900
JOINT SEALERS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Preparing substrate surfaces.
- B. Sealant and joint backing.

1.2 RELATED SECTIONS

- A. Section 07413 - Metal Roof Panels and Cladding: Sealants required in conjunction roofing system.
- B. Section 07465 - Preformed Metal Siding: Sealants required in conjunction with metal siding.
- C. Section 07620 - Sheet Metal Flashing and Trim: Sealants required in conjunction with sheet metal flashing and trim.
- D. Section 08410 - Aluminum Entrances and Storefront: Sealants required in conjunction with aluminum framing.
- E. Section 08800 - Glazing: Sealants required in conjunction with glazing system.

1.3 REFERENCES

- A. ASTM C790 - Use of Latex Sealing Compounds.
- B. ASTM C804 - Use of Solvent-Release Type Sealants.
- C. ASTM C834 - Latex Sealing Compounds.
- D. ASTM C919 - Use of Sealants in Acoustical Applications.
- E. ASTM C920 - Elastomeric Joint Sealants.
- F. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
- G. ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open-Cell Foam).
- H. SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria including ASTM reference standards and federal specifications compliance, substrate preparation, limitations, and color availability.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

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- B. Applicator: Company specializing in performing the work of this section with minimum three years documented experience approved by manufacturer.

1.7 FIELD SAMPLE

- A. Provide field samples of sealant joints in conjunction with window and wall systems.
- B. Field sample may remain as part of the Work.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.9 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with all sections referencing this section.

1.10 WARRANTY

- A. Provide one year warranty under provisions of Section 01700.
- B. Warranty: Include coverage for installed sealants and accessories which fail to achieve air tight seal, water tight seal, and exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.1 SEALANTS

- A. Interior Acrylic Emulsion Latex (Type IAEL): ASTM C920, Grade NS, Class 12.5, Use NT; Single component, non-staining, non-bleeding, non-sagging; color as selected.
 - 1. Elongation Capability 2 to 5 percent
 - 2. Service Temperature Range 2 to 160 degrees F
 - 3. Shore A Hardness Range 15 to 40
- B. Butyl Sealant (Type BS): ASTM C920, Grade NS, Use NT single component, solvent release, non-skinning, non-sagging, black color; butyl sealant manufactured by Tremco or 757 butyl sealant manufactured by Protective Treatments, Inc.
 - 1. Elongation Capability 7 to 10 percent
 - 2. Service Temperature Range -40 to 190 degrees F
 - 3. Shore A Hardness Range 24 to 28
- C. Polyurethane Sealant, non-sagging (Type PNS).
 - 1. Polyurethane Sealant: ASTM C920, Grade NS, Class 25, Use NT, M, A, O; single component, chemical curing, non-staining, non-bleeding, non-sagging; color as selected; Dymonic manufactured by Tremco or Dynatrol I manufactured by Pecora.
 - a) Elongation Capability 25 percent
 - b) Service Temperature Range -40 to 180 degrees F
 - c) Shore A Hardness Range 20 to 30
 - 2. Polyurethane Sealant: ASTM C920, Grade NS, Class 25, Use NT, M, A, O; multi-component, chemical curing, non-staining, non-bleeding, non-sagging type; color as selected; Dymeric manufactured by Tremco or Dynatrol II manufactured by Pecora.

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- a) Elongation Capability 25 percent
 - b) Service Temperature Range -20 to 180 degrees F
 - c) Shore A Hardness Range 25 to 35
- D. Polyurethane traffic bearing sealants, (Type PTB).
 - 1. Polyurethane Sealant: ASTM C920, Grade P, Class 25, Use T; single component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, self-leveling type; color as selected; Urexpon NR-201 manufactured by Pecora Corp. for slopes less than 1 percent.
 - a) Elongation Capability 25 percent
 - b) Service Temperature Range -20 to 180 degrees F
 - c) Shore A Hardness 35
 - 2. Polyurethane Sealant: ASTM C920, Grade P, Class 25, Use T, M, O; multi-component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, self-leveling type; color as selected; THC-900 manufactured by Tremco or Urexpon NR-200 manufactured by Pecora Corp. for slopes less than 1 percent. For slopes of 1 percent or greater use THC-901 manufactured by Tremco or Dynatrol manufactured by Pecora Corp.
 - a) Elongation Capability 25 percent
 - b) Service Temperature Range -20 to 180 degrees F
 - c) Shore A Hardness 25 to 35
- E. Compressed - Expanding Foam Sealant, (Type EFS), Grade NS, Class 25, Use NT, M, O, precompressed, impregnated, self-expanding, open-cell foam, non-staining, non-bleeding; Emseal 20H manufactured by Emseal Joint Systems Ltd.
 - 1. Elongation Capability 25 percent
- F. Sanitary Silicone Sealant (Type SSS): ASTM C920, Grade NS, Class 25, Use NT, G, A, O single component, fungus resistant, acidic curing, non-sagging, non-staining, non-bleeding; [white] [translucent white] color; 786 mildew-resistant manufactured by Dow Corning Corp. or Sanitary 1700 manufactured by General Electric.
 - 1. Shore A Hardness 25

2.2 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: ASTM D1565; round, closed cell foam rod; oversized 30 to 50 percent larger than joint width; compatible with sealant (polyethylene, butyl, neoprene, polyurethane, PVC).
 - 1. At vertical locations provide polyethylene recommended by sealant manufacturer.
 - 2. At horizontal locations provide solid neoprene or butyl rubber with a Shore A hardness of 70.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION**3.1 EXAMINATION**

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

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- A. Remove loose materials and foreign matter which might impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions.
- D. Protect elements surrounding the work of this section from damage or disfiguration.

3.3 INSTALLATION

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve required width/depth ratios.
- C. Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.

3.4 CLEANING

- A. Clean work under provisions of 01700.
- B. Clean adjacent soiled surfaces.

3.5 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of Section 01500.
- B. Protect sealants until cured.

3.6 INTERIOR SEALANT SCHEDULE

	Location	Type	Color
A.	Between plumbing fixtures and adjacent finishes	SSS	White
B.	Door Frame/Walls	IAEL	Color to match adjacent finishes
C.	Under Thresholds	BS	Black
D.	Interior Joints	IAEL	Field Selected
	Not Listed Above		

END OF SECTION 07900

Jefferson County Office Building - Port Arthur Texas**SECTION 08111**
STANDARD STEEL DOORS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Non-rated steel doors.

1.2 RELATED SECTIONS

- A. Section 08112 - Standard Steel Frames.
- B. Section 08211 - Flush Wood Doors.
- C. Section 08710 - Door Hardware.
- D. Section 09900 - Painting: Field painting of doors.

1.3 REFERENCES

- A. Americans with Disabilities Act.
- B. State of Texas Handicap Accessibility Standards.
- C. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
- D. ANSI/SDI-100 - Standard Steel Doors and Frames.
- E. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- F. ASTM C236 - Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot-Box.
- G. ASTM E152 - Methods of Fire Tests of Door Assemblies.
- H. ASTM E413 - Classification for Determination of Sound Transmission Class.
- I. Door Hardware Institute (DHI) - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- J. NFPA 80 - Fire Doors and Windows.
- K. NFPA 252 - Fire Tests for Door Assemblies.
- L. UL 10B - Fire Tests of Door Assemblies.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Indicate door configurations, location of cut-outs for hardware reinforcement.
- C. Manufacturer's Installation Instructions: Indicate special installation instructions.
- D. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Conform to requirements of ADA, ANSI/SDI-100 and ANSI A117.1.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

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1.7 REGULATORY REQUIREMENTS

- A. Wind ratings are based on specifications developed by FM Global. Door materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The door system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift and impact resistance of the door and frame system with allowances for appropriate factors of safety.
- B. Fire Rated Door and Panel Construction: Conform to ASTM E152.
- C. Fire Rated Door Construction: Rate of rise of 450 F degrees across door thickness.
- D. Installed Door Assembly: Conform to NFPA 80 for fire rated class as scheduled.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Accept doors on site in manufacturer's packaging. Inspect for damage.
- C. Break seal on-site to permit ventilation.

1.9 FIELD MEASUREMENTS

- A. Verify that field measurements are as instructed by the steel door manufacturer.

1.10 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with door opening construction, door frame and door hardware installation.

PART 2 PRODUCTS

2.1 DOORS AND PANELS

- A. Exterior Doors Non-thermally Broken: SDI-100 Grade III Extra Heavy-Duty Model 2. Seamless - Composit Construction, 1-3/4 inches, Level A.

2.2 DOOR CONSTRUCTION

- A. Face: Steel sheet in accordance with ANSI/SDI-100.
- B. Core: Polystyrene foam at exterior doors.

2.3 ACCESSORIES

- A. Primer: Zinc chromate type.

2.4 FABRICATION

- A. Fabricate doors with hardware reinforcement welded in place.
- B. Attach fire rated label to edge of each door unit.
- C. Close top and bottom edge of exterior doors with flush end closure. Seal joints watertight.

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2.5 FINISH

- A. Steel Sheet: Galvanized to ASTM A525 A60.
- B. Primer: Baked.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate conditions under provisions of Section 01039.
- B. Verify that opening sizes and tolerances are acceptable.

3.2 INSTALLATION

- A. Install doors in accordance with ANSI/SDI-100 and DHI.
- B. Coordinate installation of glass and glazing.
- C. Install door louvers, plumb and level.
- D. Coordinate installation of doors with installation of frames specified in Section 08112 and hardware specified in Section 08710.

3.3 ERECTION TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.4 ADJUSTING

- A. Adjust work under provisions of Section 01700.
- B. Adjust door for smooth and balanced door movement.

END OF SECTION 08111

Jefferson County Office Building - Port Arthur Texas**SECTION 08112**
STANDARD STEEL FRAMES**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Non-rated steel frames.

1.2 RELATED SECTIONS

- A. Section 08111 - Standard Steel Doors.
- B. Section 08211 - Flush Wood Doors.
- C. Section 08710 - Door Hardware.
- D. Section 08800 - Glazing.
- E. Section 09900 - Painting: Field painting of frames.

1.3 REFERENCES

- A. Americans with Disabilities Act.
- B. State of Texas Accessibility Standards.
- C. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
- D. ANSI/SDI-100 - Standard Steel Doors and Frames.
- E. ASTM A525 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- F. ASTM C236 - Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot-Box.
- G. ASTM E152 - Methods of Fire Tests of Door Assemblies.
- H. ASTM E413 - Classification for Determination of Sound Transmission Class.
- I. Door Hardware Institute (DHI) - The Installation of Commercial Steel Doors and Steel Frames, Insulated Steel Doors in Wood Frames and Builder's Hardware.
- J. NFPA 80 - Fire Doors and Windows.
- K. NFPA 252 - Fire Tests for Door Assemblies.
- L. UL 10B - Fire Tests of Door Assemblies.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate frame elevations, reinforcement, methods of anchorage and finish.
- C. Product Data: Indicate frame configuration, anchor types and spacings, location of cut-outs for hardware, reinforcement.
- D. Manufacturer's Installation Instructions: Indicate special installation instructions.
- E. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

Jefferson County Office Building - Port Arthur Texas**1.5 QUALITY ASSURANCE**

- A. Conform to requirements of ADA, ANSI/SDI-100 and ANSI A117.1.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.7 REGULATORY REQUIREMENTS

- A. Fire Rated Door and Panel Construction: Conform to ASTM E152.
- B. Fire Rated Door Construction: Rate of rise of 450 F degrees across door thickness.
- C. Installed Frame Assembly: Conform to NFPA 80 for fire rated class same as fire door.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Break seal on-site to permit ventilation.

1.9 FIELD MEASUREMENTS

- A. Verify that field measurements are as instructed by the steel door frame manufacturer.

1.10 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with door opening construction, door frame and door hardware installation.

PART 2 PRODUCTS

2.1 FRAMES

- A. Frames: To suit ANSI/SDI-100 Grade and Model of door specified in Section 08111 and 08211 as follows:
 - 1. Exterior Frames: 16 gage thick material, base metal thickness.
 - 2. Interior Frames: 18 gage thick material, base metal thickness.

2.2 ACCESSORIES

- A. Silencers: Resilient rubber, fitted into drilled hole.
- B. Removable Stops: Rolled steel channel shape, butted corners; prepared for countersink

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style tamper proof screws.

- C. Bituminous Coating: Fibered asphalt emulsion.
- D. Primer: Zinc chromate type.

2.3 FABRICATION

- A. Fabricate frames as welded unit.
- B. Fabricate frames with hardware reinforcement plates welded in place. Provide mortar guard boxes.
- C. Reinforce frames wider than 48 inches with roll formed steel channels fitted tightly into frame head, flush with top.
- D. Prepare frame for silencers. Provide three single silencers for single doors on strike side. Provide two single silencers on frame head at double doors without mullions.

2.4 FINISH

- A. Steel Sheet: Galvanized to ASTM A525.
- B. Primer: Baked.
- C. Factory Finish: Baked enamel.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate conditions under provisions of Section 01039.
- B. Verify that opening sizes and tolerances are acceptable.

3.2 INSTALLATION

- A. Install frames in accordance with ANSI/SDI-100 and DHI.
- B. Coordinate with gypsum board wall construction for anchor placement.
- C. Coordinate installation of frames with installation of hardware specified in Section 08710 and doors in Section 08211.
- D. Install roll formed steel reinforcement channels between two abutting frames. Anchor to structure and floor.

3.3 ERECTION TOLERANCES

- A. Maximum Diagonal Distortion: 1/16 inch measured with straight edges, crossed corner to corner.

END OF SECTION 08112

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SECTION 08211
FLUSH WOOD DOORS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Flush wood doors non-rated.

1.2 RELATED SECTIONS

- A. Section 08112 - Standard Steel Frames: Steel door frames.
- B. Section 08710 - Door Hardware.
- C. Section 08800 - Glazing.
- D. Section 09900 - Painting: Site finishing doors.

1.3 REFERENCES

- A. Americans with Disabilities Act.
- B. State of Texas Accessibility Standards.
- C. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Useable by Physically Handicapped People.
- D. ANSI A135.4 - Basic Hardboard.
- E. ANSI/HPMA HP - Hardwood and Decorative Plywood.
- F. ASTM E152 - Methods of Fire Tests of Door Assemblies.
- G. ASTM E413 - Classification for Determination of Sound Transmission Class.
- H. AWI - Quality Standards of the Architectural Woodwork Institute.
- I. NFPA 80 - Fire Doors and Windows.
- J. NFPA 252 - Standard Method of Fire Tests for Door Assemblies.
- K. UL 10B - Fire Tests of Door Assemblies.
- L. Warnock-Hersey - Certification Listings for fire doors.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, and special blocking for hardware.
- C. Product Data: Indicate door core materials and construction; veneer species, type and characteristics; and factory machining criteria.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with AWI Quality Standard Section 1300, Custom Grade.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

Jefferson County Office Building - Port Arthur Texas**1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Package, deliver and store doors in accordance with AWI Section 1300.

1.8 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings.

1.9 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with door opening construction, door frame and door hardware installation.

1.10 WARRANTY

- A. Provide warranty under provisions of Section 01700 to the following term:
 - 1. Life of Installation: Interior doors.
- B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.1 DOOR TYPES

- A. Flush Interior Doors: 1-3/4 inches thick; solid core construction.

2.2 DOOR CONSTRUCTION

- A. Core (Solid, Non-Rated): AWI Section 1300, Type PC-Particleboard.

2.3 FLUSH DOOR FACING

- A. Veneer Facing (Flush Exterior Doors): AWI Custom quality, White Birch species wood, plain sliced, with pair matched grain, for transparent finish.
- B. Veneer Facing (Flush Interior Doors): AWI Custom quality, White Birch species wood, plain sliced, with pair matched grain, for transparent finish.

2.4 ADHESIVE

- A. Facing Adhesive: Type I - waterproof at exterior doors and interior doors.

2.5 FABRICATION

- A. Fabricate non-rated doors in accordance with AWI Quality Standards requirements.
- B. Provide lock blocks at lock edge and top of door for closer for hardware reinforcement.
- C. Bond edge banding to cores.
- D. Factory pre-fit doors for frame opening dimensions identified on shop drawings.

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PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify frame opening conditions under provisions of Section 01039.
- B. Verify that opening sizes and tolerances are acceptable.
- C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.2 INSTALLATION

- A. Install non-rated doors in accordance with AWI Quality Standards requirements.
- B. Trim non-rated door width by cutting equally on both jamb edges.
- C. Trim door height by cutting bottom edges to a maximum of 3/4 inch.
- D. Pilot drill screw and bolt holes.
- E. Machine cut for hardware. Core for handsets and cylinders.
- F. Coordinate installation of doors with installation of frames specified in Section 08112 and hardware specified in Section 08710.

3.3 INSTALLATION TOLERANCES

- A. Conform to AWI requirements for fit and clearance tolerances.
- B. Conform to AWI Section 1300 requirements for maximum diagonal distortion.

3.4 ADJUSTING

- A. Adjust work under provisions of Section 01700.
- B. Adjust door for smooth and balanced door movement.

END OF SECTION 08211

Jefferson County Office Building - Port Arthur Texas**SECTION 08305
ACCESS DOORS****PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Fire resistive rated and non-rated access door and frame units.
- B. Wall locations.

1.2 RELATED SECTIONS

- A. Section 09260 - Gypsum Board Systems: Openings in partitions.
- B. Section 09900 - Painting: Field paint finish.
- C. Division 15 - Plumbing: Plumbing components requiring access.
- D. Division 15 - Mechanical: Mechanical components requiring access.
- E. Division 16 - Electrical: Electrical components requiring access.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate exact position of all access units.
- C. Product Data: Provide sizes, types, finishes, scheduled locations, and details of adjoining work.
- D. Manufacturer's Installation Instructions: Indicate installation requirements, rough-in dimensions.

1.4 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.
- B. Record actual locations of all access units.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with UL requirements.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable City of Port Arthur code for fire rated access units.

1.7 FIELD MEASUREMENTS

- A. Verify that field measurements are as instructed by the manufacturer.

1.8 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with plumbing, mechanical and electrical work requiring access units.

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PART 2 PRODUCTS

2.1 MANUFACTURERS - WALL UNITS

- A. Acudor Products, Inc.
- B. Elmdor / Stoneman Manufacturing Company.
- C. Substitutions: Under provisions of Section 01600.

2.2 ACCESS UNITS - WALLS

- A. Non-Fire Rated Door and Frame Unit: Formed steel:
 - 1. In Gypsum Board on Wood or Steel Studs: Model UF-5000 manufactured by Acudor Products, Inc., or approved substitute.
- B. Fire Rated Door and Frame Unit: Formed steel, finish; 1 hour label fire rating:
 - 1. In Gypsum Board on Steel Studs: Model FB-5060 manufactured by Acudor Products, Inc., or approved substitute.

2.3 FINISHES

- A. Base Metal Protection: Galvanized, hot dipped finish. Prime coat units with alkyd baked on primer.
- B. Finish: Two coats baked enamel, color as selected.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify substrate conditions under provisions of Section 01039.
- B. Verify that rough openings for door and frame are correctly sized and located.

3.2 INSTALLATION

- A. Install units in accordance with manufacturer's instructions.
- B. Install frames plumb and level in opening. Secure rigidly in place.
- C. Position unit to provide convenient access to concealed work requiring access.

END OF SECTION 08305

Jefferson County Office Building - Port Arthur Texas**SECTION 08330**
ROLLING COUNTER DOORS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Section Includes: Manual rolling counter doors.

1.2 RELATED SECTIONS

- A. Section 05500 - Miscellaneous Metals: Door opening jamb and head members.
B. Section 06112 - Framing and Sheathing: Door opening jamb and head members.
C. Section 08305 - Access Doors and Panels: Access doors.
D. Section 08710 - Door Hardware. Padlocks: Masterkeyed cylinder.
E. Section 09900 - Painting: Field painting.

1.3 SUBMITTALS

- A. Reference Section 01300 Submittal Procedures; submit the following items:.
1. Product Data.
 2. Shop Drawings: Include special conditions not detailed in Product Data. Show interface with adjacent work.
 3. Quality Assurance/Control Submittals:
 - a) Provide proof of manufacturer ISO 9001:2000 registration.
 - b) Provide proof of manufacturer and installer qualifications - see 1.3 below.
 - c) Provide manufacturer's installation instructions.
 4. Closeout Submittals:
 - a) Operation and Maintenance Manual.
 - b) Certificate stating that installed materials comply with this specification.

1.4 QUALITY ASSURANCE

- A. Qualifications:
1. Manufacturer Qualifications: ISO 9001:2000 registered and a minimum of five years experience in producing counter doors of the type specified.
 2. Installer Qualifications: Manufacturer's approval.

1.5 DELIVERY STORAGE AND HANDLING

- A. Follow manufacturer's instructions.

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1.6 WARRANTY

- A. Standard Warranty: Two years from date of shipment against defects in material and workmanship.
- B. Maintenance: Submit for owner's consideration and acceptance of a maintenance service agreement for installed products.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Clopay Building Products Co., 8585 Duke Blvd., Mason, OH 4504-3101
Phone: 800-282-2260 Underwriters Laboratories, Inc. (UL), ISO 9001:2000 registered.
- B. Model: CESC10.
- C. Approved substitutes acceptable.

2.2 INDIVIDUAL MATERIAL

- A. Curtain.
 - 1. Slats: No. 1F, interlocked flat-faced slats, 1-1/2 inches high by 1/2 inch deep, 22 gauge ASTM A 653, Commercial Quality, galvanized steel with extruded tubular aluminum bottom bar with continuous lift handle and vinyl astragal.
 - 2. Fabricate interlocking slat sections with high strength molded nylon endlocks riveted to ends of alternate slats.
 - 3. Slat Finish.
 - a) Color selected from Manufacturer's Standard Color Palette.
 - 4. Bottom Bar Finish:
 - a) Aluminum Bar (for Steel Slat with Powder Coating): Match slat powder coating.
- B. Guides:
 - 1. Aluminum: Heavy duty extruded aluminum sections with snap-on cover to conceal fasteners. Provide polypropylene pile runners on both sides of curtain to eliminate metal to metal contact between guides and curtain.
 - 2. Stainless Steel: 12 gauge formed shapes.
 - 3. Finish:
 - a) Aluminum Guide (for Steel Slat with Baked Enamel Coating): Clear anodized.
- C. Shaft Assembly:
 - 1. Counterbalance Shaft Assembly:
 - a) Barrel: Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width.
 - b) Spring Balance: Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs (110 N). Provide wheel for applying and adjusting spring torque.

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2. Brackets: Fabricate from reinforced steel plate with bearings at rotating support points to support shaft assembly and form end closures:
 - a) Finish
 1. Phosphate treatment followed by a light gray baked-on polyester powder coat; minimum 2.5 mils (0.065 mm) cured film thickness.
3. Hood: 24 gauge galvanized steel with reinforced top and bottom edges. Provide minimum 1/4 inch (6.35 mm) steel intermediate support brackets as required to prevent excessive sag
 - a) Finish
 1. Color selected from Manufacturer's Standard Color Palette.

2.3 ACCESSORIES

- A. Locking
 1. Manual Push-Up: Locking thumb wing latch located on coil side of bottom bar at each jamb extending lock bolt through slots in guides. Keyed alike but not masterkeyed

2.4 OPERATION

- A. Manual Push-Up: Manual lift or pole with hook
- B. Manual Crank Hoist: Provide crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Site Verification of Conditions. General Contractor and Subcontractors related to installation of materials identified within this specification section and related sections of work of the contract shall verify that site conditions are acceptable for material installation.
 1. Do not proceed with material installation until unacceptable conditions are corrected.
- B. The undertaking of installation of materials shall be deemed as acceptance of all field conditions and configurations.
- C. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings.
- D. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.
- E. Commencement of work by installer is acceptance of substrate..

3.2 INSTALLATION

- A. General: Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports.

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- B. Follow manufacturer's installation instructions.

3.3 ADJUSTING

- A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.4 CLEANING

- A. Clean surfaces soiled by work as recommended by manufacturer.
- B. Remove surplus materials and debris from the site.

3.5 PROTECTION

- A. Demonstrate proper operation and instruct Owner's Representative in maintenance procedures.

END OF SECTION 08330

Jefferson County Office Building - Port Arthur Texas**SECTION 08331**
OVERHEAD COILING DOORS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Wind rated overhead coiling door, operating hardware, manual operation.

1.2 RELATED SECTIONS

- A. Section 05500 - Miscellaneous Metals: Support framing.
- B. Section 08330 - Overhead Coiling Grilles.
- C. Section 08710 - Door Hardware: Cylinder core and keys.

1.3 REFERENCES

- A. ASTM A480/A480M - Flat Rolled Stainless Heat Resisting Steel Plate, Sheet, and Strip.
- B. ASTM A525/A525M - Steel Sheet, Zinc-coated (Galvanized) by the Hot-Dip Process.
- C. ASTM A526/A526M - Steel Sheet, Zinc-coated (Galvanized) by the Hot-dip Process, Commercial Quality.
- D. UL 325 - Door, Drapery, Gate, Louver, and Window Operators and Systems.

1.4 SYSTEM DESCRIPTION

- A. Manual hand crank lift unit with overhead counter balance device, requiring 25 lb nominal force to operate.
- B. Coiling Door: Within a framed opening, Surface mounted.

1.5 DESIGN REQUIREMENTS

- A. Wind ratings are based on specifications developed by FM Global. Door materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The door system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift and impact resistance of the door and frame system with allowances for appropriate factors of safety.

1.6 SUBMITTALS FOR REVIEW

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Product Data: Provide general construction, component connections and details.
- C. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details.

1.7 SUBMITTALS FOR INFORMATION

- A. Section 01300 - Submittals: Procedures for submittals.

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- B. Manufacturer's Instructions: Indicate installation sequence and procedures, adjustment and alignment procedures.

1.8 SUBMITTALS FOR CLOSEOUT

- A. Section 01700 - Contract Closeout: Procedures for submittals.
- B. Maintenance Data: Indicate lubrication requirements and frequency, and periodic adjustments required.

1.9 REGULATORY REQUIREMENTS

- A. Conform to applicable Texas Department of Insurance and City of Port Arthur Windstorm Design requirements for door, frame and system installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers:
 - 1. Overhead Door Corporation, Model 620.
 - 2. Coplay Door Corporation, Model 160C.
 - 3. Substitutions: Refer to Section 01600.

2.2 MATERIALS

- A. Curtain: As indicated on Drawings; conforming to the following:
 - 1. Slats: Interlocking, minimum gage per wind load requirements of ASTM A526 steel, galvanized to minimum 1.25 oz/sq ft coating in accordance with ASTM A525; single thickness slat.
 - 2. Nominal Slat Size: Manufacturer standard width x required length.
 - 3. Slat Ends: Each slat fitted with end locks to act as wearing surface in guides and to prevent lateral movement.
 - 4. Curtain Bottom: Fitted with angles to provide reinforcement and positive contact with floor in closed position.
- B. Guides: Manufacturer Standard; galvanized steel conforming to ASTM A526, galvanized to minimum 1.25 oz/sq ft coating in accordance with ASTM A525 of continuous angles, of profile to retain door in place with snap-on trim, mounting brackets of same metal.
- C. Roller Shaft Counterbalance: Steel pipe and helical steel spring system, capable of producing torque sufficient to ensure smooth operation of curtain from any position and capable of holding position at mid-travel; with adjustable spring tension.
- D. Hood Enclosure: 24 gage galvanized steel; internally reinforced to maintain rigidity and shape.
- E. Hardware:
 - 1. Cylinders: Type to match Jefferson County Masterkey System; doors keyed differently and master keyed.
 - 2. Weatherstripping: Moisture and rot proof, resilient type, located jamb edges, and bottom of curtain.

Jefferson County Office Building - Port Arthur Texas**2.3 FINISHES**

- A. Curtain Slats: Precoated paint finish, Baked enamel type, color as selected.
- B. Steel Guides and Hood Enclosure: Prime paint, prepared for site painted finish.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01039 - Coordination and Meetings: Verification of existing conditions before starting work.
- B. Verify that opening sizes, tolerances and conditions are acceptable.

3.2 INSTALLATION

- A. Install door unit assembly in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
- D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- E. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.
- F. Install perimeter trim and closures.

3.3 ERECTION TOLERANCES

- A. Section 01400 - Quality Control: Tolerances.
- B. Maintain dimensional tolerances and alignment with adjacent work.
- C. Maximum Variation From Plumb: 1/16 inch.
- D. Maximum Variation From Level: 1/16 inch.
- E. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 ft straight edge.

3.4 ADJUSTING

- A. Section 01700 - Contract Closeout: Adjusting installed work.
- B. Adjust door, hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

- A. Section 01700 - Contract Closeout: Cleaning installed work.
- B. Clean door and components.
- C. Remove labels and visible markings.

END OF SECTION 08331

Jefferson County Office Building - Port Arthur Texas**SECTION 08410**
ALUMINUM ENTRANCES AND STOREFRONTS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Aluminum doors and frames, aluminum storefront windows.
- B. Vision glass.
- C. Perimeter sealant.

1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Section 08710 - Door Hardware: Hardware items other than specified in this section.

1.3 RELATED SECTIONS

- A. Section 07900 - Sealants: System perimeter sealant and back-up materials.

1.4 REFERENCES

- A. Americans with Disabilities Act.
- B. State of Texas Accessibility Standards
- C. AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.
- D. AAMA - Curtain Wall Manual #10 - Care and Handling of Architectural Aluminum From Shop to Site.
- E. AAMA 501 - Methods of Test for Metal Curtain Walls.
- F. AAMA 606.1 - Specifications and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum.
- G. AAMA 607.1 - Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
- H. AAMA SFM-1 - Aluminum Storefront and Entrance Manual.
- I. ANSI A117.1 - Safety Standards for the Handicapped.
- J. ANSI/ASTM A36 - Structural Steel.
- K. ANSI/ASTM A386 - Zinc Coating (Hot Dip) on Assembled Steel Products.
- L. ANSI/ASTM A446 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
- M. ANSI/ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.
- N. ANSI/ASTM B221 - Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
- O. ANSI/ASTM E283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

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- P. ANSI/ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- Q. ANSI/ASTM E331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- R. SSPC - Steel Structures Painting Council.

1.5 SYSTEM DESCRIPTION

- A. Aluminum entrances and storefront system includes tubular aluminum sections, shop fabricated, factory pre-finished, vision glass, related flashings, anchorage and attachment devices.

1.6 PERFORMANCE REQUIREMENTS

- A. Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall as calculated in accordance with applicable coastal wind load codes.
- B. Wind ratings are based on specifications developed by FM Global. Door materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The door system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift and impact resistance of the door and frame system with allowances for appropriate factors of safety.
- C. Limit mullion deflection to 1/200; with full recovery of glazing materials.
- D. System to accommodate, without damage to components or deterioration of seals, movement within system, movement between system and peripheral construction, dynamic loading and release of loads, deflection of structural support framing.
- E. Limit air leakage through assembly to 0.06 cfm/min/sq ft of wall area, measured at a reference differential pressure across assembly of 1.57 psf as measured in accordance with ANSI/ASTM E283.
- F. Vapor Seal with Interior Atmospheric Pressure of 1 inch sp, 72 degrees F, 40 Percent RH: No failure.
- G. Maintain continuous air and vapor barrier throughout assembly, primarily in line with pane of glass and heel bead of glazing compound.
- H. System to provide for expansion and contraction within system components caused by a cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental affect to system components.
- I. Drain water entering joints, condensation occurring in glazing channels, or migrating moisture occurring within system, to the exterior by a weep drainage network.

1.7 SUBMITTALS

- A. Submit under provisions of Section 01300.

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- B. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work and expansion and contraction joint location and details.
- C. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.
- D. Submit two samples 12 x 12 inches in size illustrating pre-finished aluminum surface, glass units, infill panels, glazing materials.
- E. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements.

1.8 QUALITY ASSURANCE

- A. Perform Work in accordance with AAMA SFM-1 and AAMA - Metal Curtain Wall, Window, Store Front and Entrance - Guide Specifications Manual.
- B. Conform to requirements of ANSI A117.1.
- C. Conform to requirements Americans with Disabilities Act.

1.9 QUALIFICATIONS

- A. Manufacturer and Installer: Company specializing in manufacturing aluminum glazing systems with minimum three years experience.

1.10 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing work of this Section, under provisions of Section 01039.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Handle work of this section in accordance with AAMA - Curtain Wall Manual #10.
- C. Protect pre-finished aluminum surfaces with stripable coating. Do not use adhesive papers or sprayed coatings which bond when exposed to sunlight or weather.

1.12 ENVIRONMENTAL REQUIREMENTS

- A. Do not install sealants when ambient temperature is less than 40 degrees F during and 48 hours after installation.

1.13 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings and as instructed by the manufacturer.

Jefferson County Office Building - Port Arthur Texas**1.14 COORDINATION**

- A. Coordinate Work under provisions of Section 01039.

1.15 WARRANTY

- A. Provide three year warranty under provisions of Section 01700.
- B. Warranty: Include coverage for complete system for failure to meet specified requirements.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Kawneer TriFab 450 or equal.
- B. Substitutions: Under provisions of Section 01600.

2.2 COMPONENTS

- A. Frame: 2 x 4 1/2 inch nominal dimension; flush glazing stops; drainage holes; internal weep drainage system.
- B. Doors: 2 inches thick, 4 inch wide top rail, 4 inch wide vertical stiles, 8 inch wide bottom rail; square glazing stops.
- C. Flashings: Aluminum, finish to match mullion sections where exposed.

2.3 GLASS AND GLAZING MATERIALS

- A. Glass and Glazing Materials: As specified in Section 08800 of Types described below:
 - 1. Glass in Exterior Lights: Clear with Low "E" Coating.
 - 2. Glass in Door Lights: Clear with Low "E" Coating.

2.4 SEALANT MATERIALS

- A. Sealant and Backing Materials: As specified in Section 07900 of Types described below.
 - 1. Perimeter Sealant: Type PNS.
 - 2. Sealant Used Within System (Not Used for Glazing): Type PNS.

2.5 HARDWARE

- A. Weather Stripping, Sill Sweep Strips, Thresholds, Hinges, Push/Pull Handles, Closer: Manufacturers standard type to suit application, finish to match mullion system.

Jefferson County Office Building - Port Arthur Texas**2.6 FABRICATION**

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Accurately fit and secure joints and corners. Make joints flush, hairline, and weatherproof.
- C. Prepare components to receive anchor devices. Fabricate anchors.
- D. Arrange fasteners and attachments to conceal from view.

2.7 FINISHES

- A. Finish coatings to conform to AAMA 603.8.
- B. Exterior Exposed Aluminum Surfaces: AAMA A41 anodized to 215-R1 thickness, prepared with a chemical pre-treatment, anodized to dark bronze color.
- C. Interior Exposed Aluminum Surfaces: Interior anodized to dark bronze color, to 0.0007 inch thickness.
- D. Concealed Steel Items: Galvanized in accordance with ANSI/ASTM A386 to 2.0 oz/sq ft.
- E. Apply one coat of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site opening conditions under provisions of Section 01039.
- B. Verify dimensions, tolerances, and method of attachment with other work.
- C. Verify wall openings and adjoining air and vapor seal materials are ready to receive work of this Section.

3.2 INSTALLATION

- A. Install wall system in accordance with manufacturer's instructions.
- B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
- C. Provide alignment attachments and shims to permanently fasten system to building structure.
- D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- E. Provide thermal isolation where components penetrate or disrupt building insulation.
- F. Install sill flashings.
- G. Coordinate attachment and seal of perimeter air and vapor barrier materials.
- H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- I. Install flashings.

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- J. Set thresholds in bed of mastic and secure.
- K. Install hardware using templates provided.
- L. Install glass in accordance with Section 08800, to glazing method required to achieve performance criteria.
- M. Install perimeter sealant to method required to achieve performance criteria, backing materials, and installation criteria in accordance with Section 07900.

3.3 TOLERANCES

- A. Maximum Variation from Plumb: 0.06 inches every 3 ft non-cumulative or 1/16 inches per 10 ft, whichever is less.
- B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.4 ADJUSTING

- A. Adjust work under provisions of Section 01700.
- B. Adjust operating hardware for smooth operation.

3.5 CLEANING

- A. Clean work under provisions of 01700.
- B. Remove protective material from pre-finished aluminum surfaces.
- C. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- D. Remove excess sealant by method acceptable to sealant manufacturer.

3.6 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500.
- B. Protect finished Work from damage.

END OF SECTION 08410

Jefferson County Office Building - Port Arthur Texas**SECTION 08710
DOOR HARDWARE****PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Hardware for wood and aluminum doors.
- B. Thresholds.
- C. Weatherstripping, seals and door gaskets.

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Section 08111 - Standard Steel Doors: Furnish templates for door preparation.
- B. Section 08211 - Flush Wood Doors: Furnish templates for door preparation.
- C. Section 08330 - Rolling Counter Doors: Furnish lock cylinders for installation.
- D. Section 08331 - Overhead Coiling Doors: Furnish lock cylinders for installation.
- E. Section 08410 - Aluminum Entrances and Storefronts: Furnish lock cylinders for installation.

1.3 RELATED SECTIONS

- A. Section 06200 - Finish Carpentry: Wood door frames.
- B. Section 08111 - Standard Steel Doors.
- C. Section 08112 - Standard Steel Frames.
- D. Section 08211 - Flush Wood Doors.
- E. Section 08330 - Rolling Counter Doors: Lockable coiling grilles.
- F. Section 08331 - Overhead Coiling Doors: Lockable coiling doors.
- G. Section 08410 - Aluminum Entrances and Storefronts: Hardware for same except cylinders.

1.4 REFERENCES

- A. Americans with Disabilities Act.
- B. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Useable by Physically Handicapped People.
- C. State of Texas Handicap Accessibility Standards.
- D. NFPA 80 - Fire Doors and Windows.
- E. AWI - Architectural Woodwork Institute - Quality Standards.
- F. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
- G. NFPA 252 - Fire Tests of Door Assemblies.
- H. UL 10B - Fire Tests of Door Assemblies.
- I. UL 305 - Panic Hardware.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Submit manufacturer's parts lists, and templates.
- C. Samples: Submit 1 sample of all hardware items, illustrating style, color, and finish.

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- D. Samples: Will be returned to supplier.
- E. Manufacturer's Installation Instructions.
- F. Certification: Submit notarized certification indicating that hardware furnished for labeled doors and doors requiring physically handicapped access complies with requirements of governing authorities applicable regulations.

1.6 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 01700.
- B. Record actual locations of installed cylinders and their master key code.

1.7 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 01700.
- B. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.8 QUALITY ASSURANCE

- A. Perform work in accordance with the following requirements:
 - 1. Americans with Disabilities Act.
 - 2. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
 - 3. NFPA 101.
 - 4. NFPA 80.
 - 5. NFPA 252.
 - 6. Elimination of Architectural Barriers Act of Texas, Article 7, Article 601b, Rules 115.51 through 115.61 and Rule 115.62.

1.9 QUALIFICATIONS

- A. Hardware Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Hardware Supplier: Company specializing in supplying commercial door hardware with three years documented experience.
- C. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.

1.10 REGULATORY REQUIREMENTS

- A. Provide locks for new doors to match standard configuration requirements of Jefferson County for door hardware.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., as suitable for the purpose specified and indicated.

1.11 PRE-INSTALLATION CONFERENCE

- A. Convene two weeks prior to commencing work of this section, under provisions of Section 01039.

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1.12 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.
- C. Deliver keys to Owner by security shipment direct from hardware supplier.

1.13 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.14 WARRANTY

- A. Provide one year warranty under provisions of Section 01700.
- B. Warranty: Include coverage for latch and lock sets, and door closers.

1.15 MAINTENANCE MATERIALS

- A. Provide maintenance materials under provisions of 01700.
- B. Provide special wrenches and tools applicable to each different or special hardware component.
- C. Provide maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Hinges: Hager, McKinney, and Stanley.
- B. Pivots: Hager, McKinney, and Stanley.
- C. Lock / Latch Sets (New Doors): Sargent, Schlage, and Yale.
- D. Lock / Latch Sets (Existing Doors): Quikset or equal.
- E. Push/Pulls: Trego.
- F. Cylinder Locks: Sargent, Schlage, and Yale.
- G. Door Closers: LCN, Rixson, and Sargent.
- H. Gasketing and Thresholds: Zero, Pemko and National Guard Products.
- I. Substitutions: Under provisions of Section 01600.

2.2 FINISHES

- A. Finishes: US 26D.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that doors and frames are ready to receive work and dimensions are as instructed by

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the hardware manufacturer.

3.2 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions.
- B. Mounting heights for hardware shall comply with requirements of the Texas Accessibility Standards and the Americans with Disabilities Act.

3.3 ADJUSTING

- A. Adjust work under provisions of Section 01700.
- B. Adjust hardware for smooth operation.

3.4 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500.
- B. Do not permit adjacent work to damage hardware or finish.

END OF SECTION 08710

Jefferson County Office Building - Port Arthur Texas**SECTION 08800**
GLAZING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Glass and glazing for sections referencing this section for Products and installation.

1.2 RELATED SECTIONS

- A. Section 07900 - Joint Sealers: Sealant and back-up material.
- B. Section 08410 - Aluminum Entrances and Storefronts.
- C. Section 10800 - Toilet and Bath Accessories: Framed Mirrors.

1.3 REFERENCES

- A. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Used in Buildings.
- B. ASTM C669 - Glazing Compounds for Back Bedding and Face Glazing of Metal Sash.
- C. ASTM C804 - Use of Solvent-Release Type Sealants.
- D. ASTM C864 - Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
- E. ASTM C920 - Elastomeric Joint Sealants.
- F. ASTM C1036 - Flat Glass.
- G. ASTM C1048 - Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
- H. ASTM C1172 - Laminated Architectural Safety Glass.
- I. ASTM E84 - Surface Burning Characteristics of Building Materials.
- J. ASTM E283 - Test Method For Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors.
- K. ASTM E330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- L. ASTM E546 - Test Method For Frost Point of Sealed Insulating Glass Units.
- M. ASTM E576 - Test Method For Dew/Frost Point of Sealed Insulating Glass Units in Vertical Position.
- N. ASTM E773 - Test Method for Seal Durability of Sealed Insulating Glass Units.
- O. ASTM E774 - Sealed Insulating Glass Units.
- P. FGMA - Glazing Manual.
- Q. FGMA - Sealant Manual.
- R. Laminators Safety Glass Association - Standards Manual.
- S. SIGMA - Sealed Insulated Glass Manufacturers Association.

1.4 PERFORMANCE REQUIREMENTS

- A. Size glass to withstand dead loads and positive and negative live loads acting normal to plane of glass as calculated in accordance with applicable coastal wind load code requirements.
- B. Wind ratings are based on specifications developed by FM Global. Door materials and fasteners shall meet Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces

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for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The door system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift and impact resistance of the door and frame system with allowances for appropriate factors of safety.

- C. Limit glass deflection to 1/200 or flexure limit of glass with full recovery of glazing materials, whichever is less.

1.5 SUBMITTALS FOR REVIEW

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
- C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.

1.6 SUBMITTALS FOR INFORMATION

- A. Section 01300 - Submittals: Procedures for submittals.
- B. Certificates: Certify that Products meet or exceed [specified requirements.
- C. Manufacturer's Certificate: Certify that sealed insulated glass, meets or exceeds [specified requirements.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with FGMA Glazing Manual for glazing installation methods utilized.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum three (3) years documented experience and approved by system manufacturer.

1.8 PRE-INSTALLATION MEETING

- A. Section 01039 - Coordination and Meetings: Convene Pre-installation meeting one week before starting work of this section.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Section 01600 - Material and Equipment: Environmental conditions affecting products on site.
- B. Do not install glazing when ambient temperature is less than 50 degrees F.
- C. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.10 WARRANTY

- A. Section 01700 - Contract Closeout.
- B. Provide a five (5) year warranty to include coverage for sealed glass units from seal failure, interpane dusting or misting, and replacement of same.

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PART 2 PRODUCTS

2.1 FLAT GLASS MATERIALS

- A. Exterior Laminated Float Glass: Clear, 9/16 inch thick with Low "E" Coating, tempered as required to comply with building code.
- B. Interior Float Glass: Clear, 1/4 inch thick.

2.2 GLAZING COMPOUNDS

- A. Modified Oil (Type GC-A): ASTM C669, non-hardening, knife grade consistency; Grey color.
- B. Butyl Sealant (Type GC-B): ASTM C920; single Component; Shore A hardness of 10 to 20 black color; non-skinning.
- C. Acrylic Sealant (Type GC-C): ASTM C920, Type S, Grade NS; single component, solvent curing, non-bleeding; cured Shore A hardness of 15 to 25; color as selected.
- D. Polysulfide Sealant (Type GC-D): ASTM C920, Type M, Grade NS; two component; chemical curing, non-sagging type; cured Shore A hardness of 15 to 25; color as selected.
- E. Polyurethane Sealant (Type GC-E): ASTM C920, Type S, Grade NS; single component, chemical curing, non-staining, non-bleeding, Shore A Hardness Range 20 to 35; color as selected.
- F. Silicone Sealant (Type GC-F): ASTM C920, Type S, Grade NS; single component; solvent curing; capable of water immersion without loss of properties; non-bleeding, non-staining, cured Shore A hardness of 15 to 25; color as selected.

2.3 GLAZING ACCESSORIES

- A. Setting Blocks: As recommended by system manufacturer.
- B. Spacer Shims: As recommended by system manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that openings for glazing are correctly sized and within tolerance.
- B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.2 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
- C. Prime surfaces scheduled to receive sealant.
- D. Install sealant in accordance with manufacturer's instructions.

3.3 MANUFACTURER'S FIELD SERVICES

- A. Glass and glazing product manufacturers to provide field surveillance of the installation of their Products.

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- B. Monitor and report installation procedures and unacceptable conditions.

3.4 CLEANING

- A. Section 01700 - Contract Closeout: Cleaning installed work.
- B. Remove glazing materials from finish surfaces.
- C. Remove labels after Work is complete.
- D. Clean glass and adjacent surfaces.

3.5 PROTECTION OF FINISHED WORK

- A. Section 01700 - Contract Closeout: Protecting installed work.
- B. After installation, mark pane with an 'X' by using removable plastic tape or paste. Do not mark heat absorbing or reflective glass units.

END OF SECTION 08800

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SECTION 09111
METAL STUD FRAMING SYSTEM**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Formed metal stud framing at exterior locations.
- B. Framing accessories.

1.2 RELATED SECTIONS

- A. Section 09206 - Metal Furring and Lathing.
- B. Section 09220 - Portland Cement Plaster.
- C. Section 09260 - Gypsum Board Systems: Metal studs for partitioning.

1.3 REFERENCES

- A. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- B. ASTM A525 - General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
- C. ASTM A591 - Steel Sheet, Cold-Rolled, Electrolytic Zinc-Coated.
- D. ASTM C645 - Non-Load (Axial) Bearing Steel Studs, Runners (Track) and Rigid Furring Channels for Screw Application of Gypsum Board.
- E. ASTM C754 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboard, Backing Board, or Water-Resistant Backing Board.
- F. GA 203 - Installation of Screw-Type Steel Framing Members to Receive Gypsum Board.
- G. Metal Framing Manufacturers Association (MFMA) - Guidelines for the Use of Metal Framing.
- H. SSPC (Steel Structures Painting Council) - Steel Structures Painting Manual.

1.4 SYSTEM DESCRIPTION

- A. Metal stud framing system for exterior wall plaster wall system support, with exterior sheathing specified in Section 09260 - Gypsum Boards Systems.
- B. Wind ratings are based on specifications developed by FM Global. Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift and impact resistance of the frame system with allowances for appropriate factors of safety.
- C. Maximum Allowable Deflection: 1/240 span.
- D. Design system to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
- E. Design system to accommodate construction tolerances, deflection of building structural

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members, and clearances of intended openings.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate component details, stud layout, anchorage to structure, type and location of fasteners, and accessories or items required of other related work.
- C. Provide calculations for loadings and stresses of exterior walls, and specially fabricated framing under the Professional Structural Engineer's seal.
- D. Product Data: Provide data describing standard framing member materials and finish, product criteria, load charts, and limitations.
- E. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with GA 203 and ASTM C754.

1.7 QUALIFICATIONS

- A. Installer: Company specializing in performing the work of this section with minimum five (5) years documented experience.
- B. Design structural elements under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Texas.

1.8 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate with the placement of components and accessories within the stud framing system.

PART 2 PRODUCTS

2.1 STUD FRAMING MATERIALS

- A. Framing System Components: ASTM C645.
- B. Runners: Of same material and thickness as studs.
- C. Furring and Bracing Members: Of same material as studs; thickness to suit purpose.
- D. Fasteners: GA 203, Self drilling.
- E. Anchorage Devices: Drilled expansion bolts.
- F. Touch-Up Primer for Galvanized Surfaces: SSPC - Paint 20 Type II Organic zinc rich.

2.2 FABRICATION

- A. Fabricate assemblies of framed sections to sizes and profiles required; with framing members fitted, reinforced, and braced to suit design requirements.
- B. Fit and assemble in largest practical sections for delivery to site, ready for installation.

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2.3 FINISHES

- A. Studs: Galvanize to G90 coating class. Electro-galvanized.
- B. Tracks and Headers: Galvanize to G90 coating class. Electro-galvanized.
- C. Accessories: ASTM A123, hot dip galvanized to 1.25 oz/sq ft.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that conditions are ready to receive work.
- C. Verify that rough-in utilities are in proper location.

3.2 ERECTION

- A. Align and secure top and bottom runners at 24 inches oc.
- B. Place two beads of acoustical sealant between runners and substrate, studs and adjacent construction to achieve an air and acoustical seal.
- C. Place two beads of acoustical sealant between studs and adjacent vertical surfaces to achieve an air and acoustical seal.
- D. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.
- E. Install studs vertically at spacing required by Structural Engineer.
- F. Align stud web openings horizontally.
- G. Secure studs to tracks using screw fastener method. Do not weld.
- H. Stud splicing is not permissible.
- I. Fabricate corners using a minimum of three studs.
- J. Double stud at wall openings, door and window jambs, not more than 2 inches from each side of openings.
- K. Brace stud framing system rigid.
- L. Coordinate erection of studs with requirements of installed supports and attachments.
- M. Blocking: Secure steel channels to studs.

3.3 ERECTION TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch.
- B. Maximum Variation of any Member from Plane: 1/8 inch.
- C. Maximum Variation From Plumb: 1/8 inch.

END OF SECTION 09111

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SECTION 09206
METAL FURRING AND LATHING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Wall, bulkhead, ceiling, and furred space framing.
- B. Metal lathing for wet plaster finish.

1.2 RELATED SECTIONS

- A. Section 09111 - Metal Stud Framing System.
- B. Section 09220 - Portland Cement Plaster.
- C. Section 09260 - Gypsum Board Systems.

1.3 REFERENCES

- A. ASTM C841 - Installation of Interior Lathing and Furring.
- B. ASTM C847 - Metal Lath.
- C. ASTM C933 - Welded Wire Lath.
- D. ASTM C1063 - Installation of Lathing and Furring for Portland Cement Plaster.
- E. GA-600 - Fire Resistance Design Manual.
- F. ML/SFA (Metal Lath/Steel Framing Association) - Specifications for Metal Lathing and Furring.

1.4 SYSTEM DESCRIPTION

- A. Fabricate vertical wall and furred space framing to limit finish surface deflection to 1/180 under lateral point load of 100 lbs.
- B. Fabricate horizontal ceiling and soffit framing to limit finish surface to 1/240 deflection under superimposed dead loads and wind uplift.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on furring and lathing components, structural characteristics, material limitations and finish.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C841, GA-600, ML/SFA, and ASTM C1063.

1.7 QUALIFICATIONS

- A. Applicator: Company specializing in performing the work of this section with minimum five (5) years documented experience.

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1.8 REGULATORY REQUIREMENTS

- A. Wind ratings are based on specifications developed by FM Global. Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift and impact resistance of the frame system with allowances for appropriate factors of safety.

PART 2 PRODUCTS

2.1 FRAMING MATERIALS

- A. Furring Channels: Galvanized Formed steel; minimum 25 gage thick, 3/8 inch deep x 3/4 inch high; length as required.
- B. Main Ceiling Channels: Galvanized Formed steel; minimum 18 gage thick, 3/4 inch deep x 1-1/2 inch high; length as required.
- C. Hangers: Galvanized steel, of size and type to suit application, to rigidly support ceiling components in place, to deflection limits as indicated.
- D. Lateral Bracing: Galvanized Formed steel; minimum 16 gage thick; size and length as required.
- E. Casing Bead: Formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible lengths; expanded metal flanges, with square edges.
- F. Corner Bead: Formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible lengths; expanded metal flanges, with bullnosed edge.
- G. Base Screed: Formed zinc; minimum 26 gage thick; depth governed by plaster thickness; maximum possible lengths; expanded metal flanges, with bevelled edge.
- H. Control and Expansion Joint Accessories: Formed zinc; minimum 26 gage thick; accordion profile, 2 inch expanded metal flanges each side.

2.2 LATHING MATERIALS

- A. Metal Lath: ASTM C847; flat diamond self furring mesh, 3/4 inch high; 3.4 lb/sq ft; backed with treated paper.
- B. Corner Mesh: Formed sheet steel; minimum 26 gage thick; expanded flanges shaped to permit complete embedding in plaster; minimum 2 inch size.
- C. Strip Mesh: Expanded metal lath, minimum 26 gage thick; 2 inch wide x 24 inch long.

2.3 ACCESSORIES

- A. Anchorage: Tie wire, nails, screws and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- B. Polyethylene Sheet: Clear, 6 mil (0.15 mm) thick.
- C. Tie Wire: Annealed galvanized steel.

2.4 FINISHES

- A. Framing Materials: Galvanized.

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- B. Hangers, Anchors, and Fastening Devices: Galvanized.
- C. Lath Materials: Galvanized.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that surfaces conditions are ready to receive work.

3.2 WALL AND FURRED SPACE FRAMING

- A. Install lathing and furring for Portland cement plaster work in accordance with ASTM C1063.
- B. Erect wall furring by directly attaching to masonry walls.
- C. Erect furring channels oriented in a manner most appropriate to the exterior profile; secure with fasteners on alternate channel flanges at maximum 24 inches o.c.
- D. Spacing furring channels maximum 16 inches on center, not more than 4 inches from abutting walls and dissimilar surfaces.

3.3 CEILING AND SOFFIT FRAMING

- A. Install furring to height indicated. Erect after above ceiling or soffit work is complete. Coordinate the location of hangers with other work.
- B. Install furring independent of walls, columns, and above ceiling work.
- C. Securely anchor hangers to structural members or embed in structural slab. Space hangers to achieve deflection limits indicated.
- D. Space main carrying channels at maximum 72 inch centers; not more than 6 inches from wall surfaces. Lap splice securely.
- E. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.
- F. Place furring channels perpendicular to carrying channels, not more than 2 inches from perimeter walls, and rigidly secure. Lap splice securely.
- G. Reinforce openings in suspension system which interrupt main carrying channels or furring channels with lateral channel bracing. Extend bracing minimum 24 inches past each opening.
- H. Laterally brace suspension system.

3.4 CONTROL AND EXPANSION JOINTS

- A. Install control and expansion joints with back to back casing beads set 1/4 inch apart. Set both beads over 6 inch wide strip of polyethylene sheet to assist with air seal continuity.

3.5 LATHING

- A. Apply metal lath taut, with long dimension perpendicular to supports.
- B. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.
- C. Lap sides of diamond mesh lath minimum 1-1/2 inches. Nest outside ribs of rib lath together.
- D. Attach metal lath to metal supports using tie wire at maximum 6 inches on center.

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- E. Place base screeds at termination of plaster areas; secure rigidly in place.
- F. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.
- G. Place lath vertically above each top corner and each side of door and glazed frames to 6 inches above ceiling line.
- H. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.
- I. Place strip mesh diagonally at corners of lathed openings. Secure rigidly in place.

3.6 TOLERANCES

- A. Maximum Variation from True Lines and Levels: 1/8 inch in 10 feet.
- B. Maximum Variation from True Position: 1/8 inch.

END OF SECTION 09206

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SECTION 09220
PORTLAND CEMENT PLASTER**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Metal furring and lathing.
- B. Portland cement plaster system.
- C. Smooth surface finish.
- D. Access panels.

1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Division 16 - Electrical: Metal frames for recessed light fixtures.

1.3 RELATED SECTIONS

- A. Section 06112 - Framing and Sheathing: Wood studs.
- B. Section 07900 - Joint Sealers.
- C. Section 09111 - Metal Stud Framing System: Metal stud framing behind plaster base.
- D. Section 09206 - Metal Furring and Lathing: Metal Furring and Lathing.
- E. Section 09260 - Gypsum Board Systems.

1.4 REFERENCES

- A. ASTM C91 - Masonry Cement.
- B. ASTM C150 - Portland Cement.
- C. ASTM C206 - Finishing Hydrated Lime.
- D. ASTM C207 - Hydrated Lime for Masonry Purposes.
- E. ASTM C631 - Bonding Compounds for Interior Plastering.
- F. ASTM C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- G. ASTM C897 - Aggregate for Job-Mixed Portland Cement Based Plasters.
- H. ASTM C926 - Application of Portland Cement Based Plaster.
- I. ASTM E119 - Methods for Fire Tests of Building Construction and Materials.
- J. NTMA - National Tile and Marble Association.
- K. PCA (Portland Cement Association) - Plaster (Stucco) Manual.

1.5 SYSTEM DESCRIPTION

- A. Fabricate vertical elements to limit finish surface to 1/240 deflection under lateral point load of 100 lbs.
- B. Fabricate horizontal elements to limit finish surface to 1/240 deflection under superimposed dead load and wind uplift loads.

Jefferson County Office Building - Port Arthur Texas**1.6 SUBMITTALS**

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on plaster materials, characteristics and limitations of products specified.
- C. Samples: Submit two samples, 12 x 12 inch in size illustrating finish color and texture.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C926 and PCA Plaster (Stucco) Manual.

1.8 QUALIFICATIONS

- A. Applicator: Company specializing in performing the work of this section [with minimum five (5) years documented experience and approved by primary materials manufacturer.

1.9 REGULATORY REQUIREMENTS

- A. Conform to ASTM E119 for fire rated assemblies.
- B. Wind ratings are based on specifications developed by FM Global. Design and size components to withstand dead and live loads caused by pressure and suction of wind acting normal to plane of wall as calculated in accordance with Texas Department of Insurance (TDI) Windstorm Design and City of Port Arthur Requirements for 140 MPH Sustained Wind Load Ratings. Wind loading forces for design consideration must be developed to comply with TDI Windstorm Criteria requirements. The system designer must give consideration to the anticipated wind loadings on field, perimeter and corner areas to provide adequate uplift and impact resistance of the frame system with allowances for appropriate factors of safety

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply plaster when substrate or ambient air temperature is less than 50 degrees F nor more than 80 degrees F.
- B. Maintain minimum ambient temperature of 50 degrees F during installation of plaster and until cured.

PART 2 PRODUCTS**2.1 PLASTER BASE MATERIALS**

- A. Cement: ASTM C150, Type I Portland.
- B. Lime: ASTM C206, Type S.
- C. Aggregate: In accordance with ASTM C897 and PCA Plaster (Stucco) Manual.
- D. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.
- E. Bonding Agent: ASTM C631; type recommended for bonding plaster to concrete masonry.
- F. Plaster Mix Reinforcement: Glass fibers, chopped to 1/2 inch nominal length, alkali resistant.

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2.2 PLASTER FINISH MATERIALS

- A. Premixed Finishing Coat: Type as appropriate for smooth surface; color as selected from manufacturer's standard color palette.
- B. Lime: As specified for plaster base coat.
- C. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.

2.3 FURRING AND LATHING

- A. Metal Lath and Accessories: Specified in Section 09206.

2.4 CEMENT PLASTER MIXES

- A. Mix and proportion cement plaster used in base and brown coat in accordance with PCA Plaster (Stucco) Manual and material manufacturer's instructions.
- B. Finish Coat: Premix in accordance with manufacturer's instructions.
- C. Mix only as much plaster as can be used prior to initial set.
- D. Add color pigments to finish coat in accordance with manufacturer's instructions. Ensure uniformity of mix and coloration.
- E. Mix materials dry, to uniform color and consistency, before adding water.
- F. Protect mixtures from freezing, frost, contamination, and evaporation.
- G. Do not retemper mixes after initial set has occurred.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify surfaces and site conditions under provisions of Section 01039.
- B. Masonry: Verify joints are cut flush and surface is ready to receive work of this Section. Verify no bituminous or water repellent coatings exist on masonry surface.
- C. Concrete: Verify surfaces are flat, honeycomb is filled flush, and surface is ready to receive work of this Section. Verify no bituminous, water repellent, or form release agents exist on concrete surface that are detrimental to plaster.

3.2 PREPARATION

- A. Dampen masonry surfaces to reduce excessive suction.
- B. Clean concrete surfaces of foreign matter. Clean surfaces using acid solutions, solvents, or detergents. Wash surfaces with clean water.
- C. Roughen smooth concrete surfaces and apply bonding agent. Apply in accordance with manufacturer's instructions.

3.3 INSTALLATION - LATHING MATERIALS

- A. Apply one ply of felt underlayment over substrate; weather lap edges 4 inches minimum. Fasten in place.
- B. Apply metal lath taut, with long dimension perpendicular to supports.
- C. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.
- D. Lap sides of diamond mesh lath minimum 1-1/2 inches. Nest outside ribs of rib lath

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together.

- E. Attach metal lath to metal supports using tie wire at maximum 6 inches on center.

3.4 INSTALLATION - ACCESSORIES

- A. Continuously reinforce internal angles with corner mesh, return metal lath 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.
- B. Place corner bead at external wall corners; fasten at outer edges of lath only.
- C. Place strip mesh diagonally at corners of lathed openings. Secure rigidly in place.
- D. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.
- E. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.
- F. Install metal access panels and rigidly secure in place.
- G. Install frames plumb and level in opening. Secure rigidly in place.
- H. Position to provide convenient access to concealed work requiring access.

3.5 CONTROL AND EXPANSION JOINTS

- A. Locate exterior control and expansion joints every 12 feet in each direction.
- B. Establish control [and expansion] joints with double casing beads butted tight.

3.6 PLASTERING

- A. Apply plaster in accordance with manufacturer's instructions.
- B. Apply scratch coat to a nominal thickness of 3/8 inch, brown coat to a nominal thickness of 3/8 inch, and a finish coat to a nominal thickness of 1/8 inch over metal lathed surfaces.
- C. Moist cure scratch and brown coats. Apply brown coat immediately following initial set of scratch coat.
- D. After curing, dampen base coat prior to applying finish coat.
- E. Apply finish coat and steel trowel to a smooth and consistent finish.
- F. Avoid excessive working of surface. Delay troweling as long as possible to avoid drawing excess fines to surface.
- G. Moist cure finish coat for minimum period of 48 hours.

3.7 TOLERANCES

- A. Maximum Variation from True Flatness: 1/8 inch in 10 feet.

END OF SECTION 09220

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SECTION 09260
GYPSUM BOARD SYSTEMS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Gypsum board.
- B. Gypsum sheathing.
- C. Taped and sanded joint treatment.
- D. Texture finish.

1.2 RELATED SECTIONS

- A. Section 06112 - Framing and Sheathing: Wood blocking.
- B. Section 08112 - Standard Steel Frames.
- C. Section 09111 - Metal Stud Framing System.
- D. Section 09900 - Painting: Surface finish.

1.3 REFERENCES

- A. ASTM C36 - Gypsum Wallboard.
- B. ASTM C79 - Gypsum Sheathing Board.
- C. ASTM C442 - Gypsum Backing Board and Core Board.
- D. ASTM C475 - Joint Treatment Materials for Gypsum Wallboard Construction.
- E. ASTM C514 - Nails for the Application of Gypsum Wallboard.
- F. ASTM C557 - Adhesive for Fastening Gypsum Wallboard to Wood Framing.
- G. ASTM C630 - Water Resistant Gypsum Backing Board.
- H. ASTM C645 - Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.
- I. ASTM C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- J. ASTM C754 - Installation of Framing Members to Receive Screw Attached Gypsum Wallboard, Backing Board, or Water Resistant Backing Board.
- K. ASTM C840 - Application and Finishing of Gypsum Board.
- L. ASTM C931 - Exterior Gypsum Soffit Board.
- M. ASTM C1002 - Steel Drill Screws for the Application of Gypsum Board.
- N. ASTM E90 - Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
- O. ASTM E119 - Fire Tests of Building Construction and Materials.
- P. GA-201 - Gypsum Board for Walls and Ceilings.
- Q. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.
- R. GA-600 - Fire Resistance Design Manual.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on metal framing, gypsum board and joint tape.

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1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASTM C840, GA-201, GA-216 and GA-600.

PART 2 PRODUCTS

2.1 FRAMING MATERIALS

- A. Studs and Tracks: ASTM C645; GA-216 and GA-600; galvanized sheet steel, 25 gage thick, C shape, with knurled faces.
- B. Furring, Framing and Accessories: ASTM C645, GA-216, and GA-600.
- C. Fasteners: ASTM C514.
- D. Anchorage to Substrate: Screws and other metal supports, of type and size to suit application; to rigidly secure materials in place.
- E. Adhesive: ASTM C557.

2.2 GYPSUM BOARD MATERIALS

- A. Standard Gypsum Board: ASTM C36; 5/8 inch thick, maximum permissible length; ends square cut, tapered edges.
- B. Gypsum Backing Board: ASTM C442; standard type; 1/2 inch thick; V-grooved edges, ends square cut, maximum permissible length.
- C. Gypsum Sheathing Board: ASTM C79; moisture resistant [and fire resistant] type; 1/2 inch thick, maximum permissible length; ends square cut, book tongue and grooved edges; water repellent paper faces.

2.3 ACCESSORIES

- A. Acoustical Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced, 2 1/2 inch thick.
- B. Acoustical Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.
- C. Corner Beads: Metal.
- D. Edge Trim: GA 201 and GA 216; Type L bead.
- E. Joint Materials: ASTM C475; reinforcing tape, joint compound, adhesive, and water.
- F. Textured Finish Materials: Latex based texturing material.
- G. Fasteners: ASTM C1002, Type S12 and GA-216.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that site conditions are ready to receive work and opening dimensions are as instructed by the manufacturer.

3.2 METAL STUD INSTALLATION

- A. Install studs in accordance with ASTM C754.
- B. Metal Stud Spacing: 24 inches on center.
- C. Refer to Drawings for indication of partitions extending to finished ceiling only and for

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partitions extending through the ceiling to the structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide extended leg ceiling runners.

- C. Door Opening Framing: Install unpunched double studs at door frame jambs.
- D. Blocking: Bolt or screw steel channels to studs. Install blocking for support of plumbing fixtures, wall cabinets, toilet accessories and hardware.

3.3 CEILING FRAMING INSTALLATION

- A. Install in accordance with ASTM C754.
- B. Coordinate location of hangers with other work.
- C. Install ceiling framing independent of walls, columns, and above ceiling work.
- D. Reinforce openings in ceiling suspension system which interrupt main carrying channels or furring channels, with lateral channel bracing. Extend bracing minimum 24 inches past each end of openings.
- E. Laterally brace entire suspension system.

3.4 GYPSUM BOARD INSTALLATION

- A. Install gypsum board in accordance with GA-201, GA-216 and GA-600.
- B. Erect single layer standard gypsum board vertical, with ends and edges occurring over firm bearing.
- C. Erect exterior gypsum sheathing horizontally, with edges butted tight and ends occurring over firm bearing.
- D. Use screws when fastening gypsum board to metal furring or framing.

3.5 JOINT TREATMENT

- A. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
- B. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.
- C. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile.
- D. Tape joints and corners of cementitious backing board.

3.6 TEXTURE FINISH

- A. Roller apply light eggshell finish texture coating in accordance with manufacturer's instructions.

3.7 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION 09260

Jefferson County Office Building - Port Arthur Texas**SECTION 09511**
SUSPENDED ACOUSTICAL CEILINGS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Suspended metal grid ceiling system and perimeter trim.
- B. Acoustical panels.
- C. Non-fire rated assembly.
- D. Supplementary acoustical insulation over system units.

1.2 RELATED SECTIONS

- A. Section 09260 - Gypsum Board Systems
- B. Section 07213 - Batt and Blanket Insulation.

1.3 REFERENCES

- A. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
- B. ASTM C636 - Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
- C. ASTM E1264 - Classification of Acoustical Ceiling Products.
- D. Ceilings and Interior Systems Contractors Association (CISCA) - Acoustical Ceilings: Use and Practice.
- E. UL - Fire Resistance Directory and Building Material Directory.

1.4 SYSTEM DESCRIPTION

- A. Design suspension system to rigidly secure acoustical ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on metal grid system components, acoustical units and acoustical insulation.
- C. Samples: Submit two samples 6 x 6 inch in size, illustrating material and finish of acoustical units.
- D. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.

1.6 QUALIFICATIONS

- A. Grid Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Acoustical Unit Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

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1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire rated assembly and combustibility requirements for materials.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

1.9 SEQUENCING

- A. Sequence work under the provisions of Section 01039.
- B. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
- C. Install acoustical units after interior wet work is dry.

PART 2 PRODUCTS

2.1 SUSPENSION SYSTEM MATERIALS

- A. Non-fire Rated Grid: ASTM C635, intermediate duty; exposed T; components die cut and interlocking, 15/16 inch width, color: White.
- B. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
- C. Exposed Grid Surface Width: 15/16 inch.
- D. Grid Finish: White.
- E. Accessories: Stabilizer bars, clips, splices, edge moldings as required for suspended grid system.
- F. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.

2.2 ACOUSTICAL UNIT MATERIALS

- A. Acoustical Panels: ASTM E1264, conforming to the following:
 - 1. Size: 24 x 48 inches.
 - 2. Thickness: 5/8 inches.
 - 3. Composition: Mineral.
 - 4. Edge: Square.
 - 5. Surface Color: White.
 - 6. Surface Finish: Match Jefferson County Standard Tile.

2.3 ACCESSORIES

- A. Acoustical Batt Insulation: ASTM C665, friction fit type, unfaced; 2 inch thick, size cut to fit acoustical system.
- B. Touch-up Paint: Type and color to match acoustical and grid units.

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PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that layout of hangers will not interfere with other work.

3.2 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

- A. Install suspension system in accordance with ASTM C636 and as supplemented in this section.
- B. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- C. Locate system on room axis according to reflected plan.
- D. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- E. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- F. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.
- H. Do not eccentrically load system, or produce rotation of runners.
- I. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions.

3.3 INSTALLATION - ACOUSTICAL UNITS

- A. Install acoustical units in accordance with manufacturer's instructions.
- B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.
- C. Install units after above ceiling work is complete.
- D. Install acoustical units level, in uniform plane, and free from twist, warp and dents.
- E. Cut panels to fit irregular grid and perimeter edge trim.

3.4 ERECTION TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION 09511

Jefferson County Office Building - Port Arthur Texas**SECTION 09650
RESILIENT FLOORING****PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Resilient tile flooring.
- B. Resilient base.

1.2 RELATED SECTIONS

- A. Section 03300 - Cast-in-Place Concrete: Floor substrate surface.

1.3 REFERENCES

- A. ASTM E84 - Surface Burning Characteristics of Building Materials.
- B. ASTM F1066 - Vinyl Composition Floor Tile.
- C. FS L-F-1641 - Floor Covering Translucent or Transparent Vinyl Surface with Backing.
- D. FS L-F-475 - Floor Covering, Vinyl Surface (Tile and Roll), with Backing.
- E. FS RR-T-650 - Treads, Metallic and Non-metallic, Non-skid.
- F. FS SS-W-40 - Wall Base: Rubber and Vinyl Plastic.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate seaming plan, borders, and patterns as required to convey installation intent for material specified.
- C. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colors available.
- D. Samples: Submit two samples, 12 x 12 inch in size illustrating color and pattern for each floor material for each color specified.
- E. Submit two 12 inch long samples of base material for each color specified.
- F. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.

1.5 REGULATORY REQUIREMENTS

- A. Conform to applicable code for flame/smoke rating requirements in accordance with ASTM E84.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Protect roll materials from damage by storing on end.

Jefferson County Office Building - Port Arthur Texas**1.7 ENVIRONMENTAL REQUIREMENTS**

- A. Store materials for three days prior to installation in area of installation to achieve temperature stability.
- B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 24 hours after installation of materials.

1.8 MAINTENANCE DATA

- A. Submit under provisions of Section 01700.
- B. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

PART 2 PRODUCTS**2.1 MATERIALS - TILE FLOORING**

- A. Vinyl Composition Tile: ASTM F1066:
 - 1. Size: 12x12 inch
 - 2. Thickness: 1/8 inch
 - 3. Design: plain

2.2 MATERIALS - BASE

- A. Base: FS SS-W-40, Type I rubber; top set coved; premolded external corners:
 - 1. Height: 4 inch
 - 2. Thickness: 1/8 inch thick
 - 3. Length: Roll.
- B. Base Accessories: Premolded end stops and external corners, of same material, size, and color as base.

2.3 ACCESSORIES

- A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.
- B. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.
- C. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 EXECUTION**3.1 EXAMINATION**

- A. Verify concrete floors are dry to a maximum moisture content of 7 percent, and exhibit negative alkalinity, carbonization, or dusting.
- B. Verify floor and lower wall surfaces are free of substances that may impair adhesion of new adhesive and finish materials.

Jefferson County Office Building - Port Arthur Texas**3.2 PREPARATION**

- A. Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.
- B. Prohibit traffic until filler is cured.
- C. Vacuum clean substrate.
- D. Apply primer to floor surfaces.

3.3 INSTALLATION - TILE FLOORING

- A. Install in accordance with manufacturer's instructions.
- B. Mix tile from container to ensure shade variations are consistent when tile is placed.
- C. Spread only enough adhesive to permit installation of materials before initial set.
- D. Set flooring in place, press with heavy roller to attain full adhesion.
- E. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.
- F. Install tile to basket weave pattern. Allow minimum 1/2 full size tile width at room or area perimeter.
- G. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.
- H. Install resilient edge strips at unprotected or exposed edges, and where flooring terminates. Secure metal strips before installation of flooring with stainless steel screws.

3.4 INSTALLATION - BASE

- A. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints.
- B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.
- C. Install base on solid backing. Bond tight to wall and floor surfaces.
- D. Scribe and fit to door frames and other interruptions.

3.5 CLEANING

- A. Clean work under provisions of 01700.
- B. Remove access adhesive from floor, base, and wall surfaces without damage.
- C. Clean, seal, and wax floor and base surfaces in accordance with manufacturer's instructions.

3.6 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Section 01500.
- B. Prohibit traffic on floor finish for 48 hours after installation.

END OF SECTION 09650

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SECTION 09900
PAINTING**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Surface preparation and field application of paints and coatings.

1.2 REFERENCES

- A. ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.
- B. ASTM D2016 - Test Method for Moisture Content of Wood.
- C. AWWA (American Water Works Association) - C204 - Chlorinated Rubber-Alkyd Paint Systems for the Exterior of Above Ground Steel Water Piping.
- D. NACE (National Association of Corrosion Engineers) - Industrial Maintenance Painting.
- E. NPCA (National Paint and Coatings Association) - Guide to U.S. Government Paint Specifications.
- F. PDCA (Painting and Decorating Contractors of America) - Painting - Architectural Specifications Manual.
- G. SSPC (Steel Structures Painting Council) - Steel Structures Painting Manual.

1.3 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this Section.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on all finishing products, including paint label analysis, certification of compliance with specifications, and application instructions for each material proposed for use as part of a finish system.
- C. Manufacturer's Instructions: Indicate special surface preparation procedures, and substrate conditions requiring special attention.
- D. Proposed Finish and Color Systems: Provide typewritten paint installation schedule listing paint manufacturer, paint type, tint name, gloss level and installed location.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years experience.
- B. Applicator: Company specializing in performing the work of this section with minimum three years experience.

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable code for flame and smoke rating requirements for finishes.

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- B. Conform to applicable VOC requirements for finishes.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Section 01600.
- B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- C. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- D. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- C. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- D. Minimum Application Temperature for Varnish and Speciality Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

1.9 CLOSE OUT REQUIREMENTS

- A. Furnish under provisions of Section 01700.
- B. Final Installed Finish and Color Systems: Provide typewritten paint installation schedule listing the following information for each material finish and color system:
 - 1. Installed finish location.
 - 2. Paint manufacturer
 - 3. Paint material quality line
 - 4. Paint material type
 - 5. Tint name or formulation in the case of colors not standard to material manufacturer.
 - 6. Sheen level.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers
 - 1. Pratt and Lambert.
 - 2. Sherwin Williams.
- B. Manufacturers - Primer Sealers: as recommended by manufacturer of primary finish materials.
- C. Manufacturers - Block Filler: as recommended by manufacturer of primary finish materials.
- D. Substitutions: Under provisions of Section 01600.

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2.2 MATERIALS

- A. Coatings: Ready mixed. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sags.
- B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
- C. Patching Materials: Latex filler.
- D. Fastener Head Cover Materials: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that surfaces and substrate conditions are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. Test shop applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are within the primary material manufacturer's recommended limits.

3.2 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
- B. Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.
- C. Seal with shellac and seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.
- F. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- G. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.
- H. Interior Wood Items Scheduled to Receive Paint Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats.
- I. Interior Wood Items Scheduled to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats.
- J. Wood and Metal Doors Scheduled for Painting: Seal top and bottom edges with primer.

Jefferson County Office Building - Port Arthur Texas**3.3 APPLICATION**

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry.

- C. Apply each coat to uniform finish.
- D. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
- E. Sand substrate lightly between coats to achieve required finish.
- F. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.
- G. Allow applied coat to dry before next coat is applied.
- H. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- I. Prime concealed surfaces of interior and exterior woodwork with primer paint.
- J. Prime concealed surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

3.4 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Refer to Division 15 and Division 16 for schedule of color coding and identification banding of equipment, duct work, piping, and conduit.
- B. Paint shop primed equipment. Paint shop prefinished items occurring at interior areas.
- C. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- D. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports except where items are prefinished.
- E. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint, to visible surfaces. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- F. Paint exposed conduit and electrical equipment occurring in finished areas.
- G. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
- H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.5 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 01400.
- B. Test questionable coated areas in accordance with primary material specified testing manufacturer's requirements.

3.6 CLEANING

- A. Clean work under provisions of 01700.
- B. Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

Jefferson County Office Building - Port Arthur Texas**3.7 SCHEDULE - EXTERIOR SURFACES**

- A. Pavement Markings:
 - 1. Spaces: Two coats of acrylic traffic marking paint, white.
 - 2. Handicap Symbol: Two coats of acrylic traffic marking paint, blue.
 - 3. Fire Lane: Two coats of acrylic traffic marking paint, red.
- B. Cement Plaster:
 - 1. One coat of primer sealer, alkyd.
 - 2. Two coats of alkyd, semi-gloss.
- C. Steel - Shop Primed:
 - 1. Touch-up with zinc chromate primer.
 - 2. Two coats of alkyd enamel, semi-gloss.

3.8 SCHEDULE - INTERIOR SURFACES

- A. Wood - Painted:
 - 1. One coat of latex prime sealer.
 - 2. Two coats of latex enamel, gloss.
- B. Wood - Transparent:
 - 1. Filler coat (for open grained wood only).
 - 2. One coat of stain.
 - 3. One coat sealer.
 - 4. Two coats of varnish, satin.
- C. Cabinet Interior:
 - 1. One coat of latex prime sealer.
 - 2. One coat of latex enamel, semi-gloss.
- D. Plaster, Gypsum Board:
 - 1. One coat of alkyd primer sealer.
 - 2. Two coats of latex acrylic enamel, eggshell.

END OF SECTION 09900

Jefferson County Office Building - Port Arthur Texas**SECTION 10105**
VISUAL DISPLAY BOARDS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Surfaced metal markerboards.
- B. Trim, and accessories.

1.2 RELATED SECTIONS

- A. Section 09260 - Gypsum Board Systems: Substrate construction.

1.3 REFERENCES

- A. ASTM A424 - Steel Sheets for Porcelain Enameling.
- B. ASTM A526 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.
- C. ASTM B209 - Aluminum-Alloy Sheet and Plate.
- D. ASTM B221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
- E. ASTM C36 - Gypsum Wallboard.
- F. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
- G. FS CCC-W-408 - Wall Covering, Vinyl-Coated.
- H. FS L-P-1040 - Plastic Sheets and Strips, Polyvinyl Floride.
- I. PS 1 - Construction and Industrial Plywood.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate wall elevations, dimensions, joint locations, special anchor details.
- C. Product Data: Provide data on markerboards, trim and accessories.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit under provisions of Section 01700.
- B. Maintenance Data: Include data on regular cleaning, and stain removal.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.7 FIELD MEASUREMENTS

- A. Verify that field measurements are as instructed by the manufacturer.

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1.8 WARRANTY

- A. Provide five year warranty under provisions of Section 01700.
- B. Warranty: Include coverage of markerboard surface from crazing or cracking, and staining.

PART 2 PRODUCTS

2.1 MARKERBOARD MATERIAL

- A. Sheet Steel: ASTM A526, galvanized to G90 designation.

2.2 CORE AND FRAME MATERIALS

- A. Hardboard: AHA A135.4, tempered, smooth face.
- B. Frame: Aluminum extrusions, ASTM B221, 6061 alloy, T52 temper.

2.3 ACCESSORIES

- A. Adhesives: Type used by manufacturer.

2.4 FABRICATION - MARKERBOARDS

- A. Outer Face Sheet: Steel, 24 gage thick.
- B. Core: Hardboard, 3/8 inch thick.
- C. Backing Surface: Steel, 28 gage thick.
- D. Splice Joint: Concealed spline of sheet steel.

2.5 FABRICATION - FRAME AND TRIM

- A. Aluminum Frame: Concealed fasteners.

2.6 FINISHES

- A. Porcelain Enamel: Porcelain Enamel Institute Type A; white color.
- B. Aluminum Frame and Accessories: Mill finish natural aluminum.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that internal wall blocking is ready to receive work and positioning dimensions are as indicated on shop drawings and as instructed by the manufacturer.

3.2 INSTALLATION

- A. Install markerboards, in accordance with manufacturer's instructions.

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- B. Establish bottom of perimeter frame at 36 inches above finished floor.
- C. Secure units level and plumb.
- D. Markerboards: Butt panels tight with concealed spline to hairline joint.

3.3 CLEANING

- A. Clean work under provisions of 01700.
- B. Clean chalkboard surfaces in accordance with manufacturer's instructions.
- C. Cover chalkboard surfaces with protective cover, taped to frame.
- D. Remove temporary protective cover at date of Substantial Completion.

3.4 SCHEDULE

- A. Classroom H41: Two 48 x 96 inch markerboards with chalkrail to be located on the South and East walls.
- B. Classroom P44: Two 48 x 96 inch markerboards with chalkrail to be located on the North and East walls.
- C. Classroom P46: Two 48 x 96 inch markerboards with chalkrail to be located on the North and East walls.

END OF SECTION 10105

Jefferson County Office Building - Port Arthur Texas**SECTION 10172**
HIGH DENSITY POLYETHYLENE (HDPE) TOILET PARTITIONS**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Solid plastic toilet compartments, floor mounted with head rail braces.
- B. Urinal screens; wall mounted with continuous brace.

1.2 RELATED SECTIONS

- A. Section 09260 - Gypsum Board Systems: Framing and plates within walls for partition panel support.
- B. Section 10800 - Toilet and Bath Accessories.

1.3 REFERENCES

- A. Texas Accessibility Standards: Accessibility.
- B. ANSI A117.1 - Safety Standards for the Handicapped.
- C. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- D. NEMA LD-3 - High Pressure Decorative Laminates.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall, and floor supports, door swings.
- C. Product Data: Provide data on panel construction, hardware, and accessories.
- D. Samples: Submit two samples of partition panels, 6 x 6 inch in size illustrating panel finish, color, and sheen.
- E. Manufacturer's Installation Instructions: Indicate special procedures, and perimeter conditions requiring special attention.

1.5 REGULATORY REQUIREMENTS

- A. Conform to Texas Accessibility Standards for access for the handicapped.

1.6 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings and instructed by the manufacturer.

1.7 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with placement of support framing and anchors in wall and ceiling.

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PART 2 PRODUCTS

2.1 MATERIALS

- A. Solid HDPE Panel: Solid High Density Polyethylene Panel and Door Material.

2.2 ACCESSORIES

- A. Pilaster Shoe: Formed chromed steel with satin finish, 3 inch high, with adjustable screw jack.
- B. Head Rails: Hollow aluminum tube, 1 x 1-5/8 inch size, with anti-grip strips and cast socket wall brackets.
- C. Attachments, Screws, and Bolts: Stainless steel; tamper proof type, heavy duty extruded aluminum brackets.
- D. Through Bolts and Nuts: Stainless steel with tamper proof heads.
- E. Hardware: Stainless steel:
 - 1. Pivot hinges, gravity type, adjustable for door close positioning.
 - 2. Nylon bearings.
 - 3. Thumb turn door latch with exterior emergency access feature.
 - 4. Door strike and keeper with rubber bumper.
 - 5. Coat hook with rubber bumper.
 - 6. Door pull for outswinging doors.

2.3 FABRICATION

- A. Fabricate partitions by forming solid panel with finished faces and edges. Finish edges convex.
- B. Bevel corners and edges of cut-outs.
- C. Doors and Panels:
 - 1. Thickness: 1 inch
 - 2. Door Width: 24 inch
 - 3. Door Width for Handicapped Use: 36 inch, out-swinging.
 - 4. Height: 58 inch
- D. Thickness of Pilasters: 1-1/4 inch.

2.4 FINISHING

- A. Plastic Laminate, Single Color: Color as selected as selected from manufacturer's standard color palette.
- B. Stainless Steel Surfaces: No. 4 finish.
- C. Exposed Steel Surfaces: Satin chrome plated.
- D. Non-ferrous Surfaces: Satin chrome plated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.

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- B. Verify correct spacing of and between plumbing fixtures.
- C. Verify correct location of built-in framing, anchorage, and bracing.

3.2 INSTALLATION

- A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.
- B. Maintain 3/8 to 1/2 inch space between wall and panels and between wall and end pilasters.
- C. Attached panel brackets securely to walls using anchor devices.
- D. Attach panels and pilasters to brackets with tamper proof through bolts and nuts. Locate head rail joints at pilaster center lines.
- E. Anchor urinal screen panels to walls with a continuous panel bracket.
- F. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster. Conceal floor fastenings with pilaster shoes.
- G. Support pilasters from built-in framing using two adjustable hanging studs providing vertical leveling. Conceal ceiling fastenings with pilaster shoe.
- H. Equip each door with two hinges, one door latch, one coat hook and bumper; outswinging door with pull.
- I. Install door strike and keeper with door bumper on each pilaster in alignment with door latch.
- J. Field touch-up of scratches or damaged finish will not be permitted.
- K. Replace damaged or scratched materials with new materials.

3.3 ERECTION TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch.
- B. Maximum Variation From Plumb: 1/8 inch.

3.4 ADJUSTING

- A. Adjust work under provisions of Section 01700.
- B. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.
- C. Adjust hinges to position doors in partial opening position when unlatched. Return out swinging doors to closed position.
- D. Adjust adjacent components for consistency of line or plane.

END OF SECTION 10172

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SECTION 10800
TOILET AND BATH ACCESSORIES**PART 1 GENERAL**

1.1 SECTION INCLUDES

- A. Toilet accessories.
- B. Grab bars.
- C. Attachment hardware.

1.2 REFERENCES

- A. American's with Disabilities Act.
- B. State of Texas Handicap Accessibility Standards.
- C. ANSI A117.1 - Safety Standards for the Handicapped.
- D. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- E. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- F. ASTM A269 - Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
- G. ASTM A366 - Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
- H. ASTM B456 - Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
- I. NEMA LD-3 - High Pressure Decorative Laminates.

1.3 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide data on accessories describing size, finish, details of function, installation methods.

1.4 REGULATORY REQUIREMENTS

- A. Conform to ANSI A117.1 code and the American's with Disabilities Act for access for the handicapped.
- B. Conform to State of Texas Handicap Accessibility Standards for access for the handicapped.

1.5 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on product data.

1.6 COORDINATION

- A. Coordinate work under provisions of Section 01039.
- B. Coordinate the work with the placement of internal wall reinforcement and reinforcement of toilet partitions to receive anchor attachments.

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PART 2 PRODUCTS

2.1 MATERIALS

- A. Sheet Steel: ASTM A366.
- B. Stainless Steel Sheet: ASTM A167, Type 304.
- C. Tubing: ASTM A269, stainless steel.
- D. Plastic Laminate: NEMA LD-3, General Purpose Type; 0.125 inch thick.
- E. Plastic Laminate Adhesive: Contact type, waterproof.
- F. Fasteners, Screws, and Bolts: Hot dip galvanized, tamper-proof, and security type.
- G. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.2 FABRICATION

- A. Weld and grind joints of fabricated components, smooth.
- B. Form exposed surfaces from single sheet of stock, free of joints. Form surfaces flat without distortion. Maintain surfaces without scratches or dents.
- C. Fabricate grab bars of tubing, free of visible joints, return to wall with end attachment flanges. Form bar with 1 1/2 inches clear of wall surface.
- D. Shop assemble components and package complete with anchors and fittings.
- E. Provide steel anchor plates, adapters, and anchor components for installation.

2.3 KEYING

- A. Supply two (2) keys for each accessory to Owner.
- B. Master key all accessories.

2.4 FINISHES

- A. Galvanizing: ASTM A123 to 1.25 oz/sq yd. Galvanize ferrous metal and fastening devices.
- B. Shop Primed Ferrous Metals: Pretreat and clean, spray apply one coat primer and bake.
- C. Stainless Steel: No. 4 satin luster finish.
- D. Back paint components where contact is made with building finishes to prevent electrolysis.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Section 01039.
- B. Verify that site conditions are ready to receive work and dimensions are as instructed by the manufacturer.
- C. Verify exact location of accessories for installation.

3.2 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

Jefferson County Office Building - Port Arthur Texas**3.3 INSTALLATION**

- A. Install accessories in accordance with manufacturers' instructions, the American's with Disabilities Act and ANSI A117.1.
- B. Conform to State of Texas Handicap Accessibility Standards for access for the handicapped.
- C. Install plumb and level, securely and rigidly anchored to substrate.

3.4 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly.
- B. Replace damaged or defective items.
- C. Clean and polish all exposed surfaces after removing protective coatings.

3.5 ACCESSORY SCHEDULE

- A. Toilet Room H07:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274.
 - 3. Grab Bars:
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.
- B. Toilet Room H18:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274.
 - 3. Grab Bars:
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.
- C. Toilet Room H31:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274.
 - 3. Grab Bars:
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.
- D. Toilet Room H32:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274.
 - 3. Grab Bars:
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.

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- E. Toilet Room S01:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274 (Each Stall).
 - 3. Grab Bars: (Handicap Stall)
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.
- F. Toilet Room S03:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274 (Each Stall).
 - 3. Grab Bars: (Handicap Stall).
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
- G. Toilet Room P40:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274.
 - 3. Grab Bars: .
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.
- H. Toilet Room P47:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274.
 - 3. Grab Bars: .
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.
- I. Toilet Room P48:
 - 1. Towel and Waste: Bobrick B-3974.
 - 2. Toilet Paper Holder: Bobrick B-274.
 - 3. Grab Bars: .
 - a) Rear: Bobrick B5806 x 36.
 - b) Side: Bobrick B5806 x 48.
 - 4. Sanitary Napkin Disposal: Bobrick B-270.

END OF SECTION 10800

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SECTION 15000

GENERAL REQUIREMENTS FOR MECHANICAL WORK

PART 1. - GENERAL

1.1 GENERAL PROVISIONS AND SUPPLEMENTAL GENERAL PROVISIONS

- A. The "General Conditions" and "Supplementary Conditions" are by reference made a part of this section and shall apply to each and every heading as though included herein.
- B. In the event of conflict, the requirements of the "General Conditions" and "Supplementary Conditions" will take precedence over these "General Requirements".

1.2 GENERAL

- A. The Contractor shall provide all plans, labor, equipment, appliances and materials, and shall perform all operations in connection with the installation of the mechanical work in accordance with the Specifications, applicable drawings, and the conditions specified above.
- B. Contractor shall provide all equipment required and usually furnished in connection with such work and systems whether or not specifically mentioned or specifically indicated on the drawings.

1.3 INSPECTION OF THE SITE

- A. The Contractor shall visit the site, verifying all existing items indicated on drawings and/or specified, and familiarize himself with the existing work conditions, hazards, grades, actual formations, soil conditions and local requirements. The submission of bids shall be deemed evidence of such visits.
- B. All proposals shall take these existing conditions into consideration, and the lack of specific information on the drawings shall not relieve the Contractor of any responsibility.
- C. The trade furnishing the equipment shall be responsible for notifying the Contractor; prior to ordering it in the event that equipment specified and/or reviewed is incompatible with this requirement.

1.4 PERMITS, UTILITY CONNECTIONS AND INSPECTIONS

- A. Refer to other sections of the specifications for construction phasing and time increments.
- B. The Contractor shall obtain and pay for all required utility connections, impact fees, meters and meter boxes, utility extensions and/or relocations and shall pay all costs and inspection fees for all work included herein.

1.5 APPLICABLE CODES AND STANDARDS

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- A. The installation shall meet the minimum standards prescribed in the latest editions of the following listed codes and standards, which are made a part of the Specifications, except as may be hereinafter modified in these Specifications and associated drawings.
- B. Latest edition of the National Fire Protection Association Standards (NFPA):
 - 1. NFPA No. 13 Installation of Sprinkler Systems
 - 2. NFPA No. 70 National Electrical Code
 - 3. NFPA No. 90A Installation of Air Conditioning and Ventilating systems
 - 4. NFPA No. 91 Exhaust systems of Air Conveying of Gases, etc.
 - 5. NFPA No. 96 Ventilation control and Fire Protection of Commercial Cooking Operations
 - 6. NFPA No. 101 Safety to Life from Fire in Buildings and Structures
 - 7. NFPA No. 255 Test of Surface Burning Characteristics of Building Materials
- C. United States of America Standards Institute (ASA) Standards:
 - 1. B31.1 & B31.1a Code for Pressure Piping
- D. American Society of Mechanical Engineers (ASME): Boiler and Pressure Vessel Codes.
- E. Air Conditioning and Refrigeration Institute Standards (ARI): All standards related to refrigeration and air conditioning equipment and piping furnished under these Specifications.
- F. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) 1985: All applicable manuals and standards.
- G. Air Moving and Conditioning Association (AMCA): All applicable manuals and standards.
- H. American Society of Testing and Material (ASTM): All applicable manuals and standards.
- I. American Water Works Association (AWWA): All applicable manuals and standards.
- J. National Electrical Manufacturer's Association (NEMA): All applicable manuals and standards.
- K. City Fire Department as applicable to construction of this site.
- L. City and State Building Codes.
- M. State of (Texas) Occupational Safety Act: Applicable safety standards.
- N. Occupational Safety and Health Act (OSHA).
- O. State of (Texas) Energy Conservation Construction Code.
- P. All work shall be in accordance with all regulations and requirements of the State of Texas Architectural Barriers Act and the Americans with Disabilities Act'

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- Q. Refer to Specifications sections hereinafter bound for additional codes and standards.
- R. All materials and workmanship shall comply with all applicable state and national codes, specifications, and industry standards. All material shall be listed by the Underwriter's Laboratories, Inc., as conforming to its standards and so labeled in every case where such a standard has been established for the particular type of material in question.
- S. The Contract Documents are intended to comply with the aforementioned rules and regulations; however, some discrepancies may occur. Where such discrepancies occur, the Contractor shall immediately apply for an interpretation. Should the discovery and notification occur after the execution of a contract, any additional work required for compliance with said regulations shall be paid for as covered by other specifications of the Contract Documents, providing no work or fabrication of materials has been accomplished in a manner of non-compliance. Should the Contractor fabricate and/or install materials and/or workmanship in such a manner that does not comply with the applicable codes, rules and regulations, the Contractor who performed such work shall bear all costs arising in correcting these deficiencies to comply with said rules and regulations.

1.6 CONTRACT DOCUMENTS

- A. These specifications are accompanied by drawings of the building and details of the installations indicating the locations of equipment, piping, ductwork, outlets, switch controls, circuits, lines, etc. The drawings and these specifications are complementary to each other, and what is required by one shall be as binding as if required by both.
- B. If the Contractor deems any departures from the drawings necessary, details of such departures and the reasons therefore shall be submitted to the Architect for review. No departures shall be made without prior written acceptance.
- C. There are intricacies of construction that are impractical to specify or indicate in detail; however, in such cases the current rules of good practice and applicable specifications shall govern.
- D. It is the Contractor's responsibility to properly use all information found on the Architectural, Structural, Mechanical and Electrical drawings where such information affects his work.
- E. All dimensional information related to new structures should be taken from the appropriate drawings. All dimensional information related to existing facilities shall be taken from actual measurements made by the Contractor on the site.
- F. The interrelation of the specifications, the drawings, and the schedules is as follows: The specifications determine the nature and setting of the several materials, the drawings establish the quantities, dimensions and details, and the schedules give the performance characteristics.
- G. Should the drawings or specifications disagree within themselves, or with each other, the better quality of greater quantity of work or materials shall be estimated upon, and unless otherwise directed by the Architect in writing, shall be performed or furnished. Figures indicated on drawings govern scale measurements and large-scale details govern small-scale drawings.

1.7 SPACE AND EQUIPMENT ARRANGEMENT

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- A. The size of mechanical and electrical equipment indicated on the drawings is based on the dimensions of a particular manufacturer. While other manufacturers will not be acceptable, it is the responsibility of the Contractor to determine if the equipment he proposes to furnish will fit in the space. Shop drawings shall be prepared to indicate a suitable arrangement.
- B. All equipment shall be installed in a manner to permit access to all surfaces. All valves, motors, drives, filters, and other accessory items shall be installed in a position to allow removal for service without disassembly of another part.

1.8 FABRICATION DRAWINGS

- A. Contractor shall submit ductwork fabrication drawings for review by the Architect. Fabrication drawings shall be coordinated with all other trades and with existing conditions.
- B. All required shop drawings, except as hereinafter specified, shall be prepared at a scale of not less than 1/8 inch equal to 1 foot by the Contractor.

1.9 SUPERVISION

- A. Each contractor shall keep a competent superintendent or foreman on the job at all times necessary for the timely and proper completion of the work.
- B. It shall be the responsibility of each superintendent to study all drawings and familiarize himself with the work to be done by other trades. He shall coordinate this work with other trades, and before material is fabricated or installed, make sure that his work will not cause an interference that cannot be resolved without major changes to the drawings. If a conflict between trades arises that cannot be resolved at the jobsite, the matter shall be referred to the Architect for his ruling.

1.10 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. The Contractor shall prepare, in triplicate for the Owner's Manual, complete sets of operating and maintenance instructions, system piping, valving, control and interlock diagrams, manuals, parts lists, etc., for each item of equipment.
- B. In addition, the Contractor shall provide the services of a competent engineer or a technician acceptable to the Architect to instruct a representative of the Owner in the complete and detailed operation of all equipment and systems. These instructions shall be provided for a period of not less than 4 hours to fully accomplish the desired results. Upon completion of these instructions, a letter of release will be required, stating the dates of instruction and the personnel to whom instructions were given. The Contractor shall be responsible for proper maintenance until the instructions have been given to the Owner's maintenance personnel.

1.11 GUARANTEE

- A. All work and equipment shall be guaranteed for a period of one year from the date of substantial completion.
- B. Guarantee shall be for all labor and materials.

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- C. Certain items for equipment shall have additional or extended guarantees when so specified.
- 1.12 MATERIALS AND WORKMANSHIP

- A. All materials, unless otherwise specified, shall be of current U.S. manufacture, new, free from all defects, and of the best quality of their respective kinds. Materials and equipment shall be installed in accordance with the manufacturer's recommendations and the best standard practice for the type of work involved. All work shall be executed by mechanics skilled in their respective trades, and the installations shall present a neat, workmanlike appearance. Materials, and/or equipment damaged in shipment, or otherwise damaged prior to installation, shall not be repaired at the job site, but shall be replaced with new materials and/or equipment.
- B. The responsibility for furnishing the proper equipment and/or material, and to see that it is installed as intended by the manufacturer rests entirely upon the Contractor who shall request advice and supervisory assistance from the representative of specific manufacturers during the installation.

1.13 FLAME SPREAD PROPERTIES OF MATERIALS

- A. Materials and adhesives incorporated in this project shall conform to NFPA 255, latest edition. The classification shall not exceed No. 2, with the range of indices between 0 to 25 for these Classifications as listed in the Federal Specifications. Modifications shall be made to insulating materials, etc., as required to comply with the Federal Specification.

1.14 FLOOR AND CEILING PLATES

- A. Except as otherwise noted, provide chrome plated brass floor and ceiling plates around all pipes, conduits, ducts, etc., passing exposed through walls, floors, or ceilings, in any spaces, except under floor and attic spaces. Plates shall be sized to fit snugly against the outside of the pipe or against the insulation on lines that are insulated and positively secured to such pipe or insulation. Plates will not be required for piping where pipe sleeves extend 3/4" above finished floor. All equipment rooms are classified as finished areas. Round and rectangular ducts shall have plates made to fit accurately at all floor, wall and ceiling penetrations.

1.15 SLEEVES, INSERTS AND FASTENINGS

- A. Proper openings through floors, walls, roofs, etc., for the passage of piping, ductwork, etc., shall be provided. All penetrations must pass through sleeves except soil pipe installed under concrete slabs on fill. Sleeves shall be set in new construction before concrete is poured, as cutting holes through any part of the concrete will not be permitted unless acceptable to the Architect.
- B. The minimum clearance between horizontal penetrations including insulation where applicable, and sleeves shall be 1/4", except that the minimum clearance shall be 2" where piping contacts the ground. Sleeves through walls and partitions shall be installed flush with exposed surfaces. Sleeves through floors shall be extended 2" above finished floor.
- C. Above grade and dry location sleeves shall be constructed from 20 to 22 gauge-galvanized steel. Sleeves passing through walls or floors on or below grade and/or moist areas such as

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mechanical rooms shall be constructed of galvanized steel Schedule 40 pipe and shall be designed with suitable flange in the center of the floor or wall to form a waterproof passage. After the pipes have been installed in the sleeves, void space around the pipe shall be sealed with "Link-Seal" modular wall and casing seals as manufactured by Thunderline Corporation.

- D. Suitable concrete inserts for pipe and equipment hangers shall be set and properly located for all pipe and equipment to be suspended from concrete construction.
- E. Fastening of pipes, conduits, etc., in the building shall be as follows: To wood members -by wood screws; to masonry - by threaded metal inserts, metal expansion screws, or toggle bolts, whichever is appropriate for the particular type of masonry; to steel - machine screws or welding (when specifically permitted or directed), or bolts, and to concrete by suitable inserts anchored to reinforcing steel, and poured in place unless other means are acceptable for general use, and will only be permitted where specifically acceptable to the Architect.
- F. Under no circumstances will the use of plastic anchors or plastic expansion shields be permitted for any purpose whatsoever.
- G. Vermin Proofing: The open space around all ductwork, piping, etc., passing through the ground floor and/or exterior walls shall be sealed with a continuous bead of sealant.
- H. The space around piping, ductwork, etc., penetrating walls, ceilings and floors that define air plenums shall be sealed airtight in an acceptable manner. Ceiling plenums used for return air are considered air plenums.

1.16 ACCESS DOORS

- A. This Contractor shall provide wall or ceiling access doors for unrestricted access to all concealed shutoff or service valves, fire and/or smoke dampers, and other items of concealed mechanical equipment. All access door locations are not shown on the drawings. It is the Contractor's responsibility to provide access doors at all locations required.
- B. Access doors mounted in painted surfaces shall be equal to Milcor (Inland-Ryerson Construction Products Company) manufacture, Style K for plastered surfaces and Style M or DW for non-plastered surfaces. The Style K doors shall be set so that the finished surface of the door is even with the finished surfaces of the adjacent finishes. Access doors mounted on tile surfaces shall be stainless steel materials. Access doors shall be minimum of 18" x 18" in size.

1.17 CONSTRUCTION REQUIREMENTS

- A. The Architectural, Structural and Electrical plans and specifications including the General Provisions, Supplemental General Provisions, and other pertinent documents issued by the Architect, are a part of these specifications and the accompanying mechanical drawings, and shall be complied with in every respect. All the above is included in the Contract Documents, and shall be examined by all bidders. Failure to comply shall not relieve the Contractor of responsibility or be used as a basis for additional compensation due to omission of architectural, structural and electrical details from the mechanical drawings.
- B. It is the intent of the Contract Documents to provide an installation complete in every respect. In the event that additional details or special construction may be required for work indicated

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- or specified in this section or work specified in other sections, it shall be the responsibility of the Contractor to provide same as well as to provide material and equipment usually furnished with such systems or required to complete the installation, whether mentioned or not.
- C. The Contractor shall be responsible for fitting his material and apparatus into the building and shall carefully lay out his work at the site to conform to the structural conditions, to avoid all obstructions, to conform to the details of the installation supplied by the manufacturer of the equipment to be installed and thereby to provide an integrated satisfactory operating installation.
 - D. The mechanical and associated drawings are necessarily diagrammatic in character and cannot show every connection in detail or every pipe or equipment in its exact location. These details are subject to the requirements of ordinances and also structural and architectural conditions. The Contractor shall carefully investigate structural and finish conditions and shall coordinate the separate trades in order to avoid interference between the various phases of work. Work shall be laid out so that it will be concealed in furred chases and suspended ceilings, etc., in finished portions of the building, unless specifically noted to be exposed. Work shall be installed to avoid crippling of structural members; therefore, inserts to accommodate pipe hangers shall be set before concrete is poured, and proper openings through floor, walls, beams, etc., shall be provided as hereinafter specified or as otherwise indicated or required. All work shall be installed parallel or perpendicular to the lines of the building unless otherwise noted.
 - E. When the mechanical drawings do not give exact details as to the elevation of pipe, ducts, etc., physically arrange the systems to fit in the space available at the elevations intended with the proper grades for the functioning of the system involved. Piping and duct systems are generally intended to be installed true and square to the building construction, and located as high as possible against the structure in a neat and workmanlike manner, and the plans do not show all required offsets, control lines, pilot lines and other location details. Work shall be concealed in all finished areas. Piping specified to be insulated shall be supported in a manner that will allow the insulation to be installed without gaps. Insulated piping in concealed areas shall be offset with fittings as necessary to permit installation of insulation. Bending of pipes or installing pipes in a strain in order to insulate will not be permitted.
 - F. All oiling devices and all parts of equipment requiring adjustment shall be easily accessible. Equipment shall be so located and installed as to permit convenient and safe maintenance and future replacement. Piping, ductwork, valve stems, etc., shall not block service space.

PART 2 - PRODUCTS**2.1 GENERAL MATERIALS AND EQUIPMENT REQUIREMENTS**

- A. The manufacturer's published instructions shall be followed for preparing, assembling, installing, erecting, and cleaning manufacturer's materials or equipment, unless otherwise indicated. The Contractor shall promptly notify the Architect in writing of any conflict between the requirements of the Contract Documents and the manufacturer's directions and shall obtain the Architect's instructions before proceeding with the work. Should the Contractor perform any such work that does not comply with the manufacturer's directions or such instructions from the Architect, he shall bear all costs arising in connection with the deficiencies.

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- B. The Contractor shall not receive material or equipment at the jobsite until there is suitable space provided to properly protect equipment from rust, drip, humidity, and dust damage.
- C. Capacities shall be not less than those indicated but shall be such that no component or system becomes inoperative or is damaged because of start-up or other overload conditions.
- D. Where materials or equipment are specified to be approved, listed, tested, or labeled by the Underwriter's Laboratories, Inc., or constructed and/or tested in accordance with the standards of the American Society of Mechanical Engineers or the Air Moving and Conditioning Association, the Contractor shall submit proof that the items furnished under these sections of the specifications conform to such requirements. The ASME stamp or the AMCA label will be acceptable as sufficient evidence that the items conform to the respective requirements.
- E. Each major component of equipment shall have the manufacturer's name, address, and catalog number on a plate securely attached to the item of equipment. All data on nameplates shall be legible at the time of Final Observation.
- F. Standard factory finish will be acceptable on equipment specified by model number; otherwise surfaces of ferrous metal shall be given a rust-inhibiting coating. The treatment shall withstand 200 hours in salt-spray fog test, in accordance with Method 6061 of Federal Standard No. 141. Immediately after completion of the test, the specimen shall show no signs of wrinkling or cracking, and no signs of rust creepage beyond 1/8" on either side of the scratch mark. Where rust-inhibitor coating is specified hereinafter, any treatment that will pass the above test is acceptable, unless a specific coating is specified, except that coal tar or asphalt type coatings will not be acceptable, unless so stated for a specific item. Where steel is specified to be hot-dip galvanized, mill-galvanized sheet steel may be used provided all raw edges are painted with a zinc-pigmented paint conforming to Military Specification MIL-P-6215.
- G. Belts, pulleys, chains, gears, couplings, projecting setscrews, keys and other rotating parts located so that any person can come in close proximity thereto, shall be fully enclosed or properly guarded.
- H. The Contractor shall be responsible for the coordination and proper relation of his work to the building structure and to the work of all trades. The Contractor shall visit the premises and thoroughly familiarize himself with all details of the work and working conditions, to verify all dimensions in the field, and to advise the Architect of any discrepancy before performing any work. Adjustments to the work required, in order to facilitate a coordinated installation, shall be made at no additional cost to the Owner.

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2.2 PROTECTION

- A. The Contractor shall at all times take such precautions as may be necessary to properly protect all materials and equipment from damage from the time of delivery until the completion of the work. This shall include the erection of all required temporary shelters and supports to adequately protect any items stored in the open on the site from the weather, the ground and surrounding work; the cribbing of any items above the floor of the construction; and the covering of items in the incomplete building with tarpaulins or other protective covering. Failure on the part of the Contractor to comply with the above will be sufficient cause for the rejection of the items in question.
- B. Take particular care not to damage the building structure in performing work. All finished floors, steel treads, and workmen or their tools and equipment shall cover finished surfaces to prevent any damage during the construction of the building.
- C. Equipment and materials shall be protected from rust both before and after installation. Any equipment or materials found in a rusty condition at the time of final observation must be cleaned of rust and repainted as specified elsewhere in these specifications.

2.3 COOPERATION BETWEEN TRADES AND WITH OTHER CONTRACTORS

- A. Each trade, subcontractor and/or contractor must work in harmony with the various other trades, subcontractors, and/or contractors on the job as may be required to facilitate the progress to the best advantage of the job as a whole. Each trade, subcontractor, and/or contractor must pursue his work promptly and carefully as not to delay the general progress of the job. This Contractor shall work in harmony with contractors working under other contracts on the premises.

2.4 PRECEDENCE OF MATERIALS

- A. These specifications and the accompanying drawings are intended to cover systems which will not interfere with the structural design of the building, which will fit into the available space, and which will insure complete and satisfactory systems. Each Contractor shall be responsible for the proper fitting of his material and apparatus into the building.
- B. Each Contractor shall so harmonize his work with that of the other trades so that it may be installed in the most direct and workmanlike manner without hindering or handicapping the other trades. Piping interferences shall be handled by giving precedence to pipelines that require a stated grade for proper operation. Where space requirements conflict, the following order of precedence shall, in general, be observed. See special conditioning noted hereinafter for work integrated with structural systems:
 - 1. Building lines
 - 2. Structural members
 - 3. Soil and drain piping
 - 4. Vent piping
 - 5. Steam piping
 - 6. Condensate piping
 - 7. Refrigerant piping

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8. Electrical bus duct
9. Supply ductwork
10. Return ductwork
11. Exhaust ductwork
12. Automatic Fire Protection Sprinkler Piping
13. Natural gas piping
14. Domestic hot and cold water piping
15. Electrical conduit

2.5 LOCATION OF OUTLETS IN ROOMS

- A. All plumbing, acoustical tile, diffusers, grilles, registers, and other devices shall be referenced to coordinated, established data points and shall be located to present symmetrical arrangements with these points and to facilitate the proper arrangements of acoustical tile panels and other similar panels with respect to the mechanical and electrical outlets and devices. Those mechanical and electrical outlets shall be referenced to such features as wall and ceiling furrings, balanced border widths, masonry joints, etc. Outlets in acoustical tile shall occur symmetrically in tile joints or in the center of whole tiles. When locations of mechanical and electrical devices shown on the Architect's reflected ceiling plans need to be modified, the final determination of the exact location of each outlet and the arrangement to be followed shall be acceptable to the Architect.
- B. The drawings show diagrammatically the location of the various outlets and apparatus. Exact locations of these outlets and apparatus shall be determined by reference to the general plans and to all detail drawings, equipment drawings, roughing-in drawings, etc., by measurements at the building, and in cooperation with the other trades. The Architect reserves the right to make any reasonable change in location of any outlet or apparatus before installation, without additional cost to the Owner.
- C. The Contractor, by submitting a bid on this work, sets forth that he has the necessary technical training and ability, and that he will install his work in a satisfactory and workmanlike manner which is up to the best standards of the trade, complete, and in good working order. If any of the requirements of the drawings and specifications are impossible of performance, or if the installation, when made in accordance with such requirements, will not perform satisfactorily, he shall report it to the Architect for correction promptly after discovery of the discrepancy.

2.6 CONNECTIONS FOR OTHERS

- A. This Contractor shall rough-in for and make all gas, water, steam, sewer, etc., connections to all fixtures, equipment, machinery, etc., provided by others in accordance with detailed roughing-in drawings provided by the equipment suppliers, along with actual measurements of the equipment connections, or as detailed.
- B. After the equipment is set in place, this Contractor shall make all final connections and shall provide all required pipe, fittings, valves, traps, etc.

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- C. Provide all air gap fittings where required. In each water line serving an item of equipment or piece of machinery, provide a shut-off valve. On each drain not provided with a trap, provide a suitable trap.
- D. All pipefittings, valves, traps, etc., exposed in finished areas and connected to chrome-plated lines provided by others shall be chrome plated to match.

PART 3 - INSTALLATION**3.1 INSTALLATION METHODS**

- A. All pipes shall be concealed in pipe chases, walls, furred spaces, or above the building, unless otherwise indicated.
- B. Piping may be run exposed in mechanical rooms, janitors' closets, or storage spaces, but only where necessary. All exposed piping shall be run in the neatest, most inconspicuous manner, and parallel or perpendicular to the building lines.
- C. All piping shall be adequately and properly supported from the building structure by means of hanger rods or clamps to walls as herein specified.
- D. Where limited space is available above the ceilings and below concrete beams or other deep projections, pipe and conduit shall be sleeved through the projection where it crosses, in a manner to provide maximum above-floor clearance. Sleeves shall be as specified or as required.
- E. All pipe, conduits, etc., shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. All ducts, pipes and conduits run, exposed in machinery and equipment rooms, shall be installed parallel to the building plans, except as otherwise shown. Conduits in furred ceilings and in other concealed spaces may be run at angles to the construction but shall be neatly grouped and racked indicating good workmanship. All conduit and pipe openings shall be kept closed until the systems are closed with final connections.
- F. There shall be no pipe joints nearer than 12" to a wall, ceiling, or floor penetration, unless pipe joint is the welded type joint.
- G. The Contractor shall study all construction documents and carefully lay out all work in advance of fabrication and erection in order to meet the requirements of the extremely limited spaces. Where conflicts occur, the Contractor shall meet with all involved trades and the Architect and resolve the conflict, prior to erection of any work, in the area involved.

3.2 CUTTING AND PATCHING

- A. Cut and patch openings through walls, floors, etc., resulting from work in existing construction or by failure to provide proper openings or recesses in new construction.
- B. Openings cut through concrete and masonry shall be made with masonry saws and/or core drills at locations acceptable to the Architect. Impact-type equipment will not be used, except where specifically acceptable to the Architect. Openings in Precast concrete slabs for pipes, conduits, outlet boxes, etc., shall be core drilled or cast to exact size.

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- C. All openings shall be restored to "as-new" condition under the appropriate Specification Section for the materials involved, and shall match remaining surrounding materials and/or finishes.
- D. Where openings are cut through masonry walls, provide and install lintels or other structural supports to protect the remaining masonry. Adequate supports shall be provided during the cutting operation to prevent any damage to the masonry occasioned by the operation. All structural members, supports, etc., shall be of the proper size and shape, and shall be installed in a manner acceptable to the Architect.
- E. All mechanical work in areas containing plaster shall be completed prior to the application of the finish plaster coat. Cutting of finish plaster coat will not be permitted.
- F. No cutting, boring, or excavating, which will weaken the structure, shall be undertaken.

3.3 ROOF PENETRATIONS AND FLASHING

- A. Pipe and duct sleeves pitch pans and flashings compatible with the roofing installation shall be provided for roof penetrations. Manufacturer of roofing materials shall approve methods and materials.

3.4 ROOF PIPING SUPPORTS

- A. Provide yoke type supports Model PS manufactured by Portable Pipe Hangers, Inc., for supporting roof mounted piping. Coordinate exact locations of supports with [Roofing] contractor. [Roofing] Contractor shall provide pads under all supports.

3.5 FABRICATION OF PIPE

- A. All the various piping systems shall be made up straight and true and run at proper grades to permit proper flow of the contained material. Lines shall also be graded for proper drainage.
- B. Piping shall follow as closely as possible the routes shown on plans, but shall take into consideration conditions to be met at the site.
- C. Should any unforeseen conditions arise, lines shall be changed or rerouted as required after approval has been obtained.
- D. All piping shall be installed with due regard to expansion and contraction and so as to prevent excessive strain and stress in the piping, in connections, and in equipment to which lines are connected.
- E. All piping shall be clean when it is installed. Before installation it shall be checked, upended, swabbed, if necessary, and all rust or dirt from storage shall be removed. Pipe shall not be permitted to lie on the ground during storage. Pipe ends shall be sealed during storage.

3.6 IDENTIFICATION AND LABELING

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- A. The Contractor shall make it possible for the personnel operating and maintaining the equipment and systems in this project to readily identify the various pieces of equipment, valves, piping, etc., by marking them.
- B. All items of mechanical and electrical equipment shall be identified by the attachment of engraved nameplates constructed from laminated phenolic plastic, at least 1/16" thick, 3-ply, with black surfaces and white core. Engraving shall be condensed gothic, at least 1/2" high, appropriately spaced. Nomenclature on the label shall include the name of the item, its mark number, area, space, or equipment served, and other pertinent information. Equipment to be labeled shall include, but not be limited to, the following:
 - 1. Rooftop units
 - 2. Air Handling Units
 - 3. Exhaust Fans
 - 4. Vent Fans
 - 5. Roof mounted fans
 - 6. Condensing Units
 - 7. Domestic Water Heaters
 - 8. Air conditioning control panels and switches
 - 9. Motor controllers
 - 10. Miscellaneous similar and/or related items.
- C. The Contractor shall install identification tags to be affixed to those valves that have functions that are not obvious. For example, it would not be expected that valves at a pressure reducing station in a machine room would be tagged. The valve identification tags shall be brass discs, 2" in diameter. Each tag shall be attached to its valve with copper clad annealed iron wire or other approved material.

3.7 TESTS AND INSPECTIONS

- A. The Contractor shall, during the progress of the work and upon its completion, test his work and make all tests as required by the specifications, state, municipal and other authorities having jurisdiction of the work. Piping pressure tests shall be made before pipe is concealed or covered. Tests shall be made in the presence of authorities requiring tests. The Contractor shall pay all costs, inspection charges and fees required for the tests of his work.
- B. The Contractor shall provide all apparatus, temporary piping connection, etc., required for tests. The Contractor shall take all due precautions to prevent damage to the building or its contents incurred by such tests. The Contractor shall repair and make good at his own expense any damage caused by failures or leaks during the tests.
- C. Leaks, defects or deficiencies shall be repaired and/or replaced, and tests shall be repeated until the test requirements are complied with fully.
- D. All equipment shall be placed in operation and tested for proper automatic control before the final balancing of the system is started.

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- E. All tests shall have pertinent data logged by the Contractor at the time of testing. Data shall include date, time, personnel, description, and extent of system tested, test condition, test results, specified results, and any other pertinent data. Data shall be delivered to the Architect.

3.8 COOPERATION AND CLEANUP

- A. It shall be the responsibility of each trade to cooperate fully with the other trades on the job to help keep the job site in a clean and safe condition. At the end of each day's work, each trade shall properly store all of his tools, equipment and materials and shall clean his debris from the job. Upon the completion of the job, each trade shall immediately remove all of his tools, equipment, any surplus materials and all debris caused by his portion of the work.

3.9 CLEANING AND PAINTING

- A. All equipment, piping, ductwork, grills, insulation, etc., in finished areas furnished and installed by the Contractor shall be painted. Finished areas include mechanical rooms, boiler rooms, and outside the building as well as occupied areas inside the building. Final painting is to be done by the General Contractor. This Contractor shall thoroughly clean all part of materials and equipment of cement, plaster, and other materials, and all oil and grease spots shall be removed. Such surfaces shall be carefully wiped and all cracks and corners scraped out. Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots and left smooth and clean.
- B. This Contractor shall thoroughly clean the finish on all parts of the materials and equipment with factory applied finishes. Exposed parts in equipment rooms, above crawl space slabs, and all other spaces except sealed chases and attics shall be thoroughly cleaned of cement, plaster and other materials, and all oil and grease spots shall be removed. Such surfaces shall be carefully wiped and all cracks and corners scraped out. If the finish has been damaged, the Contractor shall re-paint to the satisfaction of the Architect.
- C. All canvas finishes shall be painted with one sizing coat if not already sized, containing a mildew resistant additive and Arabol adhesive prior to any other specified finish paint.
- D. No nameplates on equipment shall be painted, and suitable protection shall be afforded to the plates to prevent their being rendered illegible during painting operation.

3.10 ELECTRICAL PROVISIONS OF MECHANICAL WORK

- A. The extent of electrical provisions to be provided as mechanical work is indicated in other mechanical sections of the specifications, on the drawings and as further specified in this section.
- B. Starters, Controllers: In general, mechanical work includes furnishing combination starters. Controllers are specifically included as electrical work when mounted in motor control centers. Electrical work includes installation, mounting and wiring of starters and controllers that are furnished as mechanical work. Free standing, large motor controllers shall be set in place, on pads, as mechanical work.
- C. Electrical heating equipment shall be furnished complete with internal or integral fusing and subdivision of loads to comply with the NEC.

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- D. Wherever possible, match the elements of the electrical provisions of mechanical work with similar elements of the electrical work specified in electrical sections of the specifications.
- E. Standards:
 - 1. For electrical equipment and products, comply with applicable NEMA standards, and refer to NEMA standards to definitions of terminology herein.
 - 2. Comply with National Electrical Code (NFPA No. 70) for installation requirements.
 - 3. Comply with National Electrical Contractors Association (NECA) "Standard of Installation".

3.11 TEMPORARY FACILITIES

- A. Unless noted otherwise in the Supplementary General Conditions; provide temporary facilities.

3.12 EQUIPMENT INSTALLATION REQUIREMENTS

- A. All mechanical (plumbing and HVAC) equipment shall be furnished and installed complete and ready for use.

3.13 EXCAVATION, BACKFILLING AND COMPACTION

- A. Provide excavation, backfilling and compaction in accordance with requirements of Division 2 and Section 15018 of this specification.

3.14 OWNER FURNISHED EQUIPMENT

- A. The Contractor's responsibility shall include receiving and installing all Owner furnished equipment.

END OF SECTION

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SECTION 15012

MECHANICAL AND ELECTRICAL COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Refer to Section 15000 - Basic Mechanical Requirements.

1.1 SUMMARY

A. This Section describes the coordination between the Mechanical and Electrical portions of the work.

B. This Section is included under the Division 16 portion of the Specifications as Section 16012.

1.2 WORK INCLUDED

A. Responsibility: Unless otherwise indicated, motors and controls shall be furnished, set in place and wired in accordance with the following schedule. This schedule may include equipment and systems that are not required for this project. Only the equipment and systems that are required on the drawings and/or specified elsewhere will be required by this section:

ITEM	FURNISHED UNDER DIVISION	INSTALLED UNDER DIVISION	WIRED AND CONNECTED UNDER DIVISION
1. Equipment Motors	15	15	16
2. Magnetic Motor Starters			
a. Automatically controlled, with or without HOA switches	15	16	Notes 1,2,3
b. Automatically controlled, with or without HOA switches and furnished as part of factory wired equipment	15	15	Notes 1,3,5
c. Manually controlled	15	16	Notes 1,3,5
d. Manually controlled and furnished as part of factory wired equipment	15	16	Notes 1,3,5
e. Furnished in Motor Control Centers	16	16	Notes 1,3,5
3. Variable Speed (Frequency) AC Drives	15	16	Notes 1,4,5

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	ITEM	FURNISHED UNDER DIVISION	INSTALLED UNDER DIVISION	WIRED AND CONNECTED UNDER DIVISION
4.	Line voltage thermostats, time clocks, etc., not connected to control panel systems	15	16	15
5.	Electric thermostats, time clocks, remote bulb thermostats, motorized valves, float controls, etc. which are an integral part or directly attached to ducts, pipes, etc.	15	15	15
6.	Temperature control panels and time switches mounted on temperature control panels	15	15	15
7.	Motorized valves, motorized dampers, solenoid valves, EP and PE switches, etc.	15	15	Note 1
8.	Alarm bells furnished with equipment installed by Division 15	15	15	15
9.	Wiring to obtain power for control circuits, including circuit breaker	15	15	15
10.	Low voltage controls,	15	15	15
11.	Fire protection system (sprinkler) controls	15	15	Note 8
12.	Fire and smoke detectors installed on mechanical units and in ductwork	16	15	Note 2
13.	All relays required for fan shutdown, motorized dampers, smoke control devices, and other items integral with HVAC equipment to provide operation and control of HVAC equipment	15	15	Note 1
14.	Smoke dampers, and combination fire/ smoke dampers	15	15	Note 7
15.	Boiler and water heater controls, boiler burner controls panels.	15	15	15
16.	Pushbutton stations, pilot lights	15	15	15
17.	Heat Tape	15	15	16
18.	Disconnect switches, manual operating switches furnished as a part of the equipment	15	15	Notes 1,5
19.	Disconnect switches, manual	16	16	16

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ITEM	FURNISHED UNDER DIVISION	INSTALLED UNDER DIVISION	WIRED AND CONNECTED UNDER DIVISION
operating switches furnished separate from equipment			
20. Multispeed switches	15	15	16
21. Thermal overloads	15	15	15
22. Control relays, transformers	15	15	15
23. Refrigeration cycle, cooling tower and controls	15	15	15
24. Tamper switches for fire protection (sprinkler) system	15	15	16
25. Flow and/or pressure switches for fire protection (sprinkler) system	15	15	16
26. Fire and jockey pump controllers and automatic transfer switch	15	15	Note 6
27. Alarm bells or horns for fire protection (sprinkler) system	15	15	16
28. Generator (underground) fuel tank	15	15	--
29. Generator fuel level indicator	15	15	16
30. Generator fuel piping from tank to generator	15	15	--
31. Underground fuel tank leak detection and monitoring system	15	15	15

- (1) Power wiring as defined in Section 16160 of the specifications shall be provided under Division 16; control wiring as defined in Section 16160 of the specifications shall be provided under Division 15.
- (2) Wiring from alarm contracts to alarm systems by Division 16; wiring from auxiliary contacts to air handling system controls by Division 15. Division 16 shall provide power to smoke detector. Smoke detectors required for all air handling systems 2000 CFM or greater. Refer to other Division 15 specifications, Division 16 and Drawings for more specific requirements.
- (3) For requirements for Magnetic Motor Starters, refer to Division 15 Section 15000 – GENERAL REQUIREMENTS FOR MECHANICAL WORK.
- (4) For requirements for Variable Speed (Frequency) AC drives, refer to Division 15 Section 15000 - GENERAL REQUIREMENTS FOR MECHANICAL WORK.
- (5) Disconnect switches, operating switches, starters and other similar items that are factory-mounted, as a part of complete assembly, shall comply with applicable provisions of the National Electric Code. All such disconnect switches shall be fused.
- (6) Power wiring from energy source to controllers and automatic transfer switch shall be provided under Division 16. Interconnection power and

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control wiring from controllers and automatic transfer switch to pumps shall be provided under Division 15 and conforming to Division 16 specifications. Control wiring from automatic transfer switch to generator starter shall be provided under Division 16.

- (7) Division 16 will provide power to all smoke and combination fire/smoke dampers, and will provide control for all such dampers using area smoke detectors.
- (8) Wiring for sprinkler system controls to be provided by Division 15. Wiring from devices to Fire Alarm System to be provided by Division 16.

B. CONNECTIONS: Make all connections to controls that are directly attached to ducts, piping and mechanical equipment with flexible connections.

C. PRECEDENCE

- 1. In general, piping systems that require a stated grade for proper operation shall have precedence over other systems.
- 2. Precedence for pipe, conduit and duct systems shall be as follows.
 - a. Building lines
 - b. Structural members
 - c. Soil and drain piping
 - d. Vent piping
 - e. Steam piping
 - f. Condensate piping
 - g. Refrigerant piping
 - h. Electrical bus duct
 - i. Supply ductwork
 - j. Return ductwork
 - k. Exhaust ductwork
 - m. Automatic Fire Protection Sprinkler Piping
 - n. Natural gas piping
 - o. Domestic hot and cold water piping
 - p. Electrical conduit
- 3. Lighting Fixtures shall have precedence over air grilles and diffusers.

D. FINAL INSPECTION AND REPORT

- 1. At the completion of the work, there shall be a meeting of the Mechanical, Electrical and Temperature Control Contractors, representatives of mechanical and electrical equipment manufactures whose equipment was actually installed on the project, and similarly-involved individuals, who shall thoroughly inspect all systems, and who shall mutually agree that all equipment has been properly wired and installed, and that all temperature and safety controls are properly functioning. A written report of this meeting, listing those in attendance, and the companies that they represent, shall be filed with the Owner and Architect.

END OF SECTION

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SECTION 15014

OUTSIDE UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of outside utility work required by this section is indicated on Drawings and by requirements of this section. **Special note: Civil Engineering Specifications shall override any materials specified under this section.**
- B. Types of outside utility systems specified in this section include the following:
 - 1. Sanitary sewer system.
 - 2. Domestic water system.
 - 3. Fire protection water system.
 - 4. Gas service system.

1.2 REFERENCES

- A. NFPA 54 - National Fuel Gas Code.
- B. ASTM A 74 - Cast Iron Soil Pipe and Fittings
- C. ASTM C 574 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- D. ANSI/ASTM C 700 - Extra Strength and Standard Strength Clay and Perforated Pipe.
- E. ASTM D 3033 - Type PSP Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
- F. ASTM D 3034 - Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.
- G. ASTM F 477 - Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- H. ANSI/AWWA C151 - Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids.
- I. ANSI/AWWA C111 - Rubber-Gasket Joints for Ductile Iron and Gray-Iron Pressure Pipe and Fittings.
- J. ANSI/AWWA C110 - Ductile Iron and Gray-Iron Fittings 3 Inches Through 48 Inches, for Water and Other Liquids.
- K. ASTM B 88 - Seamless Copper Water Tube.
- L. ANSI/ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV.
- M. ANSI/ASTM B 32 - Solder Metal.
- N. AWS A5.8 - Brazing Filler Metal.

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- O. ASTM D 1785 - Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
- P. ASTM D 2241 - Polyvinyl Chloride (PVC) Plastic Pipe, (SDR-PR).
- Q. ASTM D2321 - Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
- R. ANSI/ASTM D 2466 - Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.
- S. ASTM D 2855 - Making Solvent-Cemented Joints with Polyvinyl Chloride (PVC) Pipe and Fittings.
- T. ANSI/ASTM C 700 - Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated.
- U. ASTM C 14 - Concrete Sewer, Storm Drain and Culvert Pipe.
- V. ANSI/ASTM C 443 - Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets.
- W. ASTM A 53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.
- X. ASTM A 120 - Pipe, Steel, Black and Hot-Dipped Zinc Coated (Galvanized), Welded and Seamless, for Ordinary Uses.
- Y. ASTM A 234 - Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.
- Z. ANSI/AWWA C105 - Polyethylene Encasement for Ductile Iron Piping for Water and Other Liquids.
- AA. ANSI/AWS D1.1 - Structural Welding Code.
- BB. ASME - Boiler and Pressure Vessel Code.
- CC. ANSI/ASME B16.9 - Factory-Made Wrought Steel Buttwelding Fittings.
- DD. ANSI/ASME B16.25 - Buttwelding Ends.
- EE. ASTM D 1248 - Polyethylene Plastic Molding and Extrusion Materials.
- FF. ASTM D 2513 - Thermoplastic Gas Pressure Pipe, Tubing and Fittings.
- GG. ASTM C 478 - Precast Reinforced Concrete Manhole Sections.
- HH. ASTM C 139 - Concrete Masonry Units for Construction of Catch Basins and Manholes.
- II. ASTM A 48 - Gray Iron Castings.
- JJ. NFPA - 24 - Installation of Private Fire Service Mains and Their Appurtenances, latest edition.
- KK. NFPA - 54 - National Fuel Gas Code, latest edition.
- LL. ASTM C 33 - Concrete Aggregates.
- MM. AWWA C506 - Backflow Prevention Devices - Reduced Pressure Principle and Double Check Valve Types.

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NN. AWWA C509 - Resilient Seated Gate Valves.

1.3 QUALITY ASSURANCE

- A. Conformance to applicable state and local codes and ordinances.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.
- C. Welding Materials and Procedures: Conform to ASME Code.
- D. Welders Certification: In accordance with ANSI/ASME Sec. 9 or ANSI/AWS D1.1, as applicable.

1.4 REGULATORY REQUIREMENTS

- A. Installation and materials in accordance with applicable City Codes and Ordinances, NFPA 24 NFPA 54, and supplying gas utility company.
- B. Piping materials specified herein are acceptable products to the Architect but all are not necessarily acceptable to applicable local codes and ordinances. It is the responsibility of the Contractor to provide materials from the options listed herein, that are acceptable to both the Architect and applicable local codes and ordinances.

1.5 SUBMITTALS

- A. Submit product data or pipe materials, pipefittings, valves and accessories, manholes and accessories, under provisions of Division 1 and Section 15000.
- B. Shop Drawings of precast concrete manholes or proposed built-in place manholes.
- C. Submit Certificates as listed below to Architect in accordance with Division 1 and Section 15000.
 - 1. Certificate of Completion and Approval - Pipe Pressure and Leakage Tests.
 - 2. Certificate of Completion and Approval - Pipe Flushing and Purging.
 - 3. Certificate of Completion and Approval - Pipe Disinfection.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1 and Section 15000.
- B. Store and protect products under provisions of Division 1 and Section 15000.

1.7 FEES AND PERMITS

- A. Pay the cost of all fees, permits or other charges as required in connection with the installation of the system.

1.8 COORDINATION

- A. Coordinate the work to assure that inverts and center-lines are properly set at point of connection to receive building piping.
- B. Verify and coordinate the locations of all existing underground utilities by utility companies or department's prior to start of work.

Jefferson County Office Building – Port Arthur**PART 2 - PRODUCTS****2.1 SANITARY SEWER PIPE**

- A. Cast Iron Piping: Pipe: ASTM A 74, [extra heavy] [service] weight. Fittings: Cast iron. Joints: ASTM C 564, neoprene gasketing system.
- B. PVC Piping (3" and Less): Pipe: ASTM D 2665 Schedule 40. Fittings: PVC DWV Type, Schedule 40. Joints: ASTM D 2855 and D 2564, Schedule 40, solvent weld.
- C. PVC Piping (4" and Greater): Pipe: ASTM D 3033 or D 3034, SDR 35. Fittings: PVC. Joints: ASTM F 477, elastomeric gaskets. Reference ASTM-D2321 for installation.

2.2 WATER PIPING

- A. Copper Tubing: Tubing: ASTM B 88, Type L hard drawn. Fittings: ANSI/ASME B16.29, wrought copper. Joints: AWS A5.8, BCuP silver braze.
- B. PVC Piping for 4 Inch Diameter and Greater: Pipe: AWWA C900 DR-18. Fittings: ANSI/ASTM C110, ductile iron, standard thickness, mechanical joint. Joints: ASTM C111, rubber gasket push-on or mechanical joint. Fittings shall have tar coated outside with cement mortar lined inside in accordance with ANSI A21.4. Ductile iron fittings shall be wrapped in accordance with ANSI/AWWA C105.
- C. PVC Piping for 3 Inch Diameter and Smaller:
 - 1. Screw-joint: Pipe shall be ASTM D 1785 Schedule 80, with joints meeting requirements of 150 psi working pressure, 200-psi hydrostatic test pressure. Pipe couplings shall be tested as required by ASTM D 2464.
 - 2. Elastomeric-Gasket Joint: Pipe shall be ASTM D 1875 Schedule 40 with joints meeting requirements of 150 psi working pressure, 200-psi hydrostatic test.

2.3 FIRE PROTECTION WATER PIPING

- A. Ductile Iron Piping: Pipe: ANSI/AWWA C151. Fittings: ANSI/AWWA C110, Ductile iron, standard thickness. Joints: ANSI/AWWA C111, rubber gasket push-on or mechanical joint. Pipe and fittings shall have tar coated outside with cement mortar lined inside in accordance with ANSI A21.4.
- B. PVC Piping for 4 Inch Diameter and Greater: Pipe: AWWA C900 DR-18. Fittings: ANSI/ASTM C110, ductile iron, standard thickness, mechanical joint. Joints: ASTM C111, rubber gasket push-on or mechanical joint. Fittings shall have tar coated outside with cement mortar lined inside in accordance with ANSI A21.4.
- C. All piping materials shall comply with requirements of local authority having jurisdiction.

2.4 GAS SERVICE PIPING

- A. Black Steel Piping: Pipe: ASTM A 53, Schedule 40. Fittings: ASTM A 245 and ANSI/ASME B16.9, standard weight butt-welded type. Joints: ANSI/ASME B16.25, butt-welded.
- B. Polyethylene Piping (for below ground use only): Pipe: ASTM D 1248 and ASTM D 2513, SDR, 75 psi rated working pressure. Fittings: ASTM D 1248 and ASTM D 2513, SDR 11, 50 psi rated working pressure. Joints: Buttfusion, in accordance with manufacturer's recommendations and

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the Department of Transportation Title 49 of Federal Specifications, paragraph 192.285, as it applies to heat fusion.

- C. Exterior Steel Piping Above Ground: Field applies two coats of exterior grade enamel paint. Color: Gray.

2.4 GAS METERS, REGULATORS AND APPURTENANCES

- A. Gas Cocks Up to 2 Inches: Rated 150 lb. minimum gas pressure, cast iron body and tapered plug, non-lubricated, Teflon packing, locking lugs, threaded ends.
- B. Gas Cocks over 2 Inches: Rated 150 lb. minimum gas pressure, cast iron body and plug, non-lubricated, Teflon packing, locking lugs, flanged ends.
- C. Gas Meter: As required or supplied by supplying gas company.
- D. Gas Regulator: As required by supplying gas company. [Rockwell multi-purpose service regulator, internal relief valve, Series 243.
- E. Dielectric Unions: Epco Model GH with Epconite #3 gasket.
- F. Service Tee: [As required by supplying gas company.] [250 psig rated, Mueller H-17500 for 2 inches and smaller, No. H10496 through H10516 for above 2 inches.]

2.8 YARD CLEANOUTS

- A. Cast iron body and bronze plug with concrete collar.

Acceptable Manufacturers:

Josam
Smith
Tyler/Wade
Zurn

2.9 SEWER MANHOLES

- A. Sewer Manhole Structures:
 - 1. Precast Reinforced Concrete Riser Sections: ASTM C 478, sections joined with rubber gaskets conforming to ANSI/ASTM C 443.
 - 2. Sewer Brick: ASTM C 32, Grade "MA".
 - 3. Precast Segmental Concrete Masonry Units: ASTM C 139.
- B. Sewer Manhole Castings:
 - 1. Frames and Covers: ASTM A 48, designed for heavy traffic and wheel loads of 16,000 pounds, 30-inch minimum access, stamp or cast the letters "SAN" (for sanitary) or "ST" (for storm) into cover.
 - 2. Steps: ASTM A 48, heavy duty cast iron, 7/8-inch diameter rungs, 10 inches in width.
- C. Mortar for Sewer Manholes:

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1. Mortar for sewer manhole construction shall be composed of one part volume Portland cement and two parts sand. Hydrated lime may be added to the mixture in an amount not to exceed 25% of the volume of cement used.
 - a. Portland cement shall meet ASTM C 150, Type I or II.
 - b. Sand shall meet ASTM C 144.
 - c. Hydrated lime shall meet ASTM C 141, Type A.
 - d. Water shall be potable and clean.

D. Concrete for Sewer Manholes:

1. Concrete for sewer manhole construction shall be 3,000-psiig compressive strength at 28 days.
 - a. Air content shall be 5 to 7 percent by volume.
 - b. Maximum size of coarse aggregate shall be 1-1/2 inches.

2.10 WATER VALVES AND ACCESSORIES

- A. Gate valves, check valves, detector check valve assembly, turbine meter valve assembly, etc., shall be as required by the applicable City Codes and Ordinances.
- B. Gate Valve 3 Inches and Smaller: Non-rising stem type, mechanical joint, iron body, resilient seat, corrosion resistant interior coating, bronze stem nut, "O" ring stem seal, 175 psi pressure rating and 2-inch square wrench nut turning counter-clockwise to open. Valve in accordance with AWWA C509.

Acceptable Manufacturers:

Mueller
Clow
Kennedy

- C. Gate Valves 4 Inches and Larger: Non-rising stem type, flanged joint, iron body, bronze mounted, "O" ring stem seal, 175 psi pressure rating and 2-inch square wrench nut turning counter-clockwise to open. Valve in accordance with AWWA C509. Flanged valve allowed only where noted or shown on Drawings.

Acceptable Manufacturers:

Mueller
Clow
Kennedy

- D. Gate Valves for Indicator Post 4 Inches and Larger: Non-rising stem type, mechanical joint, iron body, bronze mounted, "O" ring stem seal, indicator post flange, 175 psi pressure rating and 2-inch square wrench nut turning counter-clockwise to open. Valve UL and FM listed.

Acceptable Manufacturers:

Mueller
Clow

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Kennedy
M & H Dresser

- E. Gate Valves for Indicator Post 4 Inches and Larger: Non-rising stem type, flanged joint, iron body, bronze mounted, "O" ring stem seal, indicator post flange, 175 psi pressure rating and 2-inch square wrench nut turning counter-clockwise to open. Valve UL and FM listed.

Acceptable Manufacturers:

Mueller
Clow
Kennedy
M & H Dresser

- F. Gate Valve for Tapping Sleeve and at Fire Hydrant 4 Inches and Larger: Non-rising stem type, mechanical joint by flange, iron body, resilient seat, corrosion resistant interior coating, bronze stem nut, "O" ring stem seal, 175 psi pressure rating and 2-inch square wrench nut turning counter-clockwise to open. Valve in accordance with AWWA C509.

Acceptable Manufacturers:

Mueller
Clow
Kennedy

- G. Gate Valves in Valve Pit 4 Inches and Larger: Rising stem outside screw and yoke type, flanged joint, iron body, bronze mounted, 175 psi pressure rating, with hand wheel turning counter-clockwise to open. Valves AWWA approved.

Acceptable Manufacturers:

Mueller
Clow
Kennedy
M & H Dresser

- H. Curb Stop Valves 2 Inches and Smaller: Bronze constructed, "O" ring seals, threaded connections and tee head with check.

Acceptable Manufacturers:

Mueller
McDonald
Ford

- I. Check Valves 4 Inches and Larger: Swing type, flanged, iron body, bronze mounted, bronze seat and disc rings, with 175 psi pressure rating.

Acceptable Manufacturers:

Mueller
McDonald
Kennedy

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M & H Dresser

- J. Detector Check Valves: Flanged, galvanized cast iron external case with cadmium plated steel bolts and nuts, full bronze case disc type by-pass meter with bronze by-pass valves and fittings. Detector check valve UL listed.

Acceptable Manufacturers:

Mueller

Hersey

Automatic Sprinkler

Viking

Kennedy

- K. Reduced Pressure Backflow Preventer 2-1/2 Inches and Larger: A complete unit consisting of two independently acting check valves, a pressure relief valve, two OS&Y gate valves and four test cocks. All materials corrosion resistant, flanged, 150 psi rated pressure, and meet all requirements of AWWA C506.

Acceptable Manufacturers:

Cla-Val Co.

Beeco-Hersey

Watts

Febco

- L. Double Check Backflow Preventer 2-1/2 Inches and Larger: A complete unit consisting of two independently acting check valves, two OS&Y gate valves and four test cocks. All materials corrosion resistant, flanged, 150 psi rated pressure, and meet all requirements of AWWA C506.

Acceptable Manufacturers:

Cla-Val Co.

Beeco-Hersey

Watts

Febco

- M. Valve Box for Gate Valves: Cast iron, adjustable sliding type, with round base and lid marked "Water" in integrally cast raised letters. Furnish valve box with valve operating wrench of sufficient length to extend 3 feet above finished grade when engaged with valve.

- N. Valve Box for Curb Stop Valves 1-Inches and Smaller: Cast iron, stationary shut-off rod, adjustable sliding type, arch pattern type base, lid with tapered 1-1/2 inch brass pentagon plug marked "Water" with integrally cast raised letters. Furnish valve box with valve box operating wrench.

- O. Valve Box for Curb Stop Valves 1-1/2 Inches Through 2 Inches: Cast iron, stationary shut-off rod, adjustable sliding type, arch pattern type base, lid with tapered 2-inch brass pentagon plug marked "Water" with integrally cast raised letters. Furnish valve box with valve box operating wrench.

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- P. Indicator Post for Gate Valves: Adjustable type, National Standard pentagon operating nut measuring 1-1/2 inches from point to opposite flat, locking type operating wrench turning counter-clockwise to open. Indicator post UL and FM listed.

2.11 TAPPING SLEEVE

- A. Tapping Sleeve 4-Inches and Larger: Cast iron, mechanical joint, split-type bolted and gasketed with flange outlet, 200 psi pressure rating, and compatible with piping material of piping system being tapped. Flanged joint shall be in accordance with ANSI A 21.15 with rubber gasket material. All bolts and nuts shall be stainless steel with dimensions in accordance with ANSI B 18.2.

Acceptable Manufacturers:

Mueller

Clow

M & H Dresser

2.12 EXCAVATION, BACKFILLING AND COMPACTING

- A. Provide excavation, backfilling and compacting in accordance with Section 15018.

2.13 MECHANICAL IDENTIFICATION

- A. Provide mechanical identification - underground plastic line marker tape of all underground piping systems.

PART 3 - EXECUTION**3.1 EXCAVATION AND BACKFILL**

- A. Provide excavation, bedding, backfilling and compaction required for work in this section in accordance with Section 15018.
- B. Pile excavated material suitable for backfill a sufficient distance away from the trench to prevent overloading, slides and cave-ins. Dispose of excavated materials not suitable for backfill.

3.2 PIPING GENERALLY

- A. Lay pipe true to line and grade and keep clean at all times during construction. Plug or cap open ends of pipe during construction to prevent the entrance of foreign matter.
- B. The minimum cover to be maintained over top of pipe shall be as follows:
1. Water Piping: Top of pipe not less than 36 inches below finished grade unless otherwise shown.
 2. All Other Piping: Top of pipe not less than 24 inches below finished grade unless otherwise shown.
 3. Where piping is located under drives, the top shall be not less than 36 inches below the top of drive.
- C. Cutting of pipe shall be done with an approved type of mechanical cutter without damaging the pipe. Wheel cutters shall be used when practicable.

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- D. Install piping by the open trench method. Where pipe is to be placed in an area to be filled, the fill shall be complete prior to excavation and installation of pipe.
- E. Trenches shall be kept free of water until bedding; laying and backfilling operations are complete.
- F. Connections to existing facilities shall be performed in a manner that will insure a minimum of disturbance to the existing systems.
- G. Temporary blocking with bricks, timbers, or other objects used when laying pipe shall be removed and the voids filled with compacted bedding material prior to backfilling.
- H. Piping shall be run as shown on Drawings. The exact location shall be determined in the field and shall avoid interferences with other piping and apparatus and shall maintain structural clearances.
- I. Piping shall be installed using new materials. Pipe and fittings shall be thoroughly inspected prior to installation. No cracked, broken, or defective pieces shall be used.
- J. The interior surfaces of all piping and equipment shall be clean and free of all dirt, loose scale, rust, and other foreign material before installation.
- K. Protect piping during handling against impact shocks and free fall.
- L. Prior to joining pipe, all surfaces of the pipe to be jointed and the surfaces of jointing materials shall be clean and dry. Lubricants, primers, adhesives, etc. shall be applied and the pipe joined as recommended by the pipe manufacturer. Sufficient pressure shall be applied in making the joint to assure that the pipe is home.
- M. At the end of the workday, temporarily plug, cap or block open end of pipe.
- N. Installation of underground PVC piping shall be in accordance with ASTM D 2321.
- O. Water piping shall not run through grade beam. Piping shall run under grade beam.

3.3 SEWER PIPING

- A. Where the location of sanitary sewer pipe is not defined by dimension on the Drawings, lay pipe no closer horizontally than 10 feet from water pipe except where the bottom of the water pipe will be at least 12 inches above the top of the sanitary sewer pipe. Lay sanitary sewer pipes no closer horizontally than 6 feet from the water pipe when 12 inches above sewer. Where water lines cross under sanitary sewer lines, fully encase the sanitary sewer pipe for a distance of 10 feet on each side of the crossing in concrete, or alternately, use pressure pipe with no joint located within 3 feet horizontally of the crossing.
- B. Protect pipe during handling against impact shocks and free fall. Keep the interior of pipe free of extraneous material.
- C. Cement mortar joints will not be allowed for joining piping in lieu of specified rubber gaskets.
- D. Bring cleanouts flush to finished grade and terminate with a brass screw plug having a countersunk head. Set flush in an 18" x 18" square x 6" thick concrete collar. Pour 1/4-yard concrete around main and cleanout riser.
- E. Adjust cleanout covers flush with the finished grade or surface in which they occur.

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- F. Installation of PVC plastic drainage piping under floor and underground shall be in compliance with ASTM D-2321 Latest Edition □ Standard Practice for Installation of Thermoplastic Pipe for Sewers and Other Gravity Flow Applications □. Minimum trench width shall be pipe diameter plus 16" and all bedding materials shall meet Class 1A or Class 1B-bedding criteria.

3.4 LAMPING

- A. Each run of sewer shall be lamped to insure that the sewer has proper alignment and grade and that no section of pipe is collapsed.

3.5 WYE BRANCHES AND CONNECTION TO EXISTING SEWERS

- A. Commercially manufactured wye branches shall be installed where sewers connect existing sewers shown on the Drawings or where directed, by the [Architect] Engineer.

1. Cutting into pipe for connections shall not be done except in special approved cases.
2. Conditions where connecting pipe cannot be adequately supported on undisturbed earth or tamped backfill, the pipe shall be encased in concrete or supported on a concrete cradle as directed, by the Engineer.

3.6 SEWER MANHOLE STRUCTURE

- A. Manholes shall be constructed of concrete or precast concrete and shall have cast iron frames and covers.
1. The invert channels shall be smooth and semicircular in shape conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large radius as the size of the manhole will permit. Changes in size and grade of the channels shall be made gradually and evenly. The invert channels may be formed directly in the concrete of the manhole base, and may be built up with brick and mortar, may be half tile laid in concrete, or may be constructed by laying full-section sewer pipe through the manhole and breaking out the top half after the surrounding concrete has hardened.
 2. The floor of the manhole outside the channels shall be smooth and shall slope toward the channels not less than 1 inch per foot nor more than 2 inches per foot.
 3. Free drop inside the manhole shall not exceed 18 inches measured from the invert of the inlet pipe to the top of the floor of the manhole outside the channels.
 4. Provide cast iron steps built in and thoroughly anchored into the walls and spaced uniform approximately 12 inches apart with alternate steps offset inches.
 5. Mortar joints shall be completely filled and shall be smooth and free from surplus mortar on the inside of the manhole.

3.7 CONNECTION TO EXISTING STRUCTURES

- A. Pipe connections to existing structures shall be made in such a manner that the finished work shall meet the essential requirements specified for new construction, including all necessary concrete work, cutting and shaping.
1. Connections shall be centered on the structure.
 2. Holes for the new pipe shall be of sufficient diameter to allow packing cement mortar around the entire periphery of the pipe but no larger than 1-1/2 times the diameter of the pipe.
 3. Cutting the structure shall be done in a manner that will cause the least damage to the walls.

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- A. Install ductile iron water piping in accordance with ANSI/ AWWA C600.
- B. Install fire protection water piping in accordance with NFPA 24.
- C. Except where necessary in making connections with other lines, pipe shall be laid with the bells facing the direction of laying. The full length of each section of pipe shall rest solidly upon the pipe bed, with recesses excavated to accommodate bells, couplings, and joints. Pipe which has the grade or joint disturbed after laying shall be taken up and re-laid.
- D. Pipe passing through walls of valve pits and structures shall be cast iron wall sleeves. Annular space between pipe and sleeves shall be sealed with "Linkseal".
- E. Pipe Jointing:
 - 1. Insulation joints shall be installed between non-threaded ferrous and nonferrous metallic pipe, fittings and valves.
 - 2. Dielectric fittings shall be installed between threaded ferrous and nonferrous metallic pipe, fittings and valves, except where corporation stops joint mains.
 - a. Dielectric fittings shall prevent metal-to-metal contact of dissimilar metallic piping elements and shall be suitable for the required working pressure.
 - b. Dielectric unions shall be encapsulated in a field poured coal tar covering, with at least 1/8-inch thickness of coal tar over all fitting surfaces.
- F. Pipe Connections: Where connections are made between new work and existing mains, the connections shall be made by using special fittings to suit the actual conditions. Connections condition shall be installed according to the recommendations of the manufacturer of pipe being tapped.
- G. Gate valves shall be installed where shown or specified and provided with a valve box or indicator post.
 - 1. Valves and valve boxes shall be set plumb. Valve boxes shall be centered on the valves and set flush with finished grade.
 - 2. Valve box and indicator post shall be set in an 18" x 18" square x 6" thick concrete collar.
 - 3. Earth fill shall be carefully tamped around each valve box to a distance of 4 feet on all sides of the box, or to the undisturbed trench face if less than 4 feet.
- H. Provide thrust restraint for plugs, caps, tees, bends deflecting 22-1/2 ° or more, and fire hydrants either vertically or horizontally, on water lines with mechanical or push-on type joints without special locking devices in accordance with NFPA 24.
- I. Domestic and fire protection water service piping below building shall be provided with both tie-rod and thrust block restraint in accordance with NFPA 24. Tie-rod restraint shall be provided vertically from the below floor elbow at the base of the riser up to and bolted into flange above floor and horizontally from the below floor elbow at the base of the riser out to the first hub beyond 5'-0" from building. (See NFPA 24-1995, Figure A-8-6.2(b)). Thrust block restraint shall be provided on the below floor elbow at the base of the riser. Area of bearing face of concrete thrust block shall be 32 square feet.

3.9 HIGHWAY BORE AND CASING

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- A. Installation of water line crossing highway shall be by boring with casing pipe in accordance with the Highway Department regulations.
- B. The water line crossing at the highway shall be by boring with casing pipe as shown and detailed on the Drawings. The boring shall be placed to provide sufficient depth of soil above hole for supporting superimposed live and dead loads and also prevent collapsing of supporting soil between hole and pavements due to any boring or casing jacking operations.
- C. Boring shall extend past roadway crown lines and outside of any shoulders adjacent to pavements. Pits excavated for boring or tunneling operations shall be located so that any possible sloughing of sides of pit will not endanger shoulders or pavements and so that barricades can be placed as specified herein.
- D. All operations and equipment relative to the boring shall be confined to areas outside of roadway shoulders and away from edges of pavements by suitable barricades. Barricades shall be maintained clear of shoulders at all times except that in no case shall the clear distance between barricades and edge of pavement or face of curb be less than 8 feet.
- E. Where material beneath pavement is sandy or unstable and will be subject to caving, hole for casing shall be bored and cased simultaneously and bored material removed through casing. Cutting face of auger or drill shall not project more than 6 inches ahead of casing and no water shall be used in connection with drilling.
- F. Where material beneath pavement is stable and not subject to caving, hole for casing may be bored first and casing inserted in hole immediately after completion of boring if permitted by State Department of Highways and Public Transportation. Water shall not be used in conjunction with drilling if it in any way causes stable material to cave or become unstable.
- G. All voids around casing shall be pressure grouted with grout consisting of Portland cement and washed sand and containing not less than six sacks of Portland cement per cubic yard of grout. Additional cement shall be added if workability and/or stability cannot be obtained with the proportions indicated. An air-entraining agent may also be added to the grout mixture to facilitate flow if necessary. Grouting shall be done immediately after casing has been installed in hole in order to avoid any shearing of soil and settlement of overburden above casing.
- H. No holes shall be drilled in pavements or shoulders for grouting operations.
- I. No low traffic roadways and frontage roads, bore pits should not be less than 10 feet from the edge of pavement or 5 feet from face of curb.
- J. The Contractor shall notify the Highway Department at least 48 hours ahead of time before the boring will commence.
- K. The carrier pipe shall be inserted into the casing pipe by using skids of metal or wolmanized lumber.

3.10 GAS PIPING

- A. General: Materials and equipment shall be installed in accordance with the approved recommendations of the manufacturer for obtaining conformance with the Contract documents.
- B. Service lines shall include the lines to and connections with the building service at a point approximately 5 feet outside the building and shall be steel or plastic pipe. Where building services are not installed, the Contractor shall terminate the service lines approximately 5 feet from the site

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of the proposed building. Such service lines shall be closed with plugs or caps. The service lines shall be connected to the gas mains in conformance with the detail Drawings. Service line shall be provided with a shut-off plug valve with valve box of the same size as the service line. The plug valve shall be located near the supply main but at a safe distance from traffic lanes. The practicable between the building and the gas main and shall not be bent or curved laterally except to avoid obstructions or as otherwise directed. Steel pipe and fittings shall be covered with protective covering as herein specified. Service lines shall be laid with as few joints as feasible, using standard lengths of pipe. Shorter lengths shall be used only for closures. Limitations on the use of plastic pipe shall be previously specified for mains.

- C. Installation: Installation of the gas lines shall be in conformance with ANSI Standard B31.8, NFPA 54, supplying gas company, and where applicable AGA Plastic Pipe Manual for Gas Service.
- D. Installing Underground Pipe: Gas mains and service lines shall be graded as indicated on the Drawings. Joints in steel pipe shall be welded except as herein permitted for installation of valves. Gas lines shall be laid on firm soil for the full length. Where the trench has been excavated below grade, either inadvertently or purposely, the trench shall be backfilled with suitable material and thoroughly tamped so as to provide a full-length bearing. Laying the pipe on blocks to produce uniform grade will not be permitted. The pipe shall be clean inside before it is lowered into the trench and shall be maintained free of water, soil and all other foreign matter. When work is not in progress, expandable plugs or other suitable means shall securely close open ends of pipe or fittings. A single conductor No. 14 AWG wire with type TW insulation shall be installed with plastic pipe to facilitate pipe locating.
- E. Valve boxes of cast iron not less than 3/16 inch thick shall be installed at each underground valve. The valve boxes shall be provided with lock-type covers that require a special wrench for removing. The word "GAS" shall be cast in the cover. When the valve is located in roadway, the valve box shall be protected against movement by a suitable concrete slab at least 3 feet square by 8 inches thick. When in a sidewalk, the top of the box shall be in a concrete slab 2 feet square and set flush with the sidewalk. Boxes shall be adjustable extension type with screw slide-type adjustments.

3.11 TESTING

- A. Sanitary and Storm Sewer Piping
 - 1. Hydrostatically test and make watertight at 5 feet head pressure. Retain for 4 hours. No allowable leakage. Repair all leaking joints and retest.
 - 2. Pneumatically test and make airtight at 5-psi pressure. Retain for 15 minutes. No allowable pressure loss. Repair all leaking joints and retest.
- B. Domestic Water Piping
 - 1. Ductile Iron or PVC Gasketed Piping: Hydrostatically test at 1-1/2 times the normal operating pressure but not less than 150 psi in accordance with AWWA C600. Retain for 2 hours. Noticeable leakage allowed. Allowable non-visible leakage shall not exceed that allowed by AWWA C600. Repair all leaking joints and retest.
 - 2. Copper Piping: Hydrostatically test and make watertight at 1-1/2 times the normal operating pressure but not less than 150-psi pressure. Retain for 2 hours. No allowable pressure loss. Repair all leaking joints and retest.
- C. Fire Protection Water

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1. Hydrostatically test at not less than 200-psi pressure or at 50 psi in excess of the maximum static pressure when the maximum static pressure is in excess of 150 psi. Retain for 2 hours. The amount of allowable leakage shall be as outlined in NFPA 24.

D. Gas Piping

1. Pneumatically test and make watertight at 75-psi pressure. Retain for 2 hours. No allowable pressure loss. Repair all leaking joints and retest.

- E. Certification: Plumbing and Fire Protection Contractor shall submit certification that sanitary sewer, domestic water, fire protection water, and gas piping systems testing has been completed and approved. Certificate shall include approval signature of Contractor performing tests, City Inspector, and Architect.

3.12 FLUSHING AND PURGING

A. Water Piping

1. After testing, all water mains shall be thoroughly flushed. Flushing shall be accomplished through the open ends of pipelines on the ends of straight runs. Flumes, pipes, hoses, or other suitable means shall be provided to convey flushing water up to and over the ground surface to an approved point of discharge or outlet. Flushing through fire hydrants at the end of main will only be allowed as approved by the [Architect] Engineer.
2. Flushing water shall be introduced into the mains to produce a velocity of at least 2.5 feet per second. Flushing shall be continued until the discharge is clean and clear and does not show evidence of silt or foreign matter when a sample is visually inspected.
3. All flushing shall be performed during periods of low water demand, and at such times approved by the municipal water department.

B. Gas Piping

1. After testing, flush gas systems with dry clean air using 85-90 psi pressure until discharge at all blowout points is clean. Flush all feed mains first, branch mains second, and service lines last. At no time shall there be more than one discharge outlet open at a single time. Flush gas system in accordance with one of the two procedures listed below:
2. Flush with continually running air compressor for a period of not less than 1 hour with a discharge capacity (cubic feet per minute) corresponding with the largest pipe size flushing as listed below:

<u>PIPE SIZE</u>	<u>FLUSHING CAPACITY</u>
2" and less	25 CFM
2-1/2" - 4"	100 CFM

3. Flush with a pressurization and sudden relief procedure not less than ten times for each discharge outlet. Pressurization pressure not less than 100 psi.

- C. Certification: Plumbing and Fire Protection Contractor shall submit certification that domestic water, fire protection water, and gas piping systems flushing and purging has been completed and approved. Certificate shall include approval signature of Contractor performing flushing and purging, and Architect.

Jefferson County Office Building – Port Arthur**3.13 DISINFECTING PIPING**

- A. Before acceptance of operation, each unit of completed domestic and fire protection water distribution and service line shall be disinfected meeting AWWA C601. After pressure tests have been made, the unit to be disinfected shall be thoroughly flushed with water until all entrained dirt and mud have been removed before introducing the chlorinating material.
1. The chlorinating material shall be either liquid chlorine, calcium hypochlorite, or sodium hypochlorite, as specified in this section and the chlorinating material shall provide a dosage of not less than 50 parts per million and shall be introduced into the water lines in an approved manner.
 2. The treated water shall be retained in the pipe long enough to destroy all non-spore forming bacteria. Except where a short period is approved, the retention time shall be at least 24 hours and shall produce not less than 10 PPM of chlorine throughout the line at the end of the retention period.
 3. Valves including the fire hydrants on the lines being disinfected shall be opened and closed several times during the contact period, and then the line shall be flushed with clean water until the residual chlorine is reduced to less than 1.0 ppm
 4. During the flushing period, each fire hydrant on the line shall be opened and closed several times. The disinfection shall be repeated until tests indicate the absence of pollution for at least two (2) full days. The piping will not be accepted until satisfactory bacteriological results have been obtained.
- B. Certification: Plumbing and Fire Protection Contractor shall submit certification that domestic water, and fire protection water piping systems disinfection has been completed and approved. Certificate shall include approval signature of Contractor performing disinfection, City Inspector, and Architect.
- C. Contractor shall notify all attendees a minimum of 3 days prior to disinfection.

3.14 CLEAN-UP

- A. Upon completion of the installation of the outside utility lines, and appurtenances, all debris and surplus material resulting from the work shall be removed.

END OF SECTION

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SECTION 15018

EXCAVATION, BACKFILLING AND COMPACTING FOR UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of excavation, backfilling and compacting for utilities work required by this section is indicated on Drawings and by requirements of this section.
- B. This section includes excavation, backfilling and compacting for buried building piping and site utility piping systems.

1.2 DEFINITIONS

- A. Initial bedding material or granular cradle is clean gravel or crushed stone placed and compacted from at least 6" below bottom of pipe or conduit to centerline of pipe or conduit.
- B. Final bedding material or selected granular backfill is clean gravel or crushed stone placed and compacted from centerline of pipe or conduit to at least 6" above top of pipe or conduit.
- C. Structural areas are areas where any type of foundation slab, roadway, building, structure, or sidewalk is to be constructed.
- D. Non-structural areas are landscaped areas with no structural area features.

1.3 REFERENCES

- A. ASTM D698 - Tests for moisture-density relations for soils, using 5.5 lb. rammer and 12" drop.

1.4 PROJECT CONDITIONS

- A. Notify utility companies and Facility Utility Engineer for exact location of all utilities prior to excavating.
- B. Protect all existing utilities serving the existing facilities. Do not interrupt service. Cooperate with the User and others having jurisdiction in keeping respective services and facilities in operation.
- C. Barricade open excavations and post with warning lights. Operate warning lights during hours of darkness.
- D. Protect all adjacent work, structures, and property. Damage to adjacent work, structures, or property shall be reimbursed in full.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Bedding Material: Clean gravel or crushed stone conforming to the following gradation:

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1. Initial and Final Pipe and Conduit Bedding Material

Pipe or Conduit <u>Size</u>	Maximum <u>Size</u>	Percent Passing	
		Minimum <u>Size</u>	No. 200 U.S. Std. <u>Square Mesh Sieve</u>
4" and less	3/8"	1/8"	0
5" thru 42"	3/4"	1/8"	0
48" and over	1"	1/8"	0

2. Structures Bedding Material

Under 48" square or diameter	3/4"	1/8"	0
48" square or diameter and larger	1"	1/8"	0

3. Underground Tanks Bedding Material

Pea Gravel	3/4"	1/8"	0
Crushed Stone	1"	1/8"	0

B. Fill Material: Conform to the following:

1. Structural Areas: Well-graded sands and gravels; gravel sand mixtures; crushed, well-graded rock; little or no fines. Plasticity Index: Non-plastic. Gradation: Percent passing No. 200 \square 5%
2. Non-Structural Areas: Poorly graded gravels and sands; silty sands and gravels; little or no fines. Plasticity Index: Non-plastic to 12. Gradation: Percent passing NO. 200 \square 12%.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Establish line, grade and cuts to attain invert elevations shown on the Drawings.
- B. Establish the location and identify all existing utility lines, drainage and sewer lines at point of connection and all interference.
- C. Examine the areas and conditions under which trenching, backfilling, and compaction will be performed and notify the Owner's Representative in writing of conditions detrimental to the proper and timely completion of the work and request resolution.

3.2 EXCAVATING

- A. Perform excavating in a manner that will provide the depth for installation at pipe or conduit plus allowance for the bedding material. Excavated trenches shall be cut wide enough to provide adequate working space to align and install pipe or conduit, make up and inspect joints and allow placing and compaction of bedding material.
- B. Where trenches are excavated through existing paved areas the paving shall be saw-cut to a depth of 2 inches minimum on all sides of the excavation and the paving shall be removed along the saw-cut lines. When sawing would occur less than three feet from an existing pavement joint the paving shall be removed back to the existing pavement joint. Pavement shall be sawed and

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- removed so that the opening is at least 12 inches wider than the top of the trench on each side to prevent undermining of pavement.
- C. Over excavation shall be brought back to proper grade with bedding material compacted as specified herein for backfill.
 - D. When unsuitable soils are encountered during excavation that will not provide satisfactory supportive strength, such soil shall be removed as directed by Owner's Representative and placed in an off-site disposal area furnished by Contractor. This unsuitable soil shall be replaced with suitable soil and compacted to meet the density requirements hereinafter specified under "Backfilling".
 - E. Trench excavation shall include the removal of all earth, rock, concrete rubble or other materials encountered in performing the work.
 - F. Where bell and spigot pipe is used, bell holes shall be excavated to ensure uniform bedding under the pipe.
 - G. Excavating in Rock:
 - 1. Rock is a natural solid mineral matter occurring in masses of one-half cubic yard or more that cannot be excavated and removed by the use of standard earth moving equipment.
 - 2. Trenching in rock shall include the removal of all rock to attain the specified lines and grades. A tolerance of plus 0.1 feet and minus 0.5 feet will be allowed for new rock grades.
 - 3. When rock excavations are carried below the specified elevations, or to a depth greater than directed by Owner's Representative, the excavation shall be maintained and filled to meet the desired elevations. In trench excavations, the over excavation shall be filled with bedding material compacted as specified herein.
 - 4. Explosives shall not be used in rock excavation.
 - 5. All rock excavation shall be placed in an off-site disposal area furnished by Contractor.
 - H. Sheeting, Shoring and Bracing:
 - 1. Provide sheeting, shoring, and bracing necessary to support earth banks, adjacent structures, services and utilities. Trenches shall be maintained in a safe condition at all times for the protection of all persons having access to the work. Sheeting shall not be withdrawn until the excavation is sufficient to prevent caving or damage to adjacent structures.
 - I. Dewatering:
 - 1. Labor and equipment to maintain all excavations free from water during the progress of the work shall be provided until backfill is completed. Water shall be disposed of in a manner that will not cause ponding in the work area or hamper or damage in any way the work of other crafts. Do not contaminate existing sewer system with sediment or debris from Contractor's pumping operations. Clean all such deposits from sewer system upon completion of the work.

3.3 BEDDING

- A. Bedding shall be accurately graded to provide uniform bearing and support for each section of pipe or conduit at every point along its length except where it is necessary to excavate for bells and the proper sealing of joints. Such bell holes and depressions shall be dug after the bedding has been placed and graded.

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- B. Unstable soil encountered at the bottom of pipe trenches shall be removed and replaced in accordance with this specification.
- C. Initial pipe bedding shall be placed and compacted from at least 6" below bottom of pipe to the centerline of the pipe. Final pipe bedding shall be placed and compacted from centerline of pipe to at least 6" above top of pipe.

3.4 BACKFILLING

- A. All excavations shall be filled or backfilled with suitable soil specified as rapidly as conditions will permit except that backfill or fill shall not be placed until work to be covered has been inspected and approved by Owner's Representative. Backfill or fill shall not be placed against frozen soils.
- B. Backfill or fill placed against freestanding concrete or masonry walls shall not be placed until concrete or mortar has attained adequate strength or until adequate bracing has been installed to resist loads imposed by backfilling.
- C. Suitable material that has been excavated from the trench or footing excavation may be used as backfill provided the compaction requirements are met. No large rock or stone larger than 1", or frozen material or trash or rubble of any kind shall be used in the backfill.
- D. Contractor for his convenience may use imported material for fill as specified, the material not used from the excavation shall be disposed of as directed by the Owner's Representative.
- E. Excavations in cohesive soils shall be backfilled with at least 12 inches of cohesive soil, placed so that the top of the cohesive soil backfill is (1) at the same elevation as the proposed grade for top of soil or (2) at the top of cohesive soil encountered in the excavation, whichever is lower.
- F. When excavated material that is normally suitable for backfill absorbs excessive moisture, dry it to reduce the moisture content to acceptable limits or replace it with suitable material compacted as specified herein.
- G. Do not backfill trenches until tests and inspections have been made and backfilling authorized by Owner's Representative. Use care in backfilling to avoid damage or displacement of pipe systems.

3.5 COMPACTION

- A. All bedding, fill and backfill material shall be placed in layers not exceeding a compacted thickness of 6 inches and compacted as follows:
 - 1. In non-structural areas materials shall be compacted to a minimum density of 90 percent of maximum compaction as determined by ASTM D-698.
 - 2. In structural areas materials shall be compacted to a minimum density of 98 percent of maximum compaction as determined by ASTM D-698.
- B. All compaction of bedding fill, and backfill in structural areas shall be done by hand or with mechanical tamping machines. Running the tires or treads of heavy equipment down the trench is not allowed.
- C. Jetting or water soaking, as a method of backfill compaction, will not be allowed.

3.6 TESTING OF COMPACTION

- A. *Provide one test per 500 lineal feet of trench per lift. Test locations shall be as directed by the Owner's Representative. If test results in a failure to comply with compaction requirements

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Contractor shall re-compact entire lift the length of the excavation and provide additional tests per lift (not to exceed five (5)) as directed by the Owner's Representative.

3.7 GRADING AND RESTORATION

- A. Backfilled trenches shall be finish graded to the specified elevation or match existing elevations and restored to the condition satisfactory to Owner's Representative.

END OF SECTION

Jefferson County Office Building – Port Arthur**SECTION 15019****TRENCH SAFETY****PART 1 - GENERAL**

1.1 SUMMARY

- A. This section includes the basic requirements that the Contractor must comply with in order to assure the safety and health of workers in a trench.
- B. The trench safety system shall be used for all trench excavation deeper than five (5) feet.

1.2 REGULATORY REQUIREMENTS

- A. The Excavating and Trenching Operation Manual of the Occupational Safety and Health Administration, U.S. Department of Labor; Subpart P shall be the minimum governing requirement of this item and is hereby made a part of this specification.
- B. All authorities having jurisdiction.

1.3 SUBMITTALS

- A. Submit shop Drawings and calculations to the Owner's Representative for approval of the following methods of trench safety systems.
 - 1. Deviation from the allowable angle of repose resulting in a steeper slope.
 - 2. Trench shield method.
 - 3. Deviation from the allowable trench shoring, skeeting, and bracing method.

PART 2 - NOT APPLICABLE**PART 3 - EXECUTION**

3.1 METHODS

- A. There are three acceptable methods of trench safety system. The Contractor will have the option to use the method he deems appropriate and is acceptable to the authorities having jurisdiction.
 - 1. Angle of Repose Method: If the wall or face of the excavation is sloped to preclude collapse, slope shall not be steeper than 1-foot vertical to 2-feet horizontal. Any deviation from this angle of repose (26°34') resulting in a steeper slope must be designed by a registered Professional Engineer and submitted to the Owner's Representative for approval. The angle of repose method of trench safety system will not be permitted in the following situations:
 - a. Within an existing paved street.
 - b. Adjacent to/or crossing existing structures, utilities, others.
 - 2. Trench Shield Method: Where trench boxes or shields are used they shall be designed and certified by a Registered Professional Engineer and submitted to the Owner's Representative for approval. They shall be constructed and maintained in a manner that will provide protection equal to or greater than the sheeting or shoring required for the trench. In all cases if the top of the trench box is below the existing grade, that portion of the trench above the trench box shall be sloped back to the angle of repose of 1-foot vertical to 2-foot horizontal unless as specified in Part A above.

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3. Trench Shoring, Sheeting, and Bracing Method: For depths greater than 5 feet all members shall be sized and spaced in accordance with the 15 to 20 feet deep all kinds or conditions of earth category in Table P-2 of OSHA Excavating and Trenching Operations Manual. Any deviation shall be designed by a registered Professional Engineer and furnished to the Owner for approval. All materials shall be of structural or construction grade.

PART 4 - MEASUREMENT AND PAYMENT**4.1 MEASUREMENT**

- A. The linear foot will measure all methods such as angle of repose, trench shield or trench shoring, sheeting and bracing for use as a trench safety system, defined in the plans and Contract documents. The linear foot quantity allocated for this project is based on vertical increments of five feet for installations greater than trench depth of 5 feet and shall include mains, service lines and others.

4.2 PAYMENT

- A. Payment for trench safety system shall be full compensation for safety system design, labor, tools, material, equipment and incidentals necessary to complete the work including removal of the system and backfill.

END OF SECTION

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SECTION 15100

PLUMBING

PART 1 - GENERAL

1.1 GENERAL

- A. All work shall be in accordance with the "General Conditions", "Supplemental General Conditions" and the "General Requirements for Mechanical Work".
- B. All work shall be in accordance with City Building and Plumbing Codes and with all state and national codes as they may apply to the project and to public safety.

1.2 SCOPE OF WORK

- A. It is the intent to furnish and install complete plumbing systems, fully adjusted and ready for use.
- B. Materials and equipment have been carefully selected for the project and the contractor is expected to provide items as closely as possible to the specifications.
- C. The drawings accompanying these specifications show the extent of the plumbing work and the general arrangement. The drawings, however, are diagrammatic and exact layout of the systems is the responsibility of the Contractor.

1.3 PLUMBING SUBMITTAL DATA

- A. The Contractor shall check all items of submittal data and verify by statement and initial that each item has been checked for the following conditions:
 - 1. Item is equal to specified item in construction and quality.
 - 2. Item is of the same physical size. If not of the same physical size, the dimensions have been checked and item will fit within the allocated space shown on the plans. Where items proposed are different than scheduled items, furnish 1/4" scale plan and 1/4" sections on tracing paper (for direct overlay) of proposed equipment including space required for connections or service. The tracing of 1/4" plans and 1/4" sections must be furnished with submittal for other than scheduled equipment in order to compare proposed equipment with scheduled equipment.
 - 3. System connections to the item can be made as shown on the plans.
 - 4. Shop drawings show in detail all connections, etc., required to meet the overall specifications in every detail.
 - 5. Statement of guarantee that the proposed equipment shall operate properly as applied to the project and will not require additional devices or changes in the installation shown on the plans.
- B. Third Party Certification: All packaged equipment shall be independently Third Party labeled as system for its intended use by a Nationally Recognized Testing Laboratory (NRTL) in accordance with OSHA Federal Regulation 29CFR1910.303 and .399, as well as NFPA Pamphlet #70, National Electric Code (NEC), Article 90-7.
- C. Complete specification data shall be submitted for all plumbing items and including the list below:

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1. Plumbing Fixtures
 2. Pumps
 3. Domestic Water Heaters
 4. Insulation
 5. Pipe
 6. Valves
- D. In addition to the above, provide an individual pump curve for each pump provided as a part of this project. Each pump curve shall have design operating point clearly indicated.

PART 2 - MATERIALS**2.1 SOIL AND WASTE AND VENT PIPING SYSTEM**

- A. Piping below grade or below building shall be service weight bell and spigot cast iron soil pipe and fittings with compression joints: ASTM A 74 as manufactured by AB&I, Charlotte or Tyler Pipe. All pipe and fittings shall be marked with the collective trademark of Cast Iron Soil Pipe Institute. Install piping at a minimum slope of 2% inside building and 1% outside building, unless indicated or required otherwise. All piping outside the building, below grade, shall be buried a minimum of 3'-0" below grade. The Engineer shall be notified if this is not possible due to invert requirements.
- B. Piping above grade and inside building shall be standard weight cast iron hubless soil pipe and fittings with stainless steel couplings or Schedule 40 PVC. Install piping at a minimum slope of 2%, or as required by local codes. Do not install PVC piping in any return air plenums.
- C. A/C condensate drain piping and overflow pan drain piping shall be Type M copper drainage tube and fittings with lead free solder joints. Install vented U-type drain trap for all draw-thru cooling coil drain pans. Piping shall be insulated with 1/2" thick fiberglass with Universal jacket.
- D. Floor drains shall be equal to Josam Series 30000-A, coated cast iron, Bronze top, flashing clamp device (where waterproofing occurs), deep seal P-trap and as indicated on drawings.
- E. Cleanouts shall be Josam or approved equal:
1. Floors: Series 56000, Bronze top.
 2. Wall: Series 58510, cleanout tee with plug, and Series 58600 access cover, chrome-plated bronze.
 3. Grade: Series 58490 bronze countersunk plug.
- F. All piping inside the building shall be supported from building structure. Parallel runs of horizontal piping shall be grouped together on trapeze hangers. Single runs of horizontal piping shall be supported with clevis hangers. Vertical risers shall be supported at each floor with steel pipe clamps. Wire or perforated straps for pipe supports will not be permitted. Support horizontal runs of piping at 5'-0" intervals and at base of each stack.

2.2 DOMESTIC WATER SYSTEMS

- A. Domestic Water Piping Outside the Building:
1. Copper Tubing: ASTM B 88, Type K with wrought copper fittings and silver braze joints.

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2. PVC Piping for 4 Inch Diameter and Greater: AWWA C900 DR-18 with ductile iron, standard thickness, mechanical joint fittings and rubber gasket push-on or mechanical joints. Fittings shall have tar coated outside with cement mortar lined inside in accordance with ANSI A21.4. Ductile iron fittings shall be wrapped in accordance with ANSI/AWWA C105.
 3. PVC Piping for 3 Inch Diameter and Smaller:
 - a. Screw-joint: Pipe shall be ASTM D 1785 Schedule 80, with joints meeting requirements of 150 psi working pressure, 200-psi hydrostatic test pressure. Pipe couplings shall be tested as required by ASTM D 2464.
 - b. Elastomeric-Gasket Joint: Pipe shall be ASTM D 1875 Schedule 40 with joints meeting the requirements of 150 psi working pressure, 200 psi hydrostatic test pressure.
 4. All piping outside the building, below grade, shall be buried a minimum of 3'-0" below grade.
- B. All piping inside building shall be Type L hard copper pipe and wrought copper fittings. Joints shall be made with lead free solder. Piping below floor slabs shall be Type K soft copper tubing. There shall be no joints in tubing below slabs.
- C. Valves shall be as follows, or equal:
1. Gate Valves - 3" and larger: Nibco F-619, 125 lb. SWP iron body.
 2. Gate Valves - 2-1/2" and smaller: Nibco T-123/S123, 125 lb. SWP bronze.
 3. Globe Valves - 3" and larger: Nibco F-718, 125 lb. SWP iron body.
 4. Globe Valves - 2-1/2" and smaller: Nibco T211/S211, 125 lb. SWP bronze.
 5. Check Valves - 3" and larger: Nibco F-918, 125 lb. SWP iron body.
 6. Check Valves - 2-1/2" and smaller: Nibco T-413/S-413, 125 lb. SWP bronze.
 7. Butterfly Valves - 3" and larger: Nibco NL-082, 150 lb. WWP.
 8. Butterfly Valves - 2-1/2" and smaller: Not to be used.
 9. Ball Valves - 3" and larger: Not to be used.
 10. Ball Valves - 2-1/2" and smaller: Nibco T-580/S-580, 150 lb. SWP bronze.
 11. Balance Valves - 3" and larger: Homestead 602.
 12. Balance Valves - 2-1/2" and smaller: Homestead 601.
 13. Strainers - 2-1/2" and larger: Crane 989-1/2.
 14. Strainers - 2" and smaller: Crane 988-1/2.
- D. Install a water meter and service tap in accordance with City code requirements.
- E. All piping inside building shall be supported from the building structure. All piping shall be concealed above ceilings, in pipe chases, etc. Parallel runs of horizontal piping shall be grouped together on trapeze type hangers. Single pipe runs shall be supported with split-ring clevis type hangers. Hangers shall pass around pipe insulation. At each hanger and support point provide an 18 gauge galvanized sheet metal protective band, minimum 8" long, to protect the insulation. Vertical risers shall be supported at each floor with steel pipe clamps. Wire or perforated straps for pipe hangers will not be permitted. Pipe hangers and supports shall be spaced a maximum of 8'-0" on 1-1/4" and smaller pipe and a maximum of 10'-0" on all other pipe.
- F. Insulate all interior domestic water piping with 1" thick fiberglass insulation with ASJ. Insulate all domestic water piping outside the building thermal insulation envelope with 1" thick fiberglass insulation.

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- G. Provide isolating couplings where two different pipe materials connect. Provide a vacuum breaker on all hose bibs and non-freeze hydrants.
- H. Provide factory manufactured water hammer arrestors where required and/or indicated on the drawings.
- I. A pressure reducing valve station shall be furnished and installed on incoming domestic cold water lines with pressures exceeding 80 psi. Valve shall be equal to Watts Series 223 with separate strainer.

2.3 GAS PIPING SYSTEM

- A. Piping below grade, outside building, shall be polyethylene pressure pipe with butt fusion joints specifically manufactured for gas services. Polyethylene pipe shall not extend above grade. Service risers shall be Schedule 40 black steel with factory applied protective coating where below grade. Risers shall be anodeless type. All piping outside of the building, below grade, shall be buried a minimum of 2'-0" below grade.
- B. Piping inside building and exposed piping above grade shall be Schedule 40 black steel. 2-1/2" and larger shall have welded joints. 2" and smaller shall have screwed joints. All piping for gas 1 psi and above shall be welded.
- C. All exposed gas piping shall be painted with two (2) coats of enamel paint. Color to match building or as selected by Architect.
- D. Meter and regulator loop shall be furnished and installed in accordance with gas company requirements.
- E. Pressure reducing and regulating valves shall be installed for various service pressure requirements. [Gas service pressure regulator(s) shall reduce pressure to 4-8 oz.]
- F. Do not install gas piping in unvented spaces inside the building or below grade under the building. Furnish and install PVC vented sleeves where required.
- G. At each connection to mechanical or plumbing equipment, furnish and install a dirt leg (full size of run out), a 100% shut-off plug-valve, and a union. Do not use flexible gas whips for final connection to equipment.
- H. Gas cocks shall be as follows, or equal:
 - 1. 2-1/2" and larger: Homestead 602.
 - 2. 2" and smaller: Crane No. 1228.
- I. All pipes shall be supported from the building structure in a neat and workmanlike manner and wherever possible, parallel runs of horizontal piping shall be grouped together on trapeze type hangers. Vertical risers shall be supported at each floor line with steel pipe clamps. The use of wire or perforated metal to support pipes will not be permitted. Hanging pipes from other pipes will not be permitted. Spacing of pipe supports shall not exceed 8 feet for up to 1-1/4" and 10 feet on all other piping.
- J. The piping shall be protected at all time from dirt and moisture. During storage on the job site or construction, the Plumbing Subcontractor shall keep pipe ends plugged or capped to prevent dirt or moisture entering the pipe.
- K. Interior piping shall be tested before equipment is connected.

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- L. Exterior piping below grade shall be tested before equipment is connected and pipe trench is backfilled.

2.5 WATER HEATING SYSTEM

- A. The water heaters shall be gas-fired storage tank as indicated, with automatic controls and approved by Underwriters Laboratories, Inc or AGA.
- B. The storage capacity and recovery capacity shall be as scheduled, or indicated.
- C. Tanks shall be heavy gauge steel with inner lining of improved glass or copper, or as scheduled. Tank shall have insulation completely around tank, top and bottom. There shall be a hose thread drain valve at bottom of tank and any pipe nipples used in water connections shall have interior surface to match interior surface of tank. Dielectric unions shall be used to connect glass-coated galvanized pipe nipples to copper water pipe. Brass nipples shall be used in copper lined tanks.
- D. The water heater shall have a jacket of steel with baked-on enamel finish. Jacket shall have provisions for access to all controls and burners.
- E. The heater shall be equipped with an ASME approved temperature and pressure relief valve, piped to outside the building or to floor drain as required by code.
- F. Gas control shall be designed to shut off all gas if pilot light goes out. There shall be a gas valve in the supply pipe. Controls shall allow adjustment of temperature from 105°F to 180°F.
- G. The water heater shall be set dead level in both directions.
- H. The water heater shall have piping connections as shown on the drawings.
- I. The water heater shall be protected during construction and all solder or solder flux removed from the top.
- J. The water heater shall be cleaned and all construction dirt removed at the completion of the project.
- K. The water heater shall have 5 year warranty.
- L. Provide full size flue and combustion air duct through roof to rain cap, or as indicated.
- M. Hot water circulating pumps shall be in-line type, all bronze, non-overloading as manufactured by Bell & Gossett, or equal. Pump shall be line sized or as scheduled.
- N. Provide expansion tank for each storage-type water heater. Water heaters shall be furnished with ASME coded expansion tanks.

2.6 PLUMBING FIXTURES

- A. All fixtures shall be new, of current manufacturer and of the best of their respective kinds. They shall be free of blemishes, waves, kiln marks and discoloration. All fixture surfaces in contact with walls, floors, etc., shall be ground truly flat.

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- B. All directly exposed metal associated with fixtures including pipe, traps, bolts, nuts, washers, etc., shall be stainless steel or chrome plated brass. Nuts exposed to direct view shall be cap nuts (closed top) type leaving no screw threads exposed.
- C. All wall-hung fixtures will be provided with approved carriers.
- D. Contractor shall provide proper support for fixtures and piping. Wall hung fixtures not specified to be furnished with carriers shall be supported with angle iron back-ups located inside chase or wall. Bolts shall extend through and be welded to the angle and extend through to fixture hanger. Wall hung lavatories shall have drilled bolt holes through lower skirt and shall be additionally secured by bolts through skirt into the angle iron back-up.
 - E. Plumbing fixtures shall be grouted at walls and floors with fine dental plaster. Clean excess plaster from the fixture and other surfaces.
 - F. Supply piping to all plumbing fixtures, hose bibs, equipment etc., shall be anchored with "U" bolts and a steel angle at wall penetrations to prevent pipe movement.
 - G. The plumbing fixtures shall be as scheduled. Provide the required trim and accessories for all plumbing fixtures whether specifically called out or not.
 - H. Install offset traps and factory manufactured piping insulation kits for all exposed piping for handicap fixtures as required.
 - I. All faucets shall be free of lead per NSF-61.

2.7 TRAP PRIMERS

- A. Contractor shall furnish and install complete trap primer system for all floor drains, etc. as required by local code.
- B. Systems shall include drain connection, piping, trap seal primer valve, etc.
- C. All water supply piping shall be insulated.
- D. Trap primer valves shall be concealed within walls and/or chases. Install access door at each valve location.
- E. Trap seal primer valve, run timer, etc. shall be submitted for approval by the Architect/Engineer.

PART 3 – EXECUTION**3.1 INSTALLATION**

- A. Provide dielectric connections wherever jointing dissimilar metals.
- B. Install water hammer arrestors complete with accessible isolation valve.
- C. Install each fixture with chrome plated rigid or flexible supplies with screwdriver stops, reducers, and escutcheons.
- D. Install unions downstream of valves and at equipment or apparatus connections.
- E. Install gate valves for shut-off and to isolate equipment and part of systems.

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- F. Install ball valves for throttling, bypass, or manual flow control services.
- G. Extend temperature and pressure relief valve drain to outside or to floor drain.
- H. Install water heater in accordance with all clearance requirements.
- I. Install manufactured metal drain pan or fabricated metal drain pan with soldered joint beneath each water heater.

3.2 TESTING

- A. General: Furnish pumps, gauges, equipment and personnel required, and test as necessary to demonstrate the integrity of the finished installation.
- B. Soil, Waste and Vent, and Storm Drainage: Unless otherwise directed, plug all openings and fill with water to a height equal to the lowest vent or roof drain. Allow to stand three hours or longer as required. Remake leaking joints and retest.
- C. Water Lines: Hydrostatically test and make tight at 125 psi. Retain for 24 hours. Repair all leaking joints and retest.
- D. Natural Gas: Pneumatically test and make tight at 1-1/2 times the normal operating pressure, but not less than 50 psi. Retain for 24 hours. Repair all leaking joints and retest.

3.3 FLUSHING

- A. General: After piping systems have been tested and approved, systems shall be flushed. Furnish compressors, pumps, equipment, personnel, etc. required to flush piping systems.
- B. Water Lines: Flush piping with water until water flows clear for a minimum of 60 seconds per 100 linear feet of piping being flushed at a velocity of 9 feet per second.
- C. Natural Gas: Flush piping with air until air flows clear for a minimum of 60 seconds per 100 linear feet of piping being flushed at 25 CFM per 1 inch diameter of pipe.
- D. All strainers and filters shall be cleaned and replaced prior to start-up.

3.4 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A. Prior to starting work, verify system is complete, flushed and clean.
- B. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50-to 80 mg/L residual.
- C. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 5 remote outlets.
- D. Maintain disinfectant in system for 24 hours.
- E. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- F. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.

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- G. Take samples no sooner than 24 hours after flushing, from 5 remote outlets and from water entry, and analyze in accordance with AWWA C601.

END OF SECTION

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SECTION 15120

PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of piping specialties work required by this section is indicated on Drawings and schedules and by requirements of this section.
- B. Types of piping specialties specified in this section include the following:
 - 1. Pipe Escutcheons.
 - 2. Pipeline Strainers.
 - 3. Vandal-Proof Vent Caps.
 - 4. Dielectric Unions.
 - 5. Mechanical Penetration Seals.
 - 6. Fire Barrier Penetration Seals.
 - 7. Drip Pans.
 - 8. Pipe Sleeves.
 - 9. Penetration Seals.
- C. Piping specialties furnished as part of factory-fabricated equipment, are specified as part of equipment assembly in other Division-15 sections.

1.2 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of piping specialties of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
 - 1. FCI Compliance: Test and rate "Y" type strainers in accordance with FCI 73-1 "Pressure Rating Standard for "Y" Type Strainers". Test and rate other type strainers in accordance with FCI 78-1 "Pressure Rating Standard for Pipeline Strainers Other than "Y" Type".

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data, including installation instructions, and dimensioned Drawings for each type of manufactured piping specialty. Include pressure drop curve or chart for each type and size of pipeline strainer. Submit schedule showing manufacturer's figure number, size, location, and features for each required piping specialty.
- B. Shop Drawings: Submit for fabricated specialties, indicating details of fabrication, materials, and method of support.
- C. Maintenance Data: Submit maintenance data and spare parts lists for each type of manufactured piping specialty. Include this data, product data, and shop Drawings in maintenance manual; in accordance with requirements of Division 1.

PART 2 - PRODUCTS

2.1 PIPING SPECIALTIES

- A. General: Provide factory-fabricated piping specialties recommended by manufacturer for use in service indicated. Provide piping specialties of types and pressure ratings indicated for each

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service, or if not indicated, provide proper selection as determined by Installer to comply with installation requirements. Provide sizes as indicated, and connections, which properly mate with pipe, tube, and equipment connections. Where more than one type is indicated, selection is Installer's option.

2.2 PIPE ESCUTCHEONS

- A. General: Provide pipe escutcheons as specified herein with inside diameter tightly fitting pipe outside diameter, or outside of pipe insulation where pipe is insulated. Select outside diameter of escutcheon to completely cover pipe penetration hole in floors, walls, or ceilings; and pipe sleeve extension, if any. Furnish pipe escutcheons with nickel or chrome finish for occupied areas, prime paint finish for unoccupied areas.
- B. Pipe Escutcheons for Moist Areas: Exterior use and interior use including mechanical rooms and any room with water or floor type drains. For waterproof floors, and areas where water and condensation can be expected to accumulate, provide cast brass or sheet brass escutcheons, solid or split hinged.
- C. Pipe Escutcheons for Dry Areas: Provide sheet steel escutcheons, solid or split hinged.
- D. Manufacturer: Subject to compliance with requirements, provide pipe escutcheons of one of the following or approved equal:
 - 1. Chicago Specialty Mfg. Co.
 - 2. Producers Specialty & Mfg. Corp.
 - 3. Sanitary-Dash Mfg. Co.

2.3 LOW PRESSURE Y-TYPE PIPELINE STRAINERS

- A. General: Provide strainers full line size of connecting piping, with ends matching piping system materials. Select strainers for 125 psi working pressure, with Type 304 stainless steel screens, with 3/64" perforations @ 233 per sq. in.
- B. Threaded Ends, 2" and Smaller: Cast-iron body, screwed screen retainer with centered blow down fitted with pipe plug.
- C. Threaded Ends, 2+" and Larger: Cast-iron body, bolted screen retainer with off-center blow down fitted with pipe plug.
- D. Flanged Ends, 2+" and Larger: Cast-iron body, bolted screen retainer with off-center blow down fitted with pipe plug.
- E. Butt Welded Ends, 2+" and Larger: Schedule 40 cast carbon steel body, bolted screen retainer with off-center blow down fitted with pipe plug.
- F. Grooved Ends, 2+" and Larger: Tee pattern, ductile-iron or malleable-iron body and access end cap, access coupling with EDPM gasket.
- G. Manufacturer: Subject to compliance with requirements, provide low pressure Y-type strainers of one of the following or approved equal:
 - 1. Armstrong Machine Works.
 - 2. Hoffman Specialty ITT; Fluid Handling Div.
 - 3. Metraflex Co.
 - 4. R-P&C Valve; Div. White Consolidated Industries, Inc.
 - 5. Spirax Sarco.
 - 6. Trane Co.
 - 7. Victaulic Co. of America.
 - 8. Watts Regulator Co.

2.4 HIGH PRESSURE Y-TYPE PIPELINE STRAINERS

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- A. General: Provide strainers full line size of connecting piping, with ends matching piping system materials. Select strainers for 250 psi working pressure, with Type 304 stainless steel screens, with 3/64" perforations @ 233 per sq. in.
- B. Threaded Ends, 2" and Smaller: Cast-iron body, screwed screen retainer with centered blow down fitted with pipe plug.
- C. Threaded Ends, 2+" and Larger: Cast-iron body, bolted screen retainer with off-center blow down fitted with pipe plug.
- D. Flanged Ends, 2+" and Larger: Cast-iron body, bolted steel retainer with off-center blow down fitted with pipe plug.
- E. Butt Welded Ends, 2+" and Larger: Schedule 80 cast carbon steel body, bolted screen retainer with off-center blow down fitted with pipe plug.
- F. Manufacturer: Subject to compliance with requirements, provide high-pressure Y-type strainers of one of the following or approved equal:
 - 1. Armstrong Machine Works.
 - 2. Hoffman Specialty ITT; Fluid Handling Div.
 - 3. Metraflex Co.
 - 4. R-P&C Valve; Div. White Consolidated Industries, Inc.
 - 5. Spirax Sarco.
 - 6. Trane Co.
 - 7. Watts Regulator Co.

2.5 VANDAL PROOF VENT CAPS

- A. General: Provide cast-iron vandal-proof vent caps, full size of vent pipe, caulked base connection for cast-iron pipes, threaded base for steel pipes.
- B. Manufacturer: Subject to compliance with requirements, provide vandal-proof vent caps of one of the following or approved equal:
 - 1. Josam Mfg. Co.
 - 2. Smith (Jay R.) Mfg. Co.
 - 3. Tyler Pipe; Sub. of Tyler Corp.
 - 4. Zurn Industries, Inc.; Hydromechanics Div.

2.6 DIELECTRIC UNIONS

- A. General: Provide standard products recommended by manufacturer for use in service indicated, which effectively isolate ferrous from non-ferrous piping (electrical conductance), prevent galvanic action, and stop corrosion.
- B. Manufacturer: Subject to compliance with requirements, provide dielectric unions of one of the following or approved equal:
 - 1. B & K Industries, Inc.
 - 2. Capital Mfg. Co.; Div. of Harsco Corp.
 - 3. Eclipse, Inc.
 - 4. Epco Sales, Inc.
 - 5. Perfection Corp.
 - 6. Rockford-Eclipse Div.

2.7 PENETRATION SEALS

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- A. Caulked Seals: Provide seals for penetrations through interior walls of one of the following:
 - 1. Mineral Wool or Oakum: Caulked watertight between sleeve and pipe.

- B. Mechanical Seals:
 - 1. General: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with bolts and pressure plates which cause rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.
 - 2. Manufacturer: Subject to compliance with requirements, provide mechanical sleeve seals of one of the following or approved equal.
 - a. Thunderline Corp.

- C. Fire Barrier Seals:
 - 1. Provide seals for any opening through smoke or fire-rated walls, and all above grade floors, used as passage for mechanical components such as piping or ductwork.
 - 2. Cracks, Voids, or Holes Up to 4" Diameter: Use putty or caulking, one-piece intumescent elastomer, non-corrosive to metal, compatible with synthetic cable jackets, and capable of expanding 10 times when exposed to flame or heat, UL-listed.
 - 3. Openings 4" or Greater: Use sealing system capable of passing 3-hour fire test in accordance with ASTM E-814, consisting of wall wrap or liner, partitions, and end caps capable of expanding when exposed to temperatures of 250 to 350^oF UL-listed.
 - 4. Manufacturer: Subject to compliance with requirements, provide fire barrier penetration seals of one of the following or approved equal.
 - a. Electro Products Div./3M.
 - b. Nelson; Unit of General Signal.

2.8 DRIP PANS

- A. General: Provide drip pans fabricated from 20 gauge corrosion-resistant sheet metal with watertight joints, and with edges turned up 2+". Reinforce top, either by structural angles or by rolling top over 1/8" steel rod. Provide hole, gasket, and flange at low point for watertight joint and 1" drain line connection.

2.9 PIPE SLEEVES

- A. Provide pipe sleeves of one of the following:
 - 1. Sheet-Metal: Fabricate from galvanized sheet metal; round tube closed with snap lock joint, welded spiral seams, or welded longitudinal joint. Fabricate from the following gauges: 3" and smaller, 20 gauge; 4" to 6" 16 gauge; over 6", 14 gauge.
 - 2. Steel-Pipe: Fabricate from Schedule 10 (minimum) steel pipe; remove burrs.
 - 3. Floor sleeves shall be provided with water stop around perimeter of sleeve.

PART 3 - EXECUTION**3.1 INSTALLATION OF PIPING SPECIALTIES**

- A. Pipe Escutcheons: Install pipe escutcheons on each pipe penetration through floors, walls, partitions, and ceilings where penetration is exposed to view; and on exterior of building. Secure escutcheon to pipe or insulation so escutcheon covers penetration hole, and is flush with adjoining surface.

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- B. Y-Type Strainers: Install Y-type strainers full size of pipeline, in accordance with manufacturer's installation instructions. Install pipe nipple and shutoff valve in strainer blow down connection, full size of connection, except for strainers 2" and smaller installed ahead of control valves feeding individual terminals. Where indicated, provide drain line from shutoff valve to plumbing drain, full size of blow down connection.
1. Locate Y-type strainers in supply line ahead of the following equipment, and elsewhere as indicated, if integral strainer is not included in equipment:
 - a. Pumps.
 - b. Steam traps serving steam main drips.
 - c. Temperature control valves.
 - d. Pressure reducing valves.
 - e. Temperature or pressure regulating valves.
- C. VANDAL PROOF Vent Caps: Install VANDAL PROOF vent caps on each vent pipe passing through roof, and elsewhere as indicated. Locate base of vent cap 6" above roof surface, or higher where require by Code.
- D. Dielectric Unions: Install at each piping joint between ferrous and non-ferrous piping. Comply with manufacturer's installation instructions.
- E. Mechanical Penetration Seals: Loosely assemble rubber links around pipe with bolts and pressure plates located under each bolt head and nut. Push into sleeve and center. Tighten bolts until links have expanded to form watertight seal.
- F. Fire Barrier Penetration Seals: Fill opening with sealing compound. Adhere to manufacturer's installation instructions.
- G. Drip Pans: Locate drip pans under piping passing over or within 3' horizontally of electrical equipment, and elsewhere as indicated. Hang from structure with rods and building attachments, weld rods to sides of drip pan. Brace to prevent sagging or swaying. Connect 1" drain line to drain connection, and run to nearest plumbing drain or elsewhere as indicated.
- H. Pipe Penetrations: Sleeve new construction or core drill existing construction pipe penetrations as specified below where piping passes through walls, floors, and roofs. Do not penetrate structural members, except as detailed on Drawings, or as reviewed by [Architect] Engineer. Install penetrations accurately centered on pipe runs. Size penetrations so that piping and insulation (if any) will have free movement in sleeve, including allowance for thermal expansion; but not less than two pipe sizes larger than piping run. Where insulation includes vapor-barrier jacket, provide penetration with sufficient clearance for installation. When sleeves are required, install length of sleeve equal to thickness of construction penetrated, and finish flush to surface; except floor sleeves. Extend floor sleeves two inches above finished floor. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeve. Pipe penetrations shall be as follows:
1. New floors on grade: Provide sleeved penetrations for all piping except piping two inches and less and waste, drain, and vent piping. Piping not requiring sleeves shall be provided with 30 lb. asphalt saturated roofing felt wrapped around pipe through the thickness of the floor with concrete floor placed up to roofing felt.
 2. New floors above grade: Provide sleeved penetrations for all piping.
 3. Existing Floors Above Grade: Provide core-drilled penetrations for all piping.
 4. New and Existing Walls: Provide sleeved or core drilled penetrations for all piping.
 5. Floor type drains, cleanouts, and water closet waste connections do not require sleeved or core drilled penetrations. Concrete shall be placed tight to connection.
- I. Pipe Sleeves: Install in accordance with the following:
1. Install sheet metal on steel pipe sleeves in interior walls.
 2. Install steel pipe sleeves in interior floors above grade.

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3. Install galvanized steel pipe sleeves in floors on grade and in exterior walls above grade and below grade.

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1. Install mineral wool/oakum seals as follows:
 - a. In interior walls where piping passes from one space to another, where any one of the spaces the piping penetration is not concealed by a ceiling. Caulk penetration watertight.
2. Install mechanical seals in accordance with manufacturers recommendations as follows:
 - a. In interior floors on grade.
 - b. In interior floors above grade, use three-hour fire rated type only.
 - c. In exterior walls above grade and below grade.
 - d. In all roof penetrations except vent piping, flue piping, roof or overflow drain piping or any other piping as otherwise detailed on Drawing.
3. Install fire barrier seals in accordance with manufacturers recommendations as follows:
 - a. In all floors above grade, roofs and fire rated walls.

END OF SECTION

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SECTION 15140

SUPPORTS AND ANCHORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of supports and anchors required by this section is indicated on Drawings and/or specified in other Division-15 sections.
- B. Types of supports and anchors specified in this section include the following:
 - 1. Pipe and equipment hangers, supports, and anchors.
 - 2. Equipment bases.
- C. Supports and anchors furnished as part of factory-fabricated equipment are specified as part of equipment assembly in other Division-15 sections.

1.2 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of supports and anchors, of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
 - 1. Code Compliance: Comply with applicable plumbing codes pertaining to product materials and installation of supports and anchors.
 - 2. Fire Protection Compliance: Install in accordance with NFPA 13-1987. Provide products that are UL-listed and FM approved.
 - 3. MSS Standard Compliance:
 - a. Provide pipe hangers and supports of which materials, design, and manufacture comply with MSS SP-58.
 - b. Select and apply pipe hangers and supports, complying with MSS SP-69.
 - c. Fabricate and install pipe hangers and supports, complying with MSS SP-89.
 - d. Terminology used in this section is defined in MSS SP-90.

1.3 SUBMITTALS

- A. Submit [product data] [shop drawings] and [maintenance data] as required under provisions of Division I and Section 15010.
- B. Product Data: Submit manufacturer's technical product data, including installation instructions for each type of support and anchor. Submit pipe hanger and support schedule showing Manufacturer's figure number, size, location, and features for each required pipe hanger and support.
- C. Shop Drawings: Submit manufacturer's assembly-type shop drawings for each type of support and anchor, indicating dimensions, weights, required clearances, and methods of assembly of components.
- D. Maintenance Data: Submit maintenance data and parts list for each type of support and anchor. Include this data, product data, and shop drawings in maintenance manual; in accordance with requirements of Division 1.

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PART 2 - PRODUCTS

2.1 HORIZONTAL-PIPING HANGERS AND SUPPORTS

- A. General: Except as otherwise indicated, provide factory-fabricated horizontal-piping hangers and supports complying with MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for copper-piping systems.
- B. Adjustable Steel Clevis Hangers: MSS Type 1.
- C. Yoke Type Pipe Clamps: MSS Type 2.
- D. Steel Double Bolt Pipe Clamps: MSS Type 3.
- E. Steel Pipe Clamps: MSS Type 4.
- F. Pipe Hangers: MSS Type 5.
- G. Adjustable Swivel Pipe Rings: MSS Type 6.
- H. Adjustable Steel Band Hangers: MSS Type 7.
- I. Adjustable Band Hangers: MSS Type 9.
- J. Adjustable Swivel Rings, Band Type: MSS Type 10.
- K. Split Pipe Rings: MSS Type 11.
- L. Extension Split Pipe Clamps: MSS Type 12.
- M. U-Bolts: MSS Type 24.
- N. Clips: MSS Type 26.
- O. Pipe Slides and Slide Plates: MSS Type 35, including one of the following plate types:
 - 1. Plate: Unguided type.
 - 2. Plate: Guided type.
 - 3. Plate: Hold-down clamp type.
- P. Pipe Saddle Supports: MSS Type 36, including steel pipe base-support and cast-iron floor flange.
- Q. Pipe Stanchion Saddles: MSS Type 37, including steel pipe base support and cast-iron floor flange.
- R. Adjustable Pipe Saddle Supports: MSS Type 38, including steel pipe base support and cast-iron floor flange.
- S. Single Pipe Rolls: MSS Type 41.

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- T. Adjustable Roller Hangers: MSS Type 43.
- U. Pipe Roll Stands: MSS Type 44.
- V. Pipe Rolls and Plates: MSS Type 45.
- W. Adjustable Pipe Roll Stands: MSS Type 46.

2.2 VERTICAL-PIPING CLAMPS

- A. General: Except as otherwise indicated, provide factory-fabricated vertical-piping clamps complying with MSS SP-58, of one of the following types listed, selected by Installer to suit vertical piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe. Provide copper-plated clamps for copper-piping systems.
- B. Two-Bolt Riser Clamps: MSS Type 8.
- C. Four-Bolt Riser Clamps: MSS Type 42.

2.3 HANGER-ROD ATTACHMENTS

- A. General: Except as otherwise indicated, provide factory-fabricated hanger-rod attachments complying with MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping hangers and building attachments, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hanger-rod attachments to suit hanger rods. Provide copper-plated hanger-rod attachments for copper-piping systems.
- B. Steel Turnbuckles: MSS Type 13.
- C. Steel Clevises: MSS Type 14.
- D. Swivel Turnbuckles: MSS Type 15.
- E. Malleable Iron Sockets: MSS Type 16.
- F. Steel Weldless Eye Nuts: MSS Type 17.

2.4 BUILDING ATTACHMENTS

- A. General: Except as otherwise indicated, provide factory-fabricated building attachments complying with MSS SP-58, of one of the following MSS types listed, selected by Installer to suit building substrate conditions, in accordance with MSS SP-69 and manufacturer's published product information. Select size of building attachments to suit hanger rods. Provide copper-plated building attachments for copper-piping systems.
- B. Top Beam C-Clamps: MSS Type 19.
- C. Side Beam or Channel Clamps: MSS Type 20.
- D. Center Beam Clamps: MSS Type 21.
- E. Welded Beam Attachments: MSS Type 22.

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- F. C-Clamps: MSS Type 23.
- G. Top Beam Clamps: MSS Type 25.
- H. Side Beam Clamps: MSS Type 27.
- I. Steel Beam Clamps W/Eye Nut: MSS Type 28.
- J. Linked Steel Clamps W/Eye Nut: MSS Type 29.
- K. Malleable Beam Clamps: MSS Type 30.
- L. Steel Brackets: One of the following for indicated loading:
 - 1. Light Duty: MSS Type 31, suspending 750 lbs. max.
 - 2. Medium Duty: MSS Type 32, suspending 1500 lbs. max.
 - 3. Heavy Duty: MSS Type 33, suspending 3000 lbs. max.
- M. Side Beam Brackets: MSS Type 34.
- N. Plate Lugs: MSS Type 57.
- O. Horizontal Travelers: MSS Type 58.

2.5 CONCRETE INSERTS

- A. Cast-In-Place Spot Type: Malleable iron, or steel with recommended insert nut. Size inserts nut to suit threaded hanger rod. MSS SP-69, Type 18.
- B. Drill-In Spot Type: Steel, attached wedge, lock washer and nut. Size inserts to suit threaded hanger rod.

Acceptable Manufacturers and Models:

Hilti	"Kwik Bolt"
Ramset	"Wedge Anchor"
Rawl	"Stud"

- C. Continuous Channel Type: Steel, anchoring lugs, with channel nuts, rated for 2000 lbs. per foot minimum load. Size channel nut to suit threaded hanger rod.

Acceptable Manufacturers and Models:

B-Line	B22
Elcen	1150
Unistrut	P3200

2.6 SADDLES AND SHIELDS

- A. General: Except as otherwise indicated, provide saddles or shields under piping hangers and supports, factory-fabricated, for all insulated piping. Size saddles and shields for exact fit to mate with pipe insulation.
- B. Protection Saddles: MSS Type 39; fill interior voids with segments of insulation matching adjoining insulation.
- C. Protection Shields: MSS Type 40; of length recommended by manufacturer to prevent crushing of insulation.

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- D. Thermal Hanger Shields: Constructed of 360° insert of high density, 125-psi compressive strength, water-proofed calcium silicate, encased in 360° sheet metal shield. Provide assembly of same thickness as adjoining insulation.
1. Manufacturer: Subject to compliance with requirements, provide thermal hanger shields of one of the following:
Elcen Metal Products Co.
Pipe Shields, Inc.

2.7 SPRING HANGERS AND SUPPORTS

- A. General: Except as otherwise indicated, provide factory-fabricated spring hangers and supports complying with MSS SP-58, of one of the following MSS types listed, selected by Installer to suit piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select spring hangers and supports to suit pipe size and loading.
- B. Restraint Control Devices: MSS Type 47.
- C. Spring Cushion Hangers: MSS Type 48.
- D. Spring Cushion Roll Hangers: MSS Type 49.
- E. Spring Sway Braces: MSS Type 50.
- F. Variable Spring Hangers: MSS Type 51; preset to indicated load and limit variability factor to 25%.
- G. Variable Spring Base Supports: MSS Type 52; preset to indicated load and limit variability factor to 25%; include load flange.
- H. Variable Spring Trapeze Hangers: MSS Type 53; preset to indicated load and limit variability factor to 25%.
- I. Constant Supports: Provide one of the following types, selected to suit piping system. Include auxiliary stops for erection and hydrostatic test, and field load-adjustment capability.
- Horizontal Type: MSS Type 54.
Vertical Type: MSS Type 55.
Trapeze Type: MSS Type 56.

2.8 MANUFACTURERS OF HANGERS AND SUPPORTS

- A. Manufacturer: Subject to compliance with requirements, provide hangers and supports of one of the following:
B-Line Systems Inc.
Fee & Mason Mfg. Co.; Div. Figgie International.
ITT Grinnel Corp.

2.9 MISCELLANEOUS MATERIALS

- A. Metal Framing: Provide products complying with NEMA STD ML 1.

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- B. Steel Plates, Shapes and Bars: Provide products complying with ASTM A 36.
- C. Cement Grout: Portland cement (ASTM C 150, Type I or Type III) and clean uniformly graded, natural sand (ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand, by volume, with minimum amount of water required for placement and hydration.
- D. Auxiliary Steel: Fabricate from steel shapes selected for loads required; weld steel in accordance with AWS standards.
- E. Pipe Guides: Provide factory-fabricated guides, of cast semi-steel or heavy fabricated steel, consisting of bolted two-section outer cylinder and base with two-section guiding spider bolted tight to pipe. Size guide and spiders to clear pipe and insulation (if any), and cylinder. Provide guides of length recommended by manufacturer to allow indicated travel.

2.10 ROOF EQUIPMENT SUPPORTS

- A. General: Construct roof equipment supports using minimum 18-ga galvanized steel with fully mitered and welded corners, 3" cant, internal bulkhead reinforcing, integral base plates, pressure treated wood nailer, and 18-ga galvanized steel counter flashing.
- B. Configuration: Construct of sizes as indicated, compensate for slope in roof so top of support is dead level.
- C. Manufacturer: Subject to compliance with requirements, provide roof equipment supports of one of the following:

Custom Curb, Inc.
Pate Co.
Thycurb Div.; Thybar Corp.

2.11 ROOF PIPING SUPPORTS

- A. Provide pillow block stands as manufactured by Miro Industries, Inc. or equal for supporting roof mounted gas piping: Model 1.5 or Model 3-R for pipe sizes up to 2". Install per manufacturer's instructions utilizing Miro Model 1.5 or Model 3-R spacers for additional height - do not use wood blocking under supports. Coordinate exact locations of supports with [Roofing] Contractor. [Roofing] Contractor shall provide pads under all supports.
- B. [Provide yoke type supports Model PS with roller hanger manufactured by Portable Pipe Hangers, Inc., or Model 8-H1R manufactured by Miro Industries, Inc., for supporting roof mounted piping. Coordinate exact locations of supports with [Roofing] contractor. [Roofing] Contractor shall provide pads under all supports.]

[Support roof mounted piping on treated 4" x 4" runners set in pitch pans. Secure piping to runner with strap. Coordinate exact locations of supports with [Roofing] contractor.]

- C. Provide adjustable height □Pipe-Prop□ supports as manufactured by JMB Industries ((817) 590-0120) or equal for supporting roof mounted condensate drain piping: for pipes up to 2". Supports shall consist of a molded base, a molded pipe support bracket, and a length of 3/4" UV-resistant CPVC piping between the base and pipe support bracket. The CPVC pipe shall be cut to length to provide the required elevation to maintain proper slope at each location. Install per manufacturer's instructions. Coordinate exact locations of supports with Contractor.

2.12 ROOF PENETRATION SYSTEMS

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- A. General: Construct roof penetration systems utilizing the “Alumi-Flash” system by Portals Plus, Inc., or equal by Thy-Curb.
- B. Each roof penetration shall include a spun aluminum base (“High” size if required due to the existing roof construction and any insulation thickness) and an EPDM rubber cap. Each rubber cap shall have a pre-molded pipe opening and shall be selected based on the actual pipe or conduit size required at each location. Secure each rubber cap to each pipe or conduit with the manufacturer’s recommended stainless steel gear clamp.
- C. Manufacturer: Subject to compliance with requirements, provide roof penetration systems of one of the following:

Portals Plus, Inc.	Ron Widby	800-774-5240
Thycurb Div.; Thybar Corp.	Jr. Gracia	972-416-6220

2.13 CONCRETE HOUSEKEEPING BASES

- A. Concrete housekeeping bases shall be in accordance with Division 3 and constructed of 4,000 psi concrete and reinforced with welded wire fabric in accordance with ASTM A 185 or deformed reinforcing bar in accordance with ASTM A 615, Grade 60.
- B. Reinforcement shall be provided for base thickness as follows unless otherwise noted:

<u>Thickness of Base</u>	<u>Size and Type of Reinforcement</u>	<u>Spacing and Location of Reinforcement</u>
4"	W 1.4 x 1.4 welded	6" x 6" at centerline of wire fabric of pad
8"	No. 4 bars	18" on center each way (3" from top of pad)
12"	No. 4 bars	16" on center each way (3" from top of pad)

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which supports and anchors are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 PREPARATION

- A. Proceed with installation of hangers, supports and anchors only after required building structural work has been completed in areas where the work is to be installed. Correct inadequacies including (but not limited to) proper placement of inserts, anchors and other building structural attachments.
- B. Prior to installation of hangers, supports, anchors and associated work, Installer shall meet at project site with Contractor, installer of each component of associated work, inspection and testing agency representatives (if any), installers of other work requiring coordination with work of this section and [Architect] Engineer for purpose of reviewing material selections and procedures to be followed in performing the work in compliance with requirements specified.

3.3 INSTALLATION OF BUILDING ATTACHMENTS

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- A. Install building attachments at required locations within concrete or on structural steel for proper piping support. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional at concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at all changes in direction of piping. Install concrete inserts before concrete is placed; fasten insert securely to forms. Where concrete with compressive strength less than 2500 psi is indicated, install reinforcing bars through openings at top of inserts.

3.4 INSTALLATION OF HANGERS AND SUPPORTS

- A. General: Install hangers, supports, clamps and attachments to support piping properly from building structure; comply with MSS SP-69. Install additional at concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at all changes in direction of piping. Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible. Install supports with maximum spacings complying with MSS SP-69. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Do not use wire or perforated metal to support piping, and do not support piping from other piping.
- B. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers and other accessories. Except as otherwise indicated for exposed continuous pipe runs, install hangers and supports of same type and style as installed for adjacent similar piping.
- C. Support fire-water piping independently of other piping.
- D. Prevent electrolysis in support of copper tubing by use of hangers and supports that are copper plated, or by other recognized industry methods.
- E. Support and laterally brace vertical pipe runs at every floor level and at intervals not to exceed 20'-0". Support vertical pipe with riser clamps installed below hubs, couplings or lugs welded to the pipe.
- F. Provisions for Movement:
 - 1. Install hangers and supports to allow controlled movement of piping systems and to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends and similar units.
 - 2. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
 - 3. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes, and so that maximum pipe deflections allowed by ANSI B31 Pressure Piping Codes are not exceeded.
- G. Insulated Piping: Comply with the following installation requirements.
 - 1. Clamps: Attach clamps, including spacers (if any), to piping with clamps projecting through insulation; do not exceed pipe stresses allowed by ANSI B31.
 - 2. Piping hangers shall be sized large enough to allow insulation to pass through. Hangers for piping 2-1/2" and greater shall be provided with pipe covering protection saddle, or high compressive strength insulation saddle. Hangers for piping 2" and less shall be provided with pipe covering shields. On cold or chilled water piping provide vapor barrier through hanger.

3.5 INSTALLATION OF ANCHORS

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- A. Install anchors at proper locations to prevent stresses from exceeding those permitted by ANSI B31, and to prevent transfer of loading and stresses to connected equipment.
- B. Fabricate and install anchor by welding steel shapes, plates and bars to piping and to structure. Comply with ANSI B31 and with AWS standards.
- C. Where expansion compensators are indicated, install anchors in accordance with expansion unit manufacturers written instructions, to limit movement of piping and forces to maximums recommended by manufacturer for each unit.
- D. Anchor Spacings: Where not otherwise indicated, install anchors at ends of principal pipe-runs, at intermediate points in pipe-runs between expansion loops and bends. Make provisions for preset of anchors as required to accommodate both expansion and Contraction of piping.

3.6 CONCRETE HOUSEKEEPING BASES

- A. Concrete housekeeping bases will be provided as work of Division 3. Furnish to Contractor, scaled layouts of all required bases, with dimensions of bases, and location to column centerlines. Furnish templates, anchor bolts, and accessories, necessary for base construction.
- B. Provide concrete housekeeping bases for all floor-mounted equipment furnished as part of the work of Division 15 in accordance with Division 3. Size bases to extend minimum of 4" beyond equipment base in any direction; and 4" above finished floor elevation, unless otherwise noted on Drawing. Construct of reinforced concrete, roughen floor slab beneath base for bond, and provide steel rod anchors between floor and base. Locate anchor bolts using equipment manufacturer's templates. Chamfer top and edge corners.

3.7 EQUIPMENT SUPPORTS

- A. Provide structural steel stands to support equipment not floor mounted or hung from structure. Construct of structural steel members or steel pipe and fittings. Provide factory-fabricated tank saddles for tanks mounted on steel stands.
- B. Furnish roof equipment supports to Contractor for installation as part of work of Division 7; not work of this section.

3.8 ADJUSTING AND CLEANING

- A. Hanger Adjustments: Adjust hangers so as to distribute loads equally on attachments.
- B. Support Adjustment: Provide grout under supports so as to bring piping and equipment to proper level and elevations.
- C. Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

END OF SECTION

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SECTION 15190

MECHANICAL IDENTIFICATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Extent of mechanical identification work required by this section is indicated on Drawings and/or specified in other Division 15 sections.
- B. Types of identification devices specified in this section include the following:
 - 1. Painted Identification Materials.
 - 2. Plastic Pipe Markers.
 - 3. Plastic Tape.
 - 4. Underground-Type Plastic Line Marker.
 - 5. Plastic Duct Markers.
 - 6. Valve Tags.
 - 7. Valve Schedule Frames.
 - 8. Engraved Plastic-Laminate Signs.
 - 9. Plastic Equipment Markers.
 - 10. Plasticize Tags.
- C. Mechanical identification furnished as part of factory-fabricated equipment, is specified as part of equipment assembly in other Division 15 sections.
- D. Refer to other Division 15 sections for identification requirements at central-station mechanical control center; not work of this section.
- E. Refer to NFPA 13-1994 for additional fire protection system identification requirements.
- F. Refer to Division 16 sections for identification requirements of electrical work; not work of this section.

1.2 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacturer of identification devices of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
 - 1. ANSI Standards: Comply with ANSI A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for each identification material and device required.

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- B. Samples: Submit samples of each color, lettering style and other graphic representation required for each identification material or system.
- C. Schedules: Submit valve schedule for each piping system, typewritten and reproduced on 8-1/2" x 11" bond paper. Tabulate valve number, piping system, system abbreviation (as shown on tag), location of valve (room or space), and variations for identification (if any). Mark valves which are intended for emergency shut-off and similar special uses, by special "flags", in margin of schedule. In addition to mounted copies, furnish extra copies for Maintenance Manuals as specified in Division 1.
- D. Maintenance Data: Include product data and schedules in maintenance manuals; in accordance with requirements of Division 1.

PART 2 - PRODUCTS**2.1 ACCEPTABLE MANUFACTURERS**

- A. Manufacturer: Subject to compliance with requirements, provide mechanical identification materials of one of the following:
 - 1. Allen Systems, Inc.
 - 2. Brady (WHO) Co.; Signmark Div.
 - 3. Industrial Safety Supply Co., Inc.
 - 4. Seton Name Plate Corp.

2.2 MECHANICAL IDENTIFICATION MATERIALS

- A. General: Provide manufacturer's standard products of categories and types required for each application as referenced in other Division 15 sections. Where more than single type is specified for application, selection is Installer's option, but provide single selection for each product category.

2.3 PAINTED IDENTIFICATION MATERIALS

- A. Stencils: Standard fiberboard stencils, prepared for required applications with letter sizes generally complying with recommendations of ANSI A13.1 for piping and similar applications, but not less than 1-1/4" high letters for ductwork and not less than 3/4" high letters for access door signs and similar operational instructions.
- B. Stencil Paint: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.
- C. Identification Paint: Standard identification enamel of colors indicated or, if not otherwise indicated for piping systems, comply with ANSI A13.1 for colors.

2.4 PLASTIC PIPE MARKERS

- A. Snap-On Type: Provide manufacturer's standard pre-printed, semi-rigid snap-on, color-coded pipe markers, complying with ANSI A13.1.
- B. Pressure-Sensitive Type: Provide manufacturer's standard pre-printed, permanent adhesive, color-coded, and pressure-sensitive vinyl pipe markers, complying with ANSI A13.1.

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- C. Insulation: Furnish 1" thick molded fiberglass insulation with jacket for each plastic pipe marker to be installed on un-insulated pipes subjected to fluid temperatures of 125°F (52°C) or greater. Cut length to extend 2" beyond each end of plastic pipe marker.
- D. Small Pipes: For external diameters less than 6" (including insulation if any), provide full-band pipe markers, extending 360° around pipe at each location, fastened by one of the following methods:
1. Snap-on application of pre-tensioned semi-rigid plastic pipe marker.
 2. Adhesive lap joint in pipe marker overlap.
 3. Laminated or bonded application of pipe marker to pipe (or insulation).
 4. Taped to pipe (or insulation) with color-coded plastic adhesive tape, not less than 3/4" wide; full circle at both ends of pipe marker, tape lapped 1-1/2".
- E. Large Pipes: For external diameters of 6" and larger (including insulation if any), provide either full-band or strip-type pipe markers, but not narrower than 3 times letter height (and of required length), fastened by one of the following methods:
1. Laminated or bonded application of pipe marker to pipe (or insulation).
 2. Taped to pipe (or insulation) with color-coded plastic adhesive tape, not less than 1-1/2" wide; full circle at both ends of pipe marker, tape lapped 3".
 3. Strapped-to-pipe (or insulation) application of semi-rigid type, with manufacturer's standard stainless steel bands.
- F. Lettering: Manufacturer's standard pre-printed nomenclature that best describes piping system in each instance, as selected by [Architect] Engineer in cases of variance with name as shown or specified.
- G. Lettering: Comply with piping system nomenclature as specified, scheduled or shown, and abbreviate only as necessary for each application length.
1. Arrows: Print each pipe marker with arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions), or as separate unit of plastic.

2.5 PLASTIC DUCT MARKERS

- A. General: Provide manufacturer's standard laminated plastic, color-coded duct markers. Conform to the following color code:
- Green: Cold air.
Yellow: Hot air.
Yellow/Green: Supply air.
Blue: Exhaust, outside, return, and mixed air.
1. For hazardous exhausts, use colors and designs recommended by ANSI A13.1.
- B. Nomenclature: Include the following:
1. Direction of airflow.

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2. Duct service (supply, return, exhaust, etc.).
3. Duct origin (from).
4. Duct destination (to).
5. Design CFM.

2.6 PLASTIC TAPE

- A. General: Provide manufacturer's standard color-coded pressure-sensitive (self-adhesive) vinyl tape, not less than 3 mils thick.
- B. Width: Provide 1-1/2" wide tape markers on pipes with outside diameters (including insulation, if any) of less than 6", 2-1/2" wide tape for larger pipes.
- C. Color: Comply with ANSI A13.1, except where another color selection is indicated.

2.7 UNDERGROUND-TYPE PLASTIC LINE MARKERS

- A. General: Manufacturer's standard permanent, bright-colored, continuous-printed plastic tape, intended for direct-burial service; not less than 6" wide x 4 mils thick. Provide tape with printing which most accurately indicates type of service of buried pipe.
 1. Provide multi-ply tape consisting of solid aluminum foil core between 2-layers of plastic tape.

2.8 VALVE TAGS

- A. Brass Valve Tags: Provide 19-gauge polished brass valve tags with stamp-engraved piping system abbreviation in 1/4" high letters and sequenced valve numbers \square " high, and with 5/32" hole for fastener.
 1. Provide 1+" diameter tags, except as otherwise indicated.
 2. Provide size and shape as specified or scheduled for each piping system.
 3. Fill tag engraving with black enamel.
- B. Plastic Laminate Valve Tags: Provide manufacturer's standard 3/32" thick engraved plastic laminate valve tags, with piping system abbreviation in 1/4" high letters and sequenced valve numbers \square " high, and with 5/32" hole for fastener.
 1. Provide 1-1/2" sq. black tags with white lettering, except as otherwise indicated.
 2. Provide size, shape and color combination as specified or scheduled for each piping system.
- C. Plastic Valve Tags: Provide manufacturer's standard solid plastic valve tags with printed enamel lettering, with piping system abbreviation in approximately 3/16" high letters and sequenced valve numbers approximately 3/8" high, and with 5/32" hole for fastener.
 1. Provide 1-1/8" sq. white tags with black lettering.
 2. Provide size, shape and color combination as specified or scheduled for each piping system.
- D. Valve Tag Fasteners: Provide manufacturer's standard solid brass chain (wire link or beaded type), or solid brass S-hooks of the sizes required for proper attachment of tags to valves, and manufactured specifically for that purpose.

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- E. Access Panel Markers: Provide manufacturer's standard 1/16" thick engraved plastic laminate access panel markers, with abbreviations and numbers corresponding to concealed valve. Include 1/8" center hole to allow attachment.

2.9 VALVE SCHEDULE FRAMES

- A. General: For each page of valve schedule, provide glazed display frame, with screws for removable mounting on masonry walls. Provide frames of finished hardwood or extruded aluminum, with SSB-grade sheet glass.

2.10 ENGRAVED PLASTIC-LAMINATE SIGNS

- A. General: Provide engraving stock melamine plastic laminate, complying with FS L-P-387, in the sizes and thicknesses indicated, engraved with engraver's standard letter style of the sizes and wording indicated, black with white core (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
- B. Thickness: 1/16", except as otherwise indicated.
- C. Thickness: 1/8", except as otherwise indicated.
- D. Thickness: 1/16" for units up to 20 sq. in. or 8" length; 1/8" for larger units.
- E. Fasteners: Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate the substrate.

2.11 PLASTIC EQUIPMENT MARKERS

- A. General: Provide manufacturer's standard laminated plastic, color-coded equipment markers. Conform to the following color code:
 - 1. Green: Cooling equipment and components.
 - 2. Yellow: Heating equipment and components.
 - 3. Yellow/Green: Combination cooling and heating equipment and components.
 - 4. Brown: Energy reclamation equipment and components.
 - 5. Blue: Equipment and components that do not meet any of the above criteria.
 - 6. Red: Fire protection equipment and components.
 - 7. For hazardous equipment, use colors and designs recommended by ANSI A13.1.
- B. Nomenclature: Include the following, matching terminology on schedules as closely as possible:
 - 1. Name and plan number.
 - 2. Equipment service.
 - 3. Design capacity.
 - 4. Other design parameters such as pressure drop, entering and leaving conditions, rpm, etc.
- C. Size: Provide approximate 2-1/2" x 4" markers for control devices, dampers, and valves; and 4-1/2" x 6" for equipment.

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2.12 PLASTICIZE TAGS

- A. General: Manufacturer's standard pre-printed or partially pre-printed accident-prevention tags, have plasticize card stock with matt finish suitable for writing, approximately 3-1/4" x 5-5/8", with brass grommets and wire fasteners, and with appropriate pre-printed wording including large-size primary wording (as examples; DANGER, CAUTION, DO NOT OPERATE).

2.13 LETTERING AND GRAPHICS

- A. General: Coordinate names, abbreviations and other designations used in mechanical identification work, with corresponding designations shown, specified or scheduled. Provide numbers, lettering and wording as indicated or, if not otherwise indicated, as recommended by manufacturers or as required for proper identification and operation/maintenance of mechanical systems and equipment.

1. Multiple Systems: Where multiple systems of same generic name are shown and specified, provide identification that indicates individual system number as well as service (as examples; Boiler No. 3, Air Supply No. 1H, Standpipe F12).

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

- A. Coordination: Where identification is to be applied to surfaces that require insulation, painting or other covering or finish, including valve tags in finished mechanical spaces, install identification after completion of covering and painting. Install identification prior to installation of acoustical ceilings and similar removable concealment.

3.2 DUCTWORK IDENTIFICATION

- A. General: Identify air supply, return, exhaust, intake and relief ductwork with duct markers; or provide stenciled signs and arrows, showing ductwork service and direction of flow, in black or white (whichever provides most contrast with ductwork color).
- B. Location: In each space where ductwork is exposed, or concealed only by removable ceiling system, locate signs near points where ductwork originates or continues into concealed enclosures (shaft, underground or similar concealment), and at 50' spacings along exposed runs.
- C. Access Doors: Provide duct markers or stenciled signs on each access door in ductwork and housings, indicating purpose of access (to what equipment) and other maintenance and operating instructions, and appropriate safety and procedural information.
- D. Concealed Doors: Where access doors are concealed above acoustical ceilings or similar concealment, plasticize tags may be installed for identification in lieu of specified signs, at Installer's option.

3.3 PIPING SYSTEM IDENTIFICATION

- A. General: Install pipe markers of one of the following types on each system indicated to receive identification, and include arrows to show normal direction of flow:
1. Stenciled markers, including color-coded background band or rectangle, and contrasting lettering of black or white. Extend color band or rectangle 2" beyond ends of lettering.
 2. Stenciled markers, with lettering color complying with ANSI A13.1.

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3. Plastic pipe markers, with application system as indicated under "Materials" in this section. Install on pipe insulation segment where required for hot non-insulated pipes.
 4. Stenciled markers, black or white for best contrast, wherever continuous color-coded painting of piping is provided.
- B. Locate pipe markers and color bands as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums) and exterior nonconcealed locations.
1. Near each valve and control device.
 2. Near each branch, excluding short take-offs for fixtures and terminal units; mark each pipe at branch, where there could be question of flow pattern.
 3. Near locations where pipes pass through walls or floors/ceilings, or enter non-accessible enclosures.
 4. At access doors, manholes and similar access points that permit view of concealed piping.
 5. Near major equipment items and other points of origination and termination.
 6. Spaced intermediately at maximum spacing of 50' along each piping run, except reduce spacing to 25' in congested areas of piping and equipment.
 7. On piping above removable acoustical ceilings, except omit intermediately spaced markers.
- C. Piping Identification
1. Provide piping identification for the following:

<u>System</u>	<u>Background Color</u>	<u>Text Color</u>
Chilled Water Supply	Green	White
Chilled Water Return	Green	White
Heating Water Supply	Green	White
Heating Water Return	Green	White
Condenser Water Supply	Green	White
Condenser Water Return	Green	Black
Pumped Condensate Return	Yellow	Yellow
Steam (* psi)	Yellow	Black
Condensate Return (* psi)	Yellow	Black
Domestic Cold Water	Green	White
Domestic Hot Water	Yellow	Black
Domestic Hot Water-Recirculated	Yellow	Black
Compressed Air	Blue	White
Natural Gas	Yellow	Black

CONTRACTOR SHALL IDENTIFY SPECIFIC PRESSURE FOR EACH STEAM SYSTEM

Fire Protection	Red	White
Storm Drain	Green	White
Overflow Drain	Green	White

Jefferson County Office Building – Port Arthur**3.4 UNDERGROUND PIPING IDENTIFICATION**

- A. General: During back-filling/top-soiling of each exterior underground piping systems, install continuous underground-type plastic line marker, located directly over buried line at 6" to 8" below finished grade. Where multiple small lines are buried in common trench and do not exceed overall width of 16", install single line marker. For tile fields and similar installations, mark only edge pipelines of field.

3.5 VALVE IDENTIFICATION

- A. General: Provide valve tag on every valve, cock and control device in each piping system; exclude check valves, valves within factory-fabricated equipment units, plumbing fixture faucets, convenience and lawn-watering hose bibs, and shut-off valves at plumbing fixtures, HVAC terminal devices and similar rough-in connections of end-use fixtures and units. List each tagged valve in valve schedule for each piping system.
1. Tagging Schedule: Comply with requirements of "Valve Tagging Schedule" at end of this section.
- B. Mount valve schedule frames and schedules in machine rooms where indicated or, if not otherwise indicated, where directed by [Architect] Engineer.
1. Where more than one major machine room is shown for project, install mounted valve schedule in each major machine room, and repeat only main valves which are to be operated in conjunction with operations of more than single machine room.

3.6 MECHANICAL EQUIPMENT IDENTIFICATION

- A. General: Install engraved plastic laminate sign or plastic equipment marker on or near each major item of mechanical equipment and each operational device, as specified herein if not otherwise specified for each item or device. Provide signs for the following general categories of equipment and operational devices:
1. Main control and operating valves, including safety devices and hazardous units such as gas outlets.
 2. Meters, gauges, thermometers and similar units.
 3. Fuel-burning units including boilers, furnaces, heaters, stills and absorption units.
 4. Pumps, compressors, chillers, condensers and similar motor-driven units.
 5. Heat exchanger, coils, evaporators, cooling towers, heat recovery units and similar equipment.
 6. Fans, blowers, primary balancing dampers and mixing boxes.
 7. Packaged HVAC central-station and zone-type units.
 8. Tanks and pressure vessels.
 9. Strainers, filters, humidifiers, water treatment systems and similar equipment.
- B. Optional Sign Types: Where lettering larger than 1" height is needed for proper identification, because of distance from normal location of required identification, stenciled signs may be provided in lieu of engraved plastic, at Installer's option.

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- C. Lettering Size: Minimum 1/4" high lettering for name of unit where viewing distance is less than 2'-0", □" high for distances up to 6'-0", and proportionately larger lettering for greater distances. Provide secondary lettering 2/3 to 3/4 of size of principal lettering.
- D. Text of Signs: In addition to name of identified unit, provide lettering to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.
- E. Optional Use of Plasticize Tags: At Installer's option, where equipment to be identified is concealed above acoustical ceiling or similar concealment, plasticize tags may be installed within concealed space to reduce amount of text in exposed sign (outside concealment).
 - 1. Operational valves and similar minor equipment items located in non-occupied spaces (including machine rooms) may, at Installer's option, be identified by installation of plasticize tags in lieu of engraved plastic signs.

3.7 ADJUSTING AND CLEANING

- A. Adjusting: Relocate any mechanical identification device, which has become visually blocked by work of this division or other divisions.
- B. Cleaning: Clean face of identification devices, and glass frames of valve charts.

3.8 EXTRA STOCK

- A. Furnish minimum of 5% extra stock of each mechanical identification material required, including additional numbered valve tags (not less than 3) for each piping system, additional piping system identification markers, and additional plastic laminate engraving blanks of assorted sizes.
 - 1. Where stenciled markers are provided, clean and retain stencils after completion of stenciling and include used stencils in extra stock, along with required stock of stenciling paints and applicators.

END OF SECTION

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SECTION 15200

HEATING, VENTILATING & AIR CONDITIONING

PART 1 - GENERAL

1.1 GENERAL

- A. All work shall be in accordance with the "General Conditions", "Supplemental Conditions" and the "General Requirements for Mechanical Work".
- B. All work shall be in accordance with City Building, Plumbing and Mechanical Codes and with all state and national codes as they may apply to the project and to public safety.
- C. All hardware/software being furnished as part of this project shall be compliant and fully functional without any further modification required to assure continuous operation for the year 2000 and beyond.

1.2 SCOPE OF WORK

- A. It is the intent that the contractor shall install a complete and operable heating, ventilating, and air conditioning (HVAC) system, fully adjusted and ready for use.
- B. Materials and equipment have been carefully selected for the project. The Contractor is expected to furnish and install items that the specification required as closely as possible.
- C. The drawings accompanying these specifications show the extent of the HVAC work and the general arrangement. The drawings, however, are diagrammatic and exact layout of the systems is the responsibility of the Contractor.
- D. The Contractor shall pay all fees and charges to City or other agencies.

1.3 HVAC SUBMITTAL

- A. The Contractor shall check all items of submittal data and verify by statement and initial that each item has been checked for the following conditions:
 - 1. Item is equal to specified item in construction and quality.
 - 2. Item is of the same physical size. If not of the same physical size, the dimensions have been checked and item will fit within the allocated space shown on the drawings. Where items proposed are different than scheduled item, furnish 1/4" scale plan and 1/4" sections on tracing paper (for direct overlay) of proposed equipment including space required for connections or service. The tracing of 1/4" plans and 1/4" sections must be furnished in submittal for other than scheduled equipment in order to compare proposed equipment with scheduled equipment.
 - 3. System connections to the item can be made as shown on the drawings.
 - 4. Shop drawings show in detail all connections, etc., required to meet the overall specifications in every detail.
 - 5. Statement of guarantee that the proposed equipment shall operate properly as applied to the project and will not require additional devices or changes in the installation shown on the drawings.
- B. Complete specification data shall be submitted for all HVAC items, including the list below:

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1. Air Conditioning Units
 2. Exhaust fans
 3. Controls
 4. Insulation
 5. Air distribution devices
- C. In addition to the above, provide an individual fan curve for each fan provided as a part of this project. Each submitted fan curve shall have the design operating point clearly indicated.

PART 2 - MATERIALS**2.1 DUCTWORK SYSTEMS**

- A. Duct material shall be hot dip galvanized, zinc-coated sheet steel, except where otherwise noted, of the thickness, and with stiffeners, as indicated in the SMACNA manual.
- B. All ductwork shall be constructed and erected in a workmanlike manner. Ducts shall be straight and smooth on the inside with neatly finished joints, airtight, and shall be free from vibration under all conditions of operation. The internal ends of slip joints shall be made in the direction of airflow. The ducts shall be securely attached to the building construction in an approved manner. Changes in dimensions and shape of ducts shall be gradual. All duct sizes shall be within the limiting dimensions indicated on the drawings unless otherwise approved. Curved elbows, unless otherwise specified on the drawings, shall have a centerline radius equal to 1-1/2 times the width of the duct. Air turns shall be installed in all abrupt elbows and shall consist of curved metal blades or vanes, arranged to permit the air to make the turns without appreciable turbulence. They shall be of the manufacturer's standard products and shall be quiet when the system is in operation. Configuration of ducts shall be as shown on the drawings. Flexible ductwork shall be equal to Genflex Type SLR. All ductwork shall be constructed in accordance with ASHRAE Guide and SMACNA Manual.
- C. Install fire dampers where shown on the drawing and as required by NFPA Pamphlet No. 90A-1993 or the local codes. Provide an access door for each fire damper. Fire dampers shall have UL label. Damper shall have the same clear inside duct dimensions as the duct in which it is installed, (Type B).
- D. Motor-Driven Fire/Smoke Dampers: Provide motor-driven combination fire/smoke dampers in types and sizes required, with casing constructed of 16-ga galvanized steel hat channel, mill galvanized finish, fusible link rated for 160 to 165°F, with 16-ga galvanized steel blades (8" maximum blade width), and 250°F rated motor. Provide solid steel blade axles; oil impregnated bronze bearings, stainless steel compression side jamb seals and minimum 20-ga galvanized steel sleeves for entire unit. All units are to be UL 555S Leakage Class III for smoke damper air leakage, and in accordance with UL Standards 555 and 555S. Provide each unit with wire leads for connecting to the smoke detector or control. Each unit shall have the motor mounted outside the air stream.
- E. Wherever ductwork is connected to fans, air handling unit or other equipment that may cause vibration in the duct, the connection to the equipment shall be by means of a flexible connection constructed of fire resistant flexible canvas or other approved material. The connection shall be suitable for the pressures at the point of installation.
- F. Ductwork shall be insulated as noted on the drawings or as specified herein. Insulation for all supply, return, ductwork above ceilings or in interior mechanical rooms shall be 1" thick Check local codes for thickness duct wrap insulation faced with aluminum foil, backed with a 40-pound Kraft paper (FRK), or approved equal. Insulation for ductwork outside the building, or inside the

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- building but outside the building insulation envelope, shall be 2" thick [Check local code] duct wrap insulation, faced with aluminum foil, backed with a 40-pound Kraft paper (FRK). Insulation and covering shall have a flame-spread rating of not over 25, smoke development of 50, and fuel contributed of 50.
- G. Where board type insulation is specified, impale insulation over 12 gauge mechanical fasteners, such as weld pins of 12 to 18 inch centers tightly butting insulation. A minimum of two rows of fasteners per side shall be used. Seal protruding pin with OFF fitting mastic Type C. Secure insulation with OFF white painted caps to pins. Apply OFF joint sealing tape, Type C to all joints, firmly pressing to insure complete bond.
 - H. Equivalent size (based on equivalent pressure loss) round duct may be used in lieu of rectangular duct.

2.2 ACOUSTICAL LINING

- A. Supply and return air ductwork shall have 1" acoustical lining where specified and/or indicated. Install acoustical lining in ducts, plenums and sheet metal housings.
- B. The work shall comply with the requirements and recommendations of SMACNA "Duct-liner Application Standard".
- C. Lining shall be PPG "textrafine", or equal, neoprene coated flexible fiberglass duct liner, 1.5 lb. per cu. ft. density, 1" thick unless otherwise indicated on the plans.
- D. Duct Liner Adhesive: Comply with ASC-A-7001A by the Adhesive and Sealant Council, Inc. (See SMACNA Standards).
- E. Duct Liner Fasteners: Comply with SMACNA Mechanical Fasteners Standards, MF-1971.
- F. Cut lining to fit area to be covered in one piece and to butt against lining in adjacent duct sections.
- G. Lining shall be applied with adhesive and additionally secured to the sheet metal with weld pins and speed clips used approximately on 15" center.
- H. Entire installation shall be done in a neat and workmanlike manner. Work shall be done in accordance with manufacturer's recommendations.
- I. Internally lined ductwork may have duct wrap requirement reduced by 1" thickness.
- J. All supply and return ductwork serving [air handlers,] [furnace units,] [rooftop units] shall be lined with 1" thick acoustical lining for 10 feet from the unit.
- K. All duct dimensions shown on drawings are net inside clear dimensions.

2.3 CEILING VENTILATORS

- A. Centrifugal Ceiling Exhausters: Provide centrifugal ceiling exhausters, designed for ceiling or wall mounting, of type, size and capacity as scheduled.
- B. Provide AMCA Certified Ratings Seal.
- C. Type: Provide galvanized steel housing lined with acoustical insulation, adaptable for ceiling or wall installation. Provide centrifugal fan wheels mounted on motor shaft with fan shrouds, all removable for service. Provide integral back draft damper fan discharge.

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- D. Grille: Provide stainless steel louvered grille with flange on intake with thumbscrew attachment to fan housing.
- E. Motor: Provide permanent split capacitor motor, permanently lubricated, with grounded cord and plug.
- F. Electrical: Provide junction box for electrical connection on housing, and receptacle for motor plug in. Furnish remote fan speed control, solid state, capable of controlling fan speed from full speed to approximately half speed.
- G. Accessories: Provide manufacturer's standard roof jack, and transition fittings as indicated on Drawings or schedules.
- H. Manufacturer: Subject to compliance with requirements, provide centrifugal ceiling exhausters of one of the following:
 - 1. Loren Cook Co.
 - 2. Greenheck
 - 3. Acme
 - 4. Briedert

2.4 AIR DISTRIBUTION DEVICES

- A. Furnish and install air distribution devices as indicated on the drawings and herein specified. All units shall be constructed to have a neat, well-made appearance. Grille framework shall be rigidly constructed; flange corners shall be mitered and supported for a hairline crack. All face bars shall be of heavy gauge metal to adequately resist bending or twisting and fit tightly and closely within the framework. The units shall have a neck to slip inside ductwork for an airtight noiseless connection. Units not meeting the above specifications shall be rejected at the job site.
- B. It is the Contractor's responsibility to check the architectural drawings to supply the proper air diffusers and adapting framework for the type of construction at each outlet. The frame shall be of the same finish as the unit and be of a configuration the manufacturer recommends for the construction involved. The outlets shall fit the construction with no addition expense to the owner. All registers and grilles shall have a separate mounting frame in gypsum board walls and ceilings.
- C. The manufacturer furnishing the air devices shall verify sizes against CFM requirements for each device to get the intended throw and be without objectionable noise when the device is applied to the system. He shall coordinate any approved differences from the drawings with the Contractor. It shall be the Contractor's responsibility to furnish proper framework and boots, and to install the devices approved.
- D. All return and discharge air diffusers shall be installed in the same configuration; i.e. all return grilles shall be mounted to have prominent bar horizontal.
- E. All supply air devices shall have an opposed blade damper, or approved equal, volume control device at locations where more than one unit is connected to the same supply duct, unless otherwise noted in the schedule.
- F. The Contractor shall furnish the air distribution devices as scheduled.

2.5 PACKAGE GAS HEATING AND ELECTRIC COOLING UNIT

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- A. The unit shall be of the completely self-contained type with factory wired controls and factory assembled components and piping. The unit shall be completely weatherized for mounting on the roof or at grade level as indicated. The American Gas Association as a single horizontal package heating/cooling unit for outdoor installation shall approve the unit. Unit shall be tested and approved in compliance with USA Safety Code for mechanical refrigeration.
- B. The capacity of the units shall be as scheduled.
- C. The casing shall be constructed of zinc-coated steel, phosphatized with epoxy resin primer and finished with enamel for weatherproof protection. All cabinet panels shall be 16 and 18 gauge steel. Removable panels shall provide access to all working parts, components and connections for installation and service. One-inch foil-faced glass fiber insulation shall be provided in evaporator-heat exchanger enclosure. Flanged openings for supply and return of conditioned air shall be provided.
- D. Condenser fans shall be statically and dynamically balanced, weatherproofed, and shall be powered by heavy duty, permanently lubricated bearing motors with thermal overload protection. Fan bearings shall be lubricated, designed for outdoor installation and with integral wear slinger devices. Fans shall be of propeller type.
- E. Motor compressor unit shall be of the hermetic type.
- F. Condenser and cooling coils shall be of the direct expansion type with capacity to provide the net refrigerant capacity scheduled. Condenser coils shall be equipped with expanded metal type hail guard.
- G. Supply air fan shall be of the squirrel cage centrifugal type with permanently lubricated lifetime ball bearings.
- H. Heat exchanger shall have capacity as scheduled and shall be constructed of heavy gauge aluminized steel. Heat exchanger shall have ten-year warranty.
- I. Unit shall have manufacturer's standard fiberglass throwaway filters.
- J. Controls shall be mounted in separate panel on side of unit for installation and service access. Refrigeration cycle controls shall include compressor contactors, condenser and evaporator fan contactors, 24-volt transformers, low and high-pressure cutouts, liquid line valves for system pump down and compressor protection cutout with reset. Units shall be equipped with combination fan and limit controls, pressure regulator, manual pilot valve and main shut-off valve. All units shall have automatically resetting electric glow coil pilot re-ignition system. Glow coil shall only be energized during pilot outage. If gas service is interrupted, the pilot shall be re-ignited by the thermostat reset within the building.
- K. Compressor shall have five year warranty including parts and labor.
- L. The contractor shall do initial start-up and adjustment of units.
- M. Unit shall have outside/return air damper for minimum CFM outside air and for full vent cycle. Vent (economizer) cycle shall operate through the primary temperature controls to automatically utilize outdoor air for "free" cooling. Automatically modulated return and outdoor air dampers shall maintain proper temperature into the conditioned space. System shall be equipped with an automatic lockout when the outdoor enthalpy temperature is too high for proper cooling. Adjustable minimum position control shall be located on the damper motor. A spring return motor shall ensure closure of outdoor air dampers during unit shutdown or power interruption. Mechanical cooling shall be available to aid the economizer cycle at any ambient. A mixed air low

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- limit shall begin modulating dampers closed at discharge temperature of 62°F. Minimum damper position shall be reached at 50°F discharge temperature.
- N. When equipment other than specified is proposed, the Contractor shall be responsible for the proper design and installation of electrical power to equipment. Submit listing of electrical feeder size, conduit size, breaker size, etc., for each item of equipment for review.
 - O. The contractor shall for each air handling system with 2000 CFM (nominal 5 Tons) or greater, install UL-listed ionization smoke detectors in the [main supply air duct and] main return air duct, and/or where shown on the drawings. Smoke detectors furnished by Division 16. Refer to Section 15012. Connect the detectors into the control circuit to stop the fan in the event of the presence of smoke.
 - P. Carrier, Trane, York or Lennox shall manufacture units.

2.6 AIR HANDLING UNIT

- A. General - Furnish and install a blower-coil-filter unit. The unit shall be a standard product of a firm regularly engaged in the manufacture of heating-cooling equipment. The manufacturer shall have parts and service available throughout the United States. Units shall be as manufactured by Mitsubitsi or Carrier.
- B. The equipment shall be shipped assembled ready for necessary field connections. Blower motor and pulley shall be shipped separate and field installed. Units shall have horizontal air distribution as indicated or required.
- C. DX Cooling System - The total certified cooling capacity shall not be less than scheduled Btuh with an evaporator air volume as scheduled.
- D. The coil shall be non-ferrous construction with aluminum fins machine fitted to copper tubes. Coil shall be factory pressure leak tested.
- E. Air Movers - Centrifugal conditioned air blowers shall have statically and dynamically balanced, forwardly curved, double inlet blower wheels, permanently lubricated bearings, adjustable belt drives with capacities as scheduled.
- F. Cabinet - The unit cabinet shall be constructed of galvanized steel with a baked-on enamel finish. Panels shall be insulated with not less than one-inch thick fiberglass insulation. Cabinet shall be equipped with large removable panels providing service access to interior. Inlets shall be provided for refrigerant line and power connection entry. Dual drain connections shall be accessible external to the cabinet.
- G. Air Filters - Manufacturer's standard throwaway filters shall be furnished. Filter rack shall be integral to the unit casing and shall be capable of holding optional cleanable filters.

2.7 AIR COOLED CONDENSING UNIT

- A. General - Furnish and install an air-cooled condensing unit. The unit shall be shipped completely factory assembled, piped and wired internally ready for field connections. In addition, manufacturer shall test operate unit at the factory before shipment. The condensing unit shall be a standard product of a firm regularly engaged in the manufacturer of heating-cooling equipment. The manufacturer shall have parts and service available throughout the United States. Units shall be as manufactured by Carrier, Trane, York or Lennox.
- B. Cooling Capacity - The total cooling capacity shall be as scheduled.

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- C. Compressor - Units shall be single speed compressors or two speed compressors providing staging control to deliver varying cooling load requirements. Compressor shall be resiliently mounted, suction cooled, overload protected, internal pressure relief protected and have internal excessive current and temperature protection. Shall have vertical crankshaft, ringed valves and piston, tuned discharge muffler, efficient oil pump and crankcase heater.
- D. Refrigerant System - Shall include liquid line service valve, suction line service valve, gauge ports, hi-capacity drier, thermometer well, high and low pressure switches and timed-off control.
- E. Condenser Coil(s) - Coils(s) shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coil(s) shall be pressure leak tested. Coil(s) shall be protected with expanded metal type hail guard(s).
- F. Casing - Shall be constructed of galvanized steel that has been through a metal wash preparation and have a finish coat of baked-on outdoor enamel. Large access panel shall be provided to allow complete service. The base section shall be provided with moisture removal openings. Openings shall be provided for refrigerant lines and power connection entry.
- G. Air Mover - Shall be direct blade type fan(s). Motor(s) shall have inherent protection devices and shall be protected from moisture. Fan(s) shall be protected with steel guard(s).
- H. All wiring shall be in compliance with NEC. Shall be rated in accordance with ARI Standard 210-81 and 360-86. Units shall have UL listing. Units shall have ETL Testing Laboratories listing where applicable.
- I. Warranty - The compressor shall have a warranty for five years. All other components shall have a warranty for one year.

2.8 REFRIGERANT PIPING

- A. Pipe material shall be Type "L" copper tubing, hard drawn with copper solder type fittings suitable for connection with silver solder. Soft drawn copper "pre-charged" refrigerant piping shall be acceptable for split-system units where developed length from evaporator to condensing units is within manufacturer's guidelines.
- B. All piping shall be installed parallel or perpendicular to the building construction. All piping shall be installed so as to allow for expansion.
- C. All piping joints shall be made with silver solder. The piping shall be charged with dry nitrogen while constructing the joints. A removable type drier strainer shall be installed in the liquid line. After the Freon piping has been completed, the refrigerant system shall be pressured tested at a pressure of 300 psi (high side) and 150 psi (low side). While the system is being pressure tested, an electronic leak detector shall be used to check for leaks. Pressure shall be maintained on the system for a minimum of 12 hours. The system shall be evacuated when the surrounding ambient air is not less than 60°F. A minimum vacuum of 2.0mm of mercury shall be pulled on the system and maintained for 12 hours. The vacuum pressure displacement shall be not less than 5 CFM. The vacuum shall be checked with an electronic gauge.
- D. All pipes shall be supported from the building structure in a neat and workmanlike manner, and wherever possible, parallel runs of horizontal piping shall be grouped together on trapeze type hangers. The use of wire or perforated metal to support pipes will not be permitted. Hanging pipes from other pipes will not be permitted. Spacing of pipe supports shall not exceed 8 feet for pipes up to 1-1/4" and 10 feet on all other piping. Hangers shall pass around the insulation and an 18 gage steel protective band, 12" long, shall be inserted between the hangers and the insulation.

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- E. Insulation material shall be 3/4" thick foamed plastic, heavy density, J-M Aerotube, or approved equal. All refrigerant [suction line] piping shall be insulated. Pipe insulation shall have a flame spread rating of not over 25, 50 smoke developed and 50 fuel contributed. Verify insulation requirements with code when installed in return air plenum spaces.
- F. All pipe insulation shall be applied over clean, dry surfaces, butting adjoining sections firmly together. All fittings shall be installed and finished in strict accordance with manufacturer's recommendations. Insulation exposed to weather shall have waterproof and UV resistant covering.

2.9 CENTRIFUGAL ROOF ROOFTOP EXHAUST FANS

- A. General: Provide roof exhaust fans of the centrifugal, belt-driven or direct-driven type and of capacities and having accessories as scheduled.
- B. Housing: Construction of the fan housing shall be of heavy gauge aluminum. All spun parts shall have a filled bead for added rigidity and shall be specially spun so as to seal the pores of the aluminum.
- C. Fan Wheel: The fan wheel shall be all aluminum of the centrifugal blower type with backward inclined blades and a tapered inlet shroud. Wheels shall be statically and dynamically balanced. Inlet cone shall be aluminum and of the centrifugal blower type.
- D. Motor and Drive: Motor and drives shall be enclosed in a weatheright compartment, separate from the exhaust air stream. Air for cooling the motor shall be supplied to the motor compartment by way of an air passage, from an area free of contaminated exhaust fumes. Motors shall be of the heavy duty, permanently lubricated, and sealed ball bearing type. Drives shall be sized for 165% of motor horsepower capability and of the cast iron type, keyed to the fan and motor shafts. Variable pitch drives shall be standard. Fan shaft shall be of steel construction, turned, ground and polished to precise tolerances in relationship to the hub and bearings. Drive belts shall be of the oil-resistant, non-static, non-sparking type with life expectancy of over 24,000 hours. The entire drive assembly and wheel shall be removable, as a complete unit, from the support structure without disassembling the external fan housing. The complete drive assembly shall be mounted on rubber vibration isolation. Direct drive units shall be of identical construction as belt drive units, expect for drives, belts, and fan shaft bearings.
- E. Bearings: Bearings shall be flanged and of the permanently lubricate, permanently sealed ball bearing type capable of over 200,000 ours bearing life.
- F. Non-Spark Construction: For non-spark construction, all interior and exterior parts, including wheel, wheel hub, supporting posts, fan shaft, drive assembly, and all outside fasteners shall of aluminum or non-ferrous construction. Fans shall be licensed to bear the AMCA ratings seal for air and sound performance
- G. All fans shall be anchored per structural engineer recommendations to withstand hurricane force winds

2.10 ELECTRIC TEMPERATURE CONTROLS

- A. The extent of the electric temperature control work is indicated by drawings and schedules, and by the requirements of this section.

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- B. Generally, the controls shall be furnished as a package with the HVAC equipment. Certain miscellaneous control items, interlocks, etc. are included as part of the work.
- C. Manufacturer: Provide principal electric temperature control system equipment and materials produced by one of the following:
1. Honeywell, Commercial Div.
 2. Johnson Controls
 3. Air Conditioning equipment manufacturer
- D. Electrical Standards: Provide electrical products that have been tested, listed and labeled by Underwriter's Laboratories and comply with NEMA standards.
- E. Provide the required electric temperature control products in the sizes and capacities indicated, complying with the manufacturer's published product information on standard materials and components designed and constructed as recommended by the manufacturer for the applications indicated.
- F. Provide automatic dampers as shown on the drawings, with damper frames not less than formed 13-gauge steel. Provide mounting holes for enclosed duct mounting. Provide damper blades not less than formed 16 gauge-galvanized steel, with maximum blade width of 8".
1. Secure blades to 1/2" diameter zinc-plated axles using zinc-plated hardware. Seal off against spring stainless steel blade bearings. Provide blade bearings of nylon and provide thrust bearings at each end of every blade. Construct blade linkage hardware of zinc-plated steel and brass. Dampers shall be low leakage type.
 - a. Operating Temperature Range: From -20 to 200°F.
 - b. Provide parallel or opposed blade design as selected by the manufacturer's sizing techniques with optional closed-cell neoprene edging.
 2. Automatic outside air damper(s) shall open whenever unit is ON and close whenever unit is OFF.
- G. Room thermostats shall have the following features:
1. Provide programmable room thermostats as follows:
 - a. Units shall be microprocessor-based with the following components:
 1. Time & Temperature
 2. Temperature Setting
 3. Deadband Capabilities
 4. Setback Programs
 5. Temperature Adjust Override
 6. Program Prompting
 7. Control Program
 8. Battery Backup
 9. Setback Override
 10. Locking Cover
- H. The contractor shall for each air handling system with 2000 CFM (nominal 5 Tons) or greater, install UL-listed ionization smoke detectors in the [main supply air duct and] main return air duct,

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and/or where shown on the drawings. Smoke detectors furnished by Division 16. Refer to Section 15012. Connect the detectors into the control circuit to stop the fan in the event of the presence of smoke.

- I. Install control system and materials in accordance with manufacturer's instructions and roughing-in drawings, and details on the drawings. Install electrical work and use electrical products complying with the requirements of the applicable Division 16 sections of these specifications. Mount controllers at convenient locations and heights
- J. Install a complete wiring system for electric temperature controls. Conceal wiring except in mechanical rooms and areas where other conduit and piping are exposed. Provide multi-conductor instrument harness (bundle) in place of single conductors where a number of conductors can be run along a common path. Fasten flexible conductors bridging cabinets and doors, neatly along hinge side, and protect against abrasion. Tie and support the conductors neatly.
- K. Number code or color code conductors, excluding those used for local individual room controls, appropriately for future identification and servicing of the control system.
- L. After completion of the installation, adjust thermostats, and similar equipment provided as work of this section.
- M. Final adjustment shall be performed by specially trained personnel in the direct employ of the manufacturer of the primary temperature control system.

2.11 HVAC CONTROL SEQUENCE

- A. Control sequence is hereby defined to mean the manner in which, and methods by which, the temperature controls function. The requirements for each type of operation are specified in this section.
- B. The operating equipment, devices and system components required for the automatic temperature control system are specified above.
- C. Equipment control shall be as follows:
 1. Package Heating and Cooling Unit:
 - a. An electronic wall mounted programmable heating and cooling automatic room thermostat shall control the gas furnace, air handling fan and compressorized cooling, to maintain set point temperature, and start and stop units per programmed schedule.
 - b. Night setback temperature set point shall override the programmable room thermostat and operate the heating cycle to maintain space temperature at 55°F (adjustable) during winter.
 - c. Motorized outside air damper shall be interlocked with respective [furnace] [air handling unit] to open when unit is energized, except that damper will remain closed during night setback operation.

2.12 PREFABRICATED ROOF CURBS

- A. General: Provide manufacturer's standard shop fabricated units, modified if necessary to comply with requirements.
- B. Fabricate structural framing for units of structural quality sheet steel (ASTM A 570, Grade 40), formed to profiles indicated or, if not indicated, to manufacturer's standard profiles for coordination

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- with roofing, insulation and deck construction. Include 45° angle cant strips and deck flanges with offsets to accommodate roof insulation. Weld corners and seams to form watertight units.
1. Clean and paint units with manufacturer's standard rust inhibitive metal primer paint.
 2. Fabricate units from zinc steel coated steel, ASTM A 446, Grade C, designation G90 hot dip coating, mill phosphatized. Clean and paint with rust inhibitive metal primer paint, of type recommended by manufacturer, 2.0 mils dry film thickness.
- C. Reinforce continuous runs of over 3'0" length, by inserting welded stiffeners of heavy gauge with flanges as required to provide sufficient rigidity and strength to withstand maximum lateral forces in addition to superimposed vertical loads.
- D. Sloping Roof Decks: For deck slopes of 1/4" per foot and more, fabricate support units to form level top edge.
- E. Gauge and Height: Fabricate units of metal gauge and to height above roof surface as indicated.
1. Where gauge or heights are not indicated, fabricate units of 14-gauge metal, and nominal height of 14".
- F. Provide treated wood nailer, not less than 1 5/8" thick and of width indicated, but not less than width of support wall assembly. Anchor nailer securely to top of metal frame unit.
- G. Provide lumber pressure treated with water borne preservatives for above ground use, complying with AWPB LP-2.
- H. Fabricate exterior support profile to receive insulation of thickness indicated or, if not indicated, of 1" thickness.
- I. Insulate units inside structural support wall with rigid glass fiber insulation board of approximately 3 lb. Density and 1½" minimum thickness, except as otherwise indicated.
- J. Provide support liners where shown, formed of 22 ga galvanized sheet metal, mill phosphatized, flanged at lower edges.
1. Extend support liners through deck construction to coordinate with ductwork below as indicated.
 2. Use perforated metal for support liners, with approximately 1000, 3/32" diameter holes per sq. ft., to provide sound absorbing surfaces.
 - a. Provide sound insulation insert for curbs so indicated. Construct of 1" thick rigid fiberglass panels secured in galvanized steel framework, with rounded edges to minimize airflow resistance.]
- J. Metal Duct Reinforcement: Where indicated as integral part of support units, provide channel shaped metal deck closure strips to reinforce opening through metal decking. Fabricate strips from 14-ga metal to match metal and finish of curb units, except as otherwise indicated.
- K. Curbs shall be firmly anchored to roof to withstand hurricane force winds.
- L. Manufacturer: Subject to compliance with requirements, provide prefabricated roof curbs of one of the following:
1. Custom Curb, Inc.

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2. Pate Co.
3. S & L Manufacturing Co.
4. ThyCurb Div.

PART 3 - INSTALLATION**3.1 ACOUSTICAL LINING**

- A. Unless indicated otherwise on the drawings, install duct liner in the first 10 feet of all supply air and return air ductwork for each rooftop unit and/or air-handling unit.

3.2 TESTS AND INSPECTIONS FOR HVAC SYSTEMS (By HVAC Contractor)

- A. This contractor shall, at his own expense, start-up, adjust, check, repair and place in service the various heating, ventilating and air conditioning systems herein specified with their respective equipment, accessories and piping. He shall furnish all labor, materials, equipment and tools necessary to conduct the tests herein specified and those required by the governing authorities. This contractor in the presence of the Owner's Representative shall make all tests.
- B. No work of any nature shall be covered, enclosed or otherwise concealed until properly inspected, tested and approved. Any leaks that develop during any of the tests shall be corrected with new material and made good as required; said test should be repeated until the work is satisfactory in every way.
- C. This contractor shall pay all costs for fuel, electricity, labor, materials, equipment etc. as required for testing, adjusting and balancing of all mechanical systems.
- D. This subcontractor for a reasonable length of time to demonstrate the performance of all equipment and piping in accordance with the true intent and purpose of the plans and specifications shall operate each separate system with its various components. All necessary adjustment shall be made.
- E. Controls: All heating and other controls shall be adjusted and placed in operation and their operation demonstrated to the Owner's Representative.
- F. All pilot burners and main burners shall be adjusted for proper flame. All flame safety controls shall be checked for proper operation.
- G. System Test:
 1. Subsequent to the final air balance test, the entire heating and air conditioning system shall be tested to satisfy performance of all units as satisfactory system.
 2. All heating and air conditioning systems shall be tested at completion of the building and it shall be established that all controls are calibrated accurately and performing satisfactorily and that all units are operating satisfactorily. The systems shall be checked for vibration and excessive noise and all such conditions corrected.
 3. All systems shall be tested for opposite season operation, approximately 6 months following the completion of the building, and it shall be established that all controls are calibrated accurately and performing satisfactorily and that all units are operating satisfactorily. The systems shall be checked for vibration and excessive noise and all such conditions corrected.

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4. The entire ventilation system shall be tested at the completion of the project; and it shall be established that controls are performing satisfactorily and that all rooms are ventilating properly. The systems shall be checked for vibration and excessive noise and all such conditions corrected.
5. At the completion of all work all equipment on the project shall be checked and thoroughly cleaned including coils, plenums, under equipment and any and all other areas around or in equipment provided under this section. Any filters used during construction shall be replaced with new filters during final cleanup.
6. At the completion of all work all equipment on the project shall be checked for painting damage, and any factory-finished paint that has been damaged shall be repaired to match the adjacent areas. Any metal or specially covered areas that have been deformed shall be replaced with new material and repainted to match the adjacent areas.
7. Check all firestats/smoke detectors on the project to assure that they are functioning properly.

END OF SECTION

SECTION 16010
BASIC ELECTRICAL REQUIREMENTS

1.01 CONTRACTOR'S QUALIFICATIONS

- A. An approved contractor for the work under this Division. A specialist in this field and have the personnel, experience, training and skill, and the organization to provide a practical working system.

1.02 RELATION WITH OTHER TRADES

- A Carefully study all matters and conditions concerning the project. Submit notifications of conflict in ample time to prevent unwarranted changes in any work. Review other Divisions of these specifications to determine their requirements. Extend mechanical services and final connections to all items requiring it.
- B Because of the complicated relationship of this work to the total project, conscientiously study the relation and cooperation as necessary to accomplish the full intent of the documents.
- C Provide sleeves and inserts in forms as required or the work. Stub up and protect open ends of pipe before any concrete is placed. Furnish sizes of required equipment pads. Furnish and locate bolts and fittings required to be case in them.
- D Locate and size openings required for installation of work specified I this Division in sufficient time to prevent delay in the work.
- E Make final electrical connections to all electrically operated equipment.
- F Request all Shop Drawings required in ample time to permit proper installation of equipment, piping, and appurtenances.

1.03 APPARATUS PROTECTION

- A. Take all precautions necessary to protect the work from damage during handling and installation and until completion of construction. Failure to comply shall be sufficient cause for rejection of the work

1.04 NOISE AND VIBRATION

- A. Eliminate any abnormal noises which are not considered to be an inherent part of the systems as designed. Abnormal bussing in equipment components will not be acceptable.

1.05 MATERIALS AND EQUIPMENT

- A. All materials or equipment furnished for this work:
 - 1. New and delivered in undamaged original crate.
 - 2. Plainly marked for identification.
 - 3. Quality as specified.

1.06 FACTORY FINISH

- A. Factory assembled equipment except nonferrous or galvanized items and other items specific or scheduled to have a specific finish:
- B. Protect equipment from damage and defacement.
- C. Factory finish that becomes marred, stained or otherwise damaged: Fully and satisfactorily restored.
- D. Should any of the special factory applied coatings be damaged during handling, storage or installation, the damaged areas shall be recoated in the field using the same surface preparation and coating system originally applied by the manufacturer.

1.07 UTILITIES, LOCATIONS AND ELEVATIONS

- A. Locations and elevations of the various utilities included within the scope of this work:
 - 1. Obtained from utility maps and other substantially reliable sources.
 - 2. Are offered separate from the Contract Documents as a general guide only, without guarantee as to accuracy.
- B. Examine the site and verify the locations and elevations of all utilities and of their relation to the work

1.08 DRAWINGS AND SPECIFICATIONS

- A. The Electrical Drawings:
 - 1. Are diagrammatic and shall be followed as closely as the actual construction will permit.
 - 2. Are not intended to show complete and accurate location of apparatus and appurtenances.
- B. Should any changes be required to make work specified in this Division conform to the project as it is constructed or to make it conform with the rules of the authorities having jurisdiction, submit request for directions before proceeding with the work. All changes due to poor coordination make without additional expense to the Owner. C. Exact locations of equipment and accessories in finished spaces:
 - 1. Determined by reference to specific details. When not specifically shown, locations of items to be approved prior to installation. Relocation before installation. Relocation from the position indicated on the Drawings may be directed without additional cost.

1.09 PERMITS AND REGULATIONS

- A. Obtain all permits required.
- B. Conform to applicable Federal, State and Local Ordinances and Codes.
- C. Electrical work shall comply with applicable inspection services.
 - 1. Underwriter's Laboratories.
 - 2. National Fire Protection Association.
 - 3. State Health Department.
- D. Where laws, codes or ordinances conflict with the specifications, then the laws, codes or ordinances govern.
- E. In cases where the specifications exceed in quantity or quality of material or labor, specifications shall be followed.

- F. In cases of conflict, submit request for directions before proceeding.

1.10 UTILITY SERVICE

- A. Provide all connections wiring, meters, outlets, sockets, and lamps for temporary electric power and lighting required during construction of the project.
- B. Remove temporary equipment, facilities and materials prior to substantial completion.
- C. Make arrangements with the utility sources and pay costs for the connections and changeovers for permanent electric service.

1.11 AVAILABLE SPACE

- A. Size and shape of physical spaces for equipment shown on drawings has been designed in accordance with the types indicated and specified.
- B. Equipment shall be selected to fit properly into such spaces.
- C. Be arranged and positioned to permit access as required for maintenance, servicing, removal or replacement of parts and/or whole pieces of equipment.

1.12 ELECTROLYSIS ISOLATION

- A. Provide continuous neoprene strip to separate dissimilar metals that could come into contact.
- B. Provide dielectric couplings at instrument connections to piping mains.

1.13 CONCRETE SLABS

- A. Provide equipment "house keeping" pads as shown on the drawings.
 - 1. Transformer "T-1".
 - 2. Standby Power Generator.
 - 3. Automatic Load Transfer Switch B. Concrete pads:
 - 1. Minimum 6" thick.
 - 2. Chamfer strips as edges and corners of forms.
 - 3. Smooth steel trowel finish.

END OF SECTION

SECTION 16011
SUPPORTS AND FASTENERS

1.01 GENERAL

- A. Use methods and devices recommended by the equipment manufacturer.
- B. Fasteners shall be compatible with the material into which they are applied.

1.02 QUALITY ASSURANCE

- A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

1.03 SECURING AND SUPPORTING OF CONDUIT AND BOXES

- A. Support Conduit:
 - 1. At intervals not greater than 7 feet.
 - 2. Within three feet of bends, outlets and junction box.
 - 3. With channel support with conduit fittings on vertical runs.
- B. Support outlet and junction boxes.
 - 1. Independently to surface on which conduit is run.
 - 2. Rigidly to building structure.
 - 3. Conduit shall not be used for sole support of boxes.
- C. Support individual conduit with approved anchor straps employing:
 - 1. Toggle bolts on hollow masonry.
 - 2. Self-drilling anchors or power driven studs on concrete surfaces.
 - 3. Perforated strap in not approved as hanger material.
 - 4. Use electro-galvanized or cadmium plated steel bolts, threaded rods, nuts, washers and screws.

1.04 SURFACE MOUNTED EQUIPMENT

- A. Install surface-mounted cabinets, boxes and panel boards with minimum of four anchors.
- B. Provide steel channel supports to stand cabinet one inch off wall.
- C. Use fasteners suitable for the surface or structure and weight of device.

END OF SECTION

SECTION 16021
IDENTIFICATION

1.01 GENERAL

- A. Provide identifying nameplates for all permanently connected electrical equipment.
 - 1. Identify as shown on the drawings.
 - 2. Switches and starters identified by the load served.
 - 3. Transformers identified by the scheduled identification and the load served.
 - 4. Panels identified by the scheduled identification.
 - 5. Indicate voltage and phases.
 - 6. Panels.
 - 7. Transformers, primary and secondary
- B. Provide identification nameplates for all elements of the control and monitor panel.
- C. Provide permanent identification of all wiring.

1.02 NAMEPLATES

- A. Fabricated of laminated engraved plastic, etched, or photo-anodized metal.
- B. Secured to equipment with escutcheon pins, self-tapping or machine screws, or approved adhesive that is removable only by mechanical means. C. Have letters at least 1/4" high.

1.03 SPECIFIED MARKERS

- A. Provide a specified marker on each wire in conduit including pull wires.
 - 1. Where runs are interrupted in junction boxes.
 - 2. Terminated in electrical equipment.
 - 3. Showing circuit number and identification.

END OF SECTION

SECTION 16022
CORRECTIONS DURING THE WARRANTY PERIOD

1.01 SUMMARY

- A. The warranty and guarantee period is for 12 months after substantial completion of the project.
- B. The Owner will notify the contractor of any failure or observed defects in the system during this period.
- C. Corrections to the work during this period and during regular working hours shall be at no cost to the Owner.
 - 1. Response time shall be no longer than the day following the call from the Owner.
- D. Emergency service shall be available to the Owner on a 24 hour every day basis during this period.
- E. Overtime work, if required by the Owner, will be reimbursed at the difference between regular and premium labor at the contractor's current standard hourly billing rate for contract customers.

1.02 PROCEDURES

- A. Prior to commencing corrections during the warranty period determine from the Owner any special requirements required to conform to his established policy for work on his premises.
- B. When the service technician arrives at the project to perform the corrective work, notify the Owner's authorized representative.
- C. Upon completion of the corrective work, file a signed copy of the service report with the owners authorized representative.
- D. If the corrective work requires more than one day to complete, notify the Owner and give an estimate of the completion date.

END OF SECTION

SECTION 16025
OPERATING AND MAINTENANCE MANUALS

1.01 REQUIREMENTS INCLUDED

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under Contract.
- B. Instruct Owner's personnel in maintenance and operation of equipment and systems.
- C. Submit three copies of complete manual in final form.

1.02 FORM FOR MANUALS

- A. Prepare data in form of an instructional manual for use by Owner's personnel.
- B. Format:
 - 1. Size: 8-1/2 X 11 inches.
 - 2. Text: Manufacturer's printed data or neatly typewritten.
 - 3. Drawings:
 - a. Provide reinforced punched binder tab and bind in text.
 - b. Fold larger drawings to size of text pages.
 - 4. Provide flyleaf with indexed tabs for each separate product or each piece of operating equipment.
- C. Binders:
 - 1. Commercial quality three-ring binders with durable and cleanable plastic covers.
 - 2. Minimum ring size: 2 inch.

1.03 CONTENT OF MANUAL

- A. Typewritten Table of Contents.
 - 1. Contractor, name of responsible principal, address and telephone number.
 - 2. List with each product, name, address and telephone number:
 - a. Subcontractor or installer.
 - b. Maintenance contractor as appropriate.
 - c. Identify area of responsibility of each.
 - d. Local source of supply for parts and replacement.
 - 3. Identify each product-by-product name and other identifying symbols as set forth in Contract Documents.
- B. Product Data:
 - 1. Include only those sheets, which are pertinent to the specific product.
 - 2. Annotate each sheet to:
 - a. Clearly identify specific product or part installed.
 - b. Clearly identify data application to installation.
 - c. Delete references to inapplicable information.
- C. Printed listing of program statements.

- D. Drawings:
 - 1. Supplement product data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - b. Control diagrams.
 - 2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 - 3. Do not use Project Record Documents as maintenance drawings.
- E. Copy of each warranty, issued.
- F. Provide information sheet for owner's personnel, giving:
 - 1. Proper procedures in event of failure.
 - 2. Instances, which might affect validity of warrant.
- G. Shop Drawings, Coordination Drawings and Product data as specified.

1.04 MANUAL OR EQUIPMENT AND SYSTEMS

- A. Content, for each electric and electronic system, as appropriate:
 - 1. Description of system and component parts.
 - 2. Function, normal operating characteristics, and limiting conditions.
 - 3. Complete nomenclature and commercial number of replaceable parts.
 - 4. Copies of typed circuit directories of panel boards.
 - 5. As installed color-coded wiring diagrams.
 - 6. Operating procedures:
 - a. Routine and normal operating instructions.
 - a. Sequences required.
 - b. Special operating instructions.
 - 7. Maintenance procedures:
 - a. Routine operations
 - b. Guide to "Trouble-shooting".
 - 8. Manufacturer's printed operating and maintenance instructions.

1.05 INSTRUCTION OF OWNER'S PERSONNEL

- A. Provide to final inspection, conduct an on site training program to instruct the Owner's operating personnel in the operation and maintenance of the electrical systems. B. Provide the training during the Owner's regular working day.
- C. The Owner will provide a list of personnel to receive instructions, and will coordinate their attendance at the agreed upon times.
- D. Use the operation and maintenance manuals as the basis of instruction. Review contents of manuals with personnel in detail to explain all aspects of operation and maintenance.
- E. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment.
- F. Demonstrate equipment functions (both individually and as part of the total integrated system.)

- G. Prepare and insert additional data in operations and maintenance manuals when needed or when additional data becomes apparent during instructions.
- H. At the conclusion of the on site training program, have the person designated by the Owner, sign a certificate to certify that he has a proper understanding of the system, that the demonstrations and instructions have been satisfactorily completed, and the scope and content of the operations and maintenance manuals used for the training program as satisfactory.
- I. Include the report and the certificate in an appropriately tabbed section for each manual.

END OF SECTION

SECTION 16026
CONTRACT QUALITY CONTROL

1.01 REQUIREMENTS INCLUDED

- A. General quality control.
- B. Workmanship.
- C. Manufacturer's Instructions.

1.02 QUALITY CONTROL PROGRAM

- A. Maintain quality control over supervision, subcontractor's, suppliers, manufacturers, products, services, site conditions and workmanship to produce work in accordance with the contract documents.

1.03 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses vibration and racking.

1.04 MANUFACTURER'S INSTRUCTIONS

- A. Comply with instructions in full detail, including each step in sequence.
- B. Should instruction conflict with Contract Documents, request clarification from Engineer before proceeding.

1.05 COORDINATION STUDY, FAULT CURRENT AND ARC FAULT STUDIES

- A. Provide Coordination Study, Fault Current and Arc Fault Studies by Switch Gear Manufacture.
- B. Label all Switch gear with appropriate Arc Fault Labels.

1.06 Generator –ATS

- A. Provide Generator Load Bank Testing
- B. Provide start up and training for Generator and ATS by Manufacture.
- C. Provide 5 Year Manufacture Warranty on Generator and ATS

END OF SECTION

SECTION 16040
SHOP DRAWINGS, COORDINATION DRAWINGS AND PRODUCT DATA

1.01 SUMMARY

- A. Prepare submittal as required by the Contract Documents.
- B. The term submittal, as used herein, refers to all:
 - 1. Shop drawings.
 - 2. Coordination drawings.
 - 3. Product data.
- C. Submittals shall be prepared and produced for:
 - 1. Distribution as specified.
 - 2. Inclusion in the Operating and Maintenance Manual, as specified, in the related section.

1.02 SHOP DRAWINGS

- A. Present drawings in a clear and thorough manner.
 - 1. Identify details by reference to sheet and detail, schedule, or room numbers shown on Contract Drawings.
- B. Show all dimensions of each item of equipment on a single composite Shop Drawing. Do not submit a series of drawings of components.
- C. Identify field dimensions, show relation to adjacent or critical features or work or products.

1.03 COORDINATION DRAWINGS

- A. Present in a clear and thorough manner. Title each drawing with project name. Identify each element of drawings by reference to sheet number and detail, or room number of contract documents.
 - 1. Minimum drawing scale: 1/4" = 1'-0".
- B. Prepare coordination drawings to coordinate installations for efficient use of available space, for proper sequence of installation, and to resolve conflicts.
 - 1. Coordinate with work specified in other sections and other divisions of the specifications.
- C. Identify field dimensions. Show relation to adjacent or critical features or work or products.

1.04 PRODUCT DATA

- A. Submit only pages which are pertinent.
- B. Mark each copy of standard printed data to identify pertinent products, referenced to specification section and article number.
- C. Show reference standards, performance characteristics and capabilities, wiring diagrams and controls, component parts, finishes, dimensions and required clearances.
- D. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.

1.05 MANUFACTURER'S INSTRUCTIONS

- A. Submit Manufacturer's instructions for storage, preparation, assembly, installation, start-up, adjusting, calibrating, and finishing.

1.06 CONTRACTOR RESPONSIBILITIES

- A. Review submittals prior to transmittal.
- B. Determine and verify:
 - 1. Field measurements.
 - 2. Field construction criteria.
 - 3. Manufacturer's catalog numbers.
 - 4. Conformance with requirements of contract documents.
- C. Coordinate submittals with requirements of the Work and of the Contract Documents.
- D. Notify the Engineer in writing at time of submission of any deviations in the submittals from requirements of the contract documents.
- E. Do not fabricate products, or begin work for which submittals are specified, until such submittals have been produced and bear Contractor's stamp.
- F. Do not fabricate products or begin work schedule to have submittals reviewed, until return of reviewed submittals with Engineer's acceptance.
- G. Contractor's responsibility for errors and omissions in submittals is not relieved whether Engineer reviews submittals or not.
- H. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved whether Engineer reviews submittals or not, unless Engineer gives written acceptance of the specified deviations on reviewed documents.
- I. Submittals shall show sufficient data to indicate complete compliance with Contract Documents:
 - 1. Proper sizes and capacities.
 - 2. That the item will fit in the available space in a manner that will allow proper service. J. Where located outdoors, will not infringe upon sight lines.
- K. Construction methods, materials and finishes.
- L. Schedule submissions at least 15 days before date reviewed submittals will be needed.

1.07 SUBMISSION REQUIREMENTS

- A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the Work or in the work of any other Contractor. B. Number of Submittals required:
 - 1. Shop drawings and coordination drawings: Submit one reproducible transparency and one opaque reproduction.
 - 2. Product data: Submit the number of copies which the contractor requires, plus two which will be retained by the Engineer.
- C. Accompany submittals with transmittal letter, duplicate, containing:
 - 1. Date
 - 2. Project title and number
 - 3. Contractor's name and address

4. The number of each Shop Drawing and Project Datum.
 5. Other pertinent data.
- D. Submittals shall include:
1. The date of submission.
 2. The project title and number.
 3. Contract identification.
 4. The names of:
 - a. Contractor.
 - b. Subcontractor.
 - c. Supplier.
 - d. Manufacturer.
 5. Identification of the product.
 6. Field dimensions, clearly identified as such.
 7. Relation to adjacent or critical features of the work or materials.
 8. Applicable standards, such as ASTM or federal specifications numbers.
 9. Identification of deviations from contract documents.
 10. Suitable blank space for Contractor and Engineer stamps.
 11. Contractor's signed and dated Stamp of Approval.
 12. Finishes which involve Architect/Engineer selection.
 13. Associated items, which require correlation for efficient function or for installation.
- E. Coordinate submittals into logical groupings to facilitate interrelation of the several items.

1.08 SUBMITTAL SPECIFICATION INFORMATION

- A. Every submittal document whether identified to be reviewed by the Engineer or not, shall bear the following information as used in the project manual:
1. The related specification section number.
 2. The exact specification section title.
- B. Submittals delivered to the Engineer without the specified information will not be processed.
- C. The Contractor shall bear the risk of all delays, as if no submittal had been delivered.

1.09 RESUBMISSION REQUIREMENTS

- A. Make resubmittals under procedures specified for initial submittals.
1. Indicate that the documents are a resubmittal.
 2. Identify changes made since previous submittals
- B. Indicate any changes that have been made other than those requested by the Architect.

1.10 CONTRACTOR'S STAMP OF APPROVAL

- A. Contractor shall stamp and sign each document certifying to the review of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the work and of Contract Documents.

- B. Contractor's stamp of approval on any submittal shall constitute a representation to Owner and Engineer that Contractor has either determined and verified all quantities, dimensions, field construction criteria, materials, catalog numbers, and similar data or assumes full responsibility for doing so, and that Contractor has reviewed or coordinated each submittal with the requirement of the work and the Contract Documents.
- C. Do not deliver any submittals to the Engineer that do not bear the Contractor's stamp of approval and signature.
- D. Submittals delivered to the Engineer without Contractor's stamp of approval and signature will not be processed.
- E. The Contractor shall bear the risk of all delays, as if no submittal had been delivered.

1.11 ENGINEER REVIEW OF SUBMITTALS

- A. The Engineer will:
 - 1. Review submittals with reasonable promptness and in accordance with schedule.
 - 2. Affix stamp and initials or signature, and indicate requirements for resubmittal or approval of submittal.
 - 3. Return submittals to Contractor for distribution or for resubmission.
- B. Review and approval of submittals will not extend to design data reflected in submittals, which is peculiarly within the special expertise of the Contractor or any party dealing directly with the Contractor.
- C. Engineer's review and approval is only for conformance with the design concept of the project and for compliance with the information given in the contract.
 - 1. The review shall not extend to means, methods, sequences, techniques or procedures of construction or to safety precautions or programs indicate thereto.
 - 2. The review shall not extend to review of quantities, dimensions, weights or gauges, fabrication processes or coordination with the work of other trades.
- D. The Review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

1.12 SUBSTITUTIONS

- A. Do not make requests for substitution employing the procedures of this Section.

END OF SECTION

SECTION 16041
PROJECT RECORD DOCUMENTS

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site for review by the Engineer one record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to the contract.
 - 5. Field orders or written instructions.
 - 6. Approved shop drawings and product data.
 - 7. Field test records.

1.02 MAINTENANCE OF DOCUMENTS

- A. Store documents apart from documents used for construction.
- B. Maintain documents in a clean, dry, legible condition and in good order.
 - 1. Do not use record documents for construction purposes.
- C. Make documents available at all times for inspection by Engineer.

1.03 MARKING DEVICES

- A. Provide red felt tip marking pens for recording information

1.04 RECORDING

- A. Label each document "Project Record" in neat, large printed letters.
- B. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information is recorded.
- C. Legibly mark Record Drawings to record actual construction:
 - 1. Depths of various buried elements in relation to finish first floor datum.
 - 2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 4. Details not on original contract drawings.
 - 5. Identity locations by at least two dimensions to permanent structures.
 - 6. Field changes of dimension and detail.
 - 7. Changes made by field order or by change order.

1.05 REPRODUCIBLE RECORD DRAWINGS

- A. Transfer all recorded information from the original record drawings to one set of reproducible mylar films and deliver to the Engineer.

- B. Identify all record drawing information.
- C. Delete Engineer seals and ownership information from the documents.

1.06 SUBMITTALS

- A. Submit record documents to Engineer with final Application for Payment.
- B. Accompany submittal with transmittal letter in duplicate containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title and number of each record document.
 - 5. Signature of an officer of the contracting firm.

END OF SECTION

SECTION 16050

ELECTRICAL MATERIALS AND METHODS

PART 1 -GENERAL

1.01 WORK INCLUDED:

- A. Provide products, assemblies, and fabrication methods required for a complete and operational electrical system.

1.02 RELATED REQUIREMENTS:

- A. Section 16010 - General Requirements for Electrical Work

1.03 CODES AND STANDARDS:

- A. Unless specifically modified herein or superseded by local ordinance or other authority, the latest edition of the National Electrical Code shall be the minimum acceptable standard for work under these Specifications.

PART 2 - PRODUCTS

2.01 RACEWAYS FITTINGS:

- A. Raceways within the building may be fabricated from galvanized E.M.T. Raceways subject to physical damage or installed in concrete shall be fabricated from rigid galvanized steel conduit. Conduits in contact with earth shall be Schedule 40 PVC.

2.02 WIRING, JUNCTION AND PULL BOXES:

- A. Furnish and install all wireways, junction and pull boxes shown on the Drawings and required. Fabricate in accordance with NEMA or National Electric Code Standards and requirements. Wireways, junction and pull boxes shall bear UL label. Units not sized on Drawings shall be sized in accordance with N.E.C. standards.

2.03 CONDUCTORS FOR 600 VOLT SYSTEMS:

- A. Conductors shall be made of soft-drawn annealed copper with a conductivity not less than that of 98% pure copper. All wire size #10 AWG and smaller shall be solid conductor type; all #8 AWG and larger shall be stranded conductor type.
- B. All wiring systems shall utilize conductors with insulation rated at 600 volts and insulated with type "THWN" insulation, unless otherwise noted. Type "TW" or "THHN" may be used for 20 amp lighting and convenience outlet circuits.
- C. Conductors having white, grey, or green covering shall not be used to indicate other than neutral or grounding. This limitation applies to all power, lighting and control circuits.

- D. Make connections to terminals using pressure type connectors. All joints in conductors shall be made by first twisting the conductors and then applying a UL approved insulated, cadmium plated, live steel, spring type connector in all sizes up to the catalog capacity of the connectors. Joints shall be made with an approved plastic electrical tape with the number of layers required to give an insulating quality equal to that of the conductor itself.

2.04 GROUNDING:

- A. Conduits, cabinets and equipment shall be grounded in accordance with National Electrical Code and local code requirements.
- B. Bond the neutral conductor to ground at the service entrance. Ground electrode conductor shall be stranded copper cable in rigid conduit with both conduit and cable bonded to water pipe with heavy duty connectors, all in accordance with National Electrical Code and local code requirements. The continuous metal conduit system will then serve as equipment ground throughout, and no other connection will be permitted between neutral circuit conductor and the equipment grounding system on the load side of the switch. C. PVC conduits shall contain equipment grounding conductors.
- C. Provide Ground wire in all raceway
- D. Provide IG ground wire to all electronic circuits served from LC

2.05 SERVICE:

- A. The electrical service for this project shall be as detailed on the drawings.

2.06 PANELBOARD:

- A. Panelboard shall consist of a box, front, interior and circuit protective devices and shall be manufactured in accordance with NEMA standards and bear applicable Underwriters Laboratories label. Panelboard shall be G.E. AQ or equal. Minimum widths shall be 20".
- B. The circuit protective devices shall be molded case circuit breakers of the quick-make, quickbreak, thermal magnetic type. The number of poles, ampere rating and trip rating of the breakers shall be as scheduled. The short circuit rating shall be in accordance with U/L Standards for sizes required. All circuit breakers shall be of the bolt-on type. All 2 and 3-pole breakers shall have internal common trips.
- C. Approved Manufacturers - G.E., Square D, I.T.E., or Westinghouse.

2.07 ROUGH-IN CONDUIT FOR TELEPHONE SYSTEM:

- A. Furnish and install service entrance conduit, and all outlet boxes and fittings as required for the telephone system as shown on the plans.
- B. Employ the same methods and materials as for lighting circuits under these specifications.
- C. Upon completion of roughing-in for this system, install 200 lb. test nylon pull cord in all conduits for future installation of telephone wiring by the telephone company.

2.08 LIGHTING FIXTURES:

- A. Furnish and install a lighting fixture as hereinafter specified and as scheduled on the Drawings on each and every outlet in accordance with the type designation shown on the Drawings.
- B. Verify the architectural finishes, and, regardless of specified or scheduled catalog number, prefixes and suffixes, furnish fixtures with the proper trim, frames, support, and hangers required to properly coordinate with finishes.
- C. Immediately before final inspections, thoroughly clean all fixtures, inside and out, including plastics and glassware, adjust all trim to proper fit adjacent surface, replace broken or damaged parts, and lamp and test all fixtures for electrical as well as mechanical operation.
- D. Lamps shall be new and delivered to the job in the original packing cases and sleeves.
Approved manufacturers: G.E., Westinghouse, Sylvania.

2.09 DISCONNECT SWITCHES:

- A. Furnish and install a suitable disconnect switch where indicated on the drawings, called for in these Specifications, or required by applicable Codes. Disconnect switches serving motor loads shall be properly NEMA rated for the area where located, with NEMA rain tight for units located outdoors. Where equipment is furnished to the job with a suitable disconnect as a part of the equipment, a disconnect will not be required to be added at the equipment.
- B. Disconnects shall be General Electric NEMA Type HD, quick-make, quick-break.
Disconnects shall be fused as indicated. Each disconnect shall be provided with an engraved nameplate describing the function or equipment controlled by the switch.

2.10 FUSES:

- A. Furnish and install all fuses necessary during construction and testing and deliver the system complete with new fuses in good working condition. All fuses shall be Gould-Shawmut, Bussman or equal except where specifically indicated otherwise.
- B. Fuses for lighting & motors shall be UL Class RK-1 on 250 volt or lower voltage loads, and UL Class RK-1 on 250 to 600 volt loads. UL Class L fuses shall be used on applications of fuses larger than 600 amperes.

2.11 WIRING DEVICES:

- A. Wiring devices shall be of the type and kind as indicated on the drawings. Each device shall be suitable for the type of service for which it is installed. Devices shall be of NEMA configuration and of Specification Grade for those services to which the device is installed where those standards are established. Devices indicated adjacent to each other shall be set under a common plate. Suitable barriers shall be provided in the box for separation of each device from adjacent devices where required.
- B. Where directed by the Owner device color shall match the decor of the occupancy. Verify requirements prior to installation.

- C. Wiring Device Schedule:
 - 1. Switches: Leviton #1201-Series.
 - 2. Duplex Outlets: Leviton #5352.
 - 3. Weatherproof outlets: Leviton #5352 w/#4926 cover.

PART 3 - EXECUTION

3.01 WIRING METHODS:

- A. Electrical conductors installed under this Contract shall be run in approved raceways. All raceways shall be standard conduit unless otherwise indicated. Each run of raceway shall be complete and all openings bushed complete before any conductors are installed in the raceway.
- B. Conduits shall be sized as indicated on the Drawings and as required to accommodate the wires to be pulled into the conduit. Conduit shall not be less than three-quarters inch (3/4") in size except EMT for branch circuit runs may be one-half inch (1/2"). Each end of each conduit shall be covered with an approved capped bushing as soon as installed to prevent entry of foreign material. All conduits shall be dry and clean before wires are put into them.
- C. Conductors extending more than 50' from the panelboard to the first outlet or fixture shall be #10 AWG minimum.
- D. Branch Circuits shall have dedicated neutral.

3.02 EQUIPMENT IDENTIFICATION:

- A. Major equipment shall be identified by the attachment of nameplates constructed from laminated phenolic engraved plastic 3-ply with black surfaces and white interior core. Plates shall be attached to equipment by the use of a permanent type adhesive or chromium plated screws. Embossed plastic tape is not acceptable.
- B. Complete all identification cards for switches, starters, and other devices in all lighting and distribution panelboards and similar pieces of equipment on a typewriter in a neat manner and insert the card in the card holder behind a piece of clear plastic.

END OF SECTION

SECTION 16090
CONDUCTOR SYSTEMS

1.01 GENERAL

- A. Conductors:
1. Soft drawn annealed copper, having a conductivity of not less than 98% of that of pure copper.
 2. Continuous without weld or splice throughout its length.
 3. All conductors - code gauge type "THHN", "THWN", or "XHHW"
 4. Approved by NEC for the environment.
 5. Bear the UL label.

1.02 CIRCUITRY

- A. The intent of the drawings is to indicate schematically the circuitry required.
- B. Branch circuit may be grouped in a single raceway provided the work performed in grouping conductors:
1. Complies with all applicable articles in the National Electrical Code.
 2. Includes, but shall not be limited to, ampacity derating of conductors.
 3. Observes maximum capacities of raceways.
- C. Adopt a standard connection system to lights and appliances uniform throughout the system.
- D. Insure that branch circuits are so connected to the panels as to provide balanced loading insofar as practical.

1.03 CONDUCTORS AND CONNECTIONS

- A. Install no branch circuit with wire smaller than No.12.
- B. Branch circuits shall be of such size that the drop in potential to the furthers point on the circuit shall not exceed 2%.
- C. Connections for electrical and mechanical security:
1. Number 8 wire and larger with forged copper pressure connectors.
 2. Number 10 wire and smaller made with indent type splice caps or electrical spring connectors.
 3. Cover joints with sufficient plastic tape or caps to insure insulating value equal to that of the conductor insulation itself.
- D. Pad sharp corners and voids to prevent damage.
- E. In junction boxes joining underground conduit or in wet location, make connections waterproof with Scotch 2200 self-fusing rubber based insulating rubber based compound laminated to PVC backing.
- F. Conductors in continuous row fluorescent fixtures – code gauge type rated at 90 degrees C.

1.04 COLOR CODING

- A. All branch circuits and feeder conductors color coded as scheduled on the drawings.
 - 1. Neutrals of different voltage systems must be of different color.
 - 2. All circuit conductors of the same color - connected to the same feeder conductor throughout the installation.
 - 3. Conductors intended solely for equipment grounding purposes - green in color.
- B. Wire Number 6 AWG or smaller, - the color of the insulation covering.
- C. Wire larger than No. 6 AWG and other types of wire: self-adhesive, rap around wire markers of solid colors.
- D. Mark each wire at panel boards, auxiliary gutters, junction boxes, pull boxes, outlets, disconnect switches and control centers.

END OF SECTION

SECTION 16103
CONDUIT SYSTEMS

1.01 GENERAL

- A. Install conduit systems as shown on the drawings.
- B. Installation and all components of the system:
 - 1. UL labeled.
 - 2. Conform to National Electrical Code
- C. Use fittings and methods of joining conduit as set forth in the National Electrical Code.
- D. Conduit termination's at electrical equipment:
 - 1. Secured in place by locknuts inside and outside.
 - 2. Provided with approved bushings.
- E. Join rigid conduit with standard couplings according to the manufacturer's recommendations.
- F. Adhere to the general routing of conduit systems as shown on the drawings.
- G. Install all conduits in the most direct, neat, and workmanlike manner, employing only skilled mechanics.
 - 1. Install conduit to conserve space and not interfere with use of space.
- H. Hold horizontal and vertical conduit as close as possible to walls, ceilings, struts, and members as to occupy the minimum space consistent with the proper requirements for service of adjacent elements.
- I. Layout to maintain headroom, neat mechanical appearance, and to support equipment loads required.

1.02 CONNECTIONS TO MOTORS AND EQUIPMENT

- A. Flexible conduit:
 - 1. Minimum Length: 24 inches
 - 2. Maximum Length: 36 inches
- B. For all connections to motors, transformer and control valves:
 - 1. U.L. Labeled Liquid-tight non-metallic with PVC watertight fittings.
 - 2. U.L. labeled Liquid-tight Flexible Steel Conduit

1.03 CONDUIT MATERIALS

- A. Electrical metallic tubing (EMT).
 - 1. Cold rolled steel tubing.
 - 2. Zinc coated inside and out.
 - 3. UL labeled standard weight.
- B. Fittings meet same requirements as for EMT. UL labeled.
 - 1. Only compression fittings shall be utilized.
 - 2. Cast Metal fittings are not approved and shall not be utilized.
- C. PVC conduit:
 - 1. UL labeled type 40.
 - 2. PVC fittings and solvent welded joints.
 - 3. GRC 90's

4. Stubbed thru slab
- D. Rigid aluminum conduit:
1. UL labeled schedule 40.
 2. 6063 aluminum alloy T3 temper.
- E. Fittings meet same requirements as for rigid aluminum conduit. UL labeled.
- F. Conduit run exposed to the weather:
1. Rigid aluminum conduit
 2. GRC
- G. Conduit run underground or beneath the building slab:
1. PVC
 2. GRC 90's
 3. GRC Stubbed thru slab.
- H. Branch circuit exposed inside building:
1. Electrical metallic tubing.
- I. Conduit in concrete floor slabs at grade:
1. PVC.
 2. GRC 90's
 3. GRC Stubbed thru slab.

1.04 INSTALLATION

- A. Conduit 1" and smaller – in the slab dimension. Slab dished for larger conduit to accommodate 4" of concrete over the conduit with 2" of encasement.
- B. Cap or plug conduit ends upon completion of the run until the wire is pulled.
- C. Swab out conduit to remove moisture and debris before wires are pulled in.
- D. Completely install each conduit run prior to pulling conductors.
- E. Route all exposed conduits parallel or perpendicular to building lines.
- F. Alter conduit routing to avoid structural obstructions, minimizing crossovers.

1.05 MINIMUM CONDUIT SIZES

- A. Branch circuit: 1/2 inch. Home Runs 3/4 inch.

1.06 RACEWAY CONTINUITY

- A. Assure the electrical continuity of all metal conduit systems.

- B. Approved methods:
1. Threadless fittings made up tight, with conduit or metal clad cable.
 2. Two locknuts, one inside and one outside of boxes or cabinets.
 3. Threaded compression couplings and threaded bosses or enclosures: make up joints wrench tight.
 4. Threadless compression coupling on rigid metal conduit and electrical metallic tubing: make joints tight.
 5. Use bonding jumpers around knockouts, which are formed to impair the electrical grounding continuity.

1.07 EMPTY CONDUIT SYSTEM

- A. Empty conduit in which cable is to be installed by others shall be minimum 3/4 inch.
1. National Electrical Code.
- B. Ground effectively and permanently:
1. Neutral conductor.
 2. All conduit Systems.
 3. All electrical equipment.

END OF SECTION

SECTION 16131
PULL AND JUNCTION BOXES

1.01 WORK INCLUDED

- A. Pull boxes.
- B. Junction boxes

1.02 SUMMARY

- A. Provide where required for the installation and servicing of the conductors.
- B. Sized to conform with the National Electrical Code.

1.03 MATERIALS

- A. Galvanized steel, gauges conforming to NEC.
- B. If underground or at grade use reinforces plastic; concrete with cast iron lid; or cast iron.

1.04 CONSTRUCTION

- A. Surface mounted pull boxes.
 - 1. With screw-on or hinged cover.
 - 2. Galvanized with waterproof gasket.
- B. Flush mounted pull boxes.
 - 1. With overlapping covers.
 - 2. With flush head cover retaining screws.
 - 3. Prime coated indoors.
 - 4. Galvanized outdoors with waterproof gasket.

1.05 INSTALLATION

- A. Locate pull and junction boxes above removable ceilings or in electrical rooms, utility rooms, or storage areas.
- B. Close unused openings in pull and junction boxes with a knockout closure.

END OF SECTION

SECTION 16151
SAFETY SWITCHES

1.01 GENERAL REQUIREMENTS

- A. Provide where shown on the drawings and where required by NEC.
- B. Conform to NEMA and UL standards for heavy duty switches.

1.02 ENCLOSURE

- A. NEMA 4 X stainless steel.
- B. Operating handle lockable "OFF" with three pad locks.
- C. Door interlocks:
 - 1. Defeatable, front accessible interlock.
 - 2. To prevent opening door when operating handle is in the "ON" position.
 - 3. To prevent throwing switch to "ON" position when door is open.
- D. Provide specified identification label.

1.03 CONSTRUCTION

- A. Rated at system voltage.
- B. Current rating as shown on the drawings.
- C. Three Pole:
 - 1. Quick make, quick break action.
 - 2. Current carrying parts plated.
 - 3. Provide with auxiliary interlock contact where shown on the drawing.

1.04 ACCEPTABLE MANUFACTURERS

- A. Square D.
- B. General Electric

1.05 INSTALLATION OF SAFETY AND DISCONNECT SWITCHES

- A. Install safety and disconnect switches where shown, in accordance with the manufacturer's written instructions, requirements of the NEC, NECA Standard of Installation, and industry practices.
- B. Provide safety switches where shown and at each motor out of sight of, or more than 50 feet from, the switch or panel from which the motor circuit is fed.
- C. Provide all safety and disconnect switches with galvanized channel sub-structure. Switches shall not be supported by conduit alone.
 - 1. Provide neoprene to isolate S.S. Enclosures.
- D. Coordinate safety and disconnect switch installation work with electrical raceway and cable work as necessary for interface.

1.06 TESTING

- A. Before energizing, check for continuity of circuits and short circuits.

END OF SECTION

SECTION 16400

POWER SERVICE ENTRANCE

1.01 GENERAL

A. Obtain from the electrical utility company all required information to provide a complete electrical service change over.

1.02 WORK INCLUDED

- A. Provide the construction coordination required to effect the utility power connection at the proper time.
- B. Coordinate that part of the service installation. Construction including metering provisions, provided by the electric utility. Pay all fees required by the electric utility company for their part of the work.
- C. Provide all services, material, equipment, installation and labor to construct the power service entrance in accordance with the requirements of:
 - 1. The Electric Utility Company.
 - 2. The National Electric Code.
 - 3. Governing Local codes

END OF SECTION

SECTION 16435
CIRCUIT BREAKER PANELBOARDS

1.01 CIRCUIT BREAKER PANELBOARDS

- A. Panel boards:
 - 1. Provided with cover and door.
 - 2. Equipped with the number and size of circuit breakers scheduled.
 - 3. Provided with a typewritten directory of circuits mounted in a card holder on the inside of the panel.
- B. Breakers:
 - 1. Thermal magnetic.
 - 2. Trip indicating.
 - 3. Multi-pole breakers provided with:
 - a. Common trips on all poles.
- C. Constructed in accordance with all applicable NEMA and UL Standards.
- D. Panel boards bussing:
 - 1. Tin plated, full size copper.
 - 2. Of sufficient cross section area to continuously conduct rated full load current with a maximum temperature rise of 50 degrees C. above an ambient temperature of 40 degrees C.
 - 3. Provide a grounding bus sized at 25% of the phase bus.
 - 4. Provide a neutral bus sized at 100% of the phase bus.
- E. Identify each breaker with an engraved laminated nameplate stating the load it serves.
- F. Provide 3" laminated plastic nameplate with 3/8" letters on cover of each panel board.
 - 1. Refer to specifications 16021 - Identification
- G. Verify the electrical characteristics of all equipment for use in preparing shop drawings for panelboard.

1.02 ACCEPTABLE MANUFACTURERS

- A. Square D.
- B. General Electric

END OF SECTION

SECTION 16437
VOLTAGE AND CURRENT METERING

1.01 GENERAL

- A. Provide switchboard instrumentation where shown on the drawings, and as specified.
 - 1. Measure, monitor and display voltage and current.

1.02 REFERENCES

- A. ANSI C12 – Code for Electricity Metering.
- B. ANSI C39 –1 Requirements for Electrical Analog indicating Instruments.
- C. ANSI C57.13 – Requirements for Instrument Transformers.

1.03 INSTALLATION

- A. Locate the instrumentation in a separate compartment.
 - 1. Covered with front plate
- B. Provide laced wiring, fuse blocks and numbered terminal strips for instruments input and output signals.
 - 1. Printed wiring diagram on inside cover.
- C. Front plates for mounting, meters, displays and selector switched.
 - 1. Hinged.
 - 2. All wiring installed and laces with flexibility at the hinged side.
 - 3. Screw removable closure plates.

END OF SECTION

SECTION 16450
ELECTRICAL GROUNDING

1.01 WORK INCLUDED

- A. Grounding shall conform to the requirements of:
 - 1. National Electrical Code
 - 2. Governing local codes
 - 3. Local Utility Company
- B. Ground effectively and permanently:
 - 1. Neutral conductor at the main service disconnect and other separately derived systems.
 - 2. All conduit systems.
 - 3. All electrical equipment and related current carrying supports or structures.
 - 4. All Metal piping systems.
 - 5. All building structural metal frames.

1.02 GROUNDING ELECTRODE

- A. 3/4" X 10'- 0" copper clad grounding electrode.
 - 1. UL listed.
- B. Connections.
 - 1. Burundey irreversible copper hydraulic compression fittings.
- C. Driven with top of electrode at grade.
- D. The total ground resistance shall not exceed 10 ohms for service entrance grounds and 25 ohms for equipment grounds.
- E. Resistance of neutral ground shall be measured using a megger earth resistance tester.
 - 1. Not less than 48 hours after last rainfall.
 - 2. Shall not exceed 10 ohms

1.03 GROUNDING SYSTEMS

- A. In the service equipment, provide a ground bus separate from the neutral bar.
 - 1. Bond it with copper bus bar to the neutral bar.
- B. Connect the grounding electrode conductor between the ground bus and the driven ground electrode.
- C. Install a green insulated grounding conductor:
 - 1. In each section of nonmetallic conduit.
 - 2. To all weatherproof receptacles.
 - 3. With each panel feeder.
 - 4. With each branch circuit with two or three pole breakers.
 - 5. To the transformer.
 - 6. Flexible steel conduit.
- D. Provide all conduit terminating I electrical equipment with grounding bushings and ground wire extended to ground bus in equipment.

1.04 MISCELLANEOUS REQUIREMENTS

- A. Continuity of the building equipment grounding system shall be maintained throughout the project. Grounding jumpers shall be installed across conduit expansion fittings, liquid-tight flexible metal and flexible metal conduit, light fixture pigtails in excess of 6', and other nonelectrically continuous raceway fittings.
- B. Grounding conductors and grounding electrode conductor shall be green insulated stranded copper conductors and run in a suitable raceway. Grounding conductors and grounding electrode conductor shall be continuous, without joints or splices over their entire length, except as allowed by THE NEC.

END OF SECTION

SECTION 16460
DRY TYPE TRANSFORMER

1.01 GENERAL

- A. Provide the dry type transformer where shown on the drawings.
- B. Minimum overload capacity to comply with ASA standards.
- C. Provide in an enclosure suitable for its locations.
- D. Electrical characteristics and capacity as scheduled on the drawings.

1.02 CONSTRUCTION

- A. Class 220 degrees C insulation.
- B. Constructed in accordance with NEMA standards and the NEC.
- C. Terminal compartment in an ambient temperature location.
- D. Incorporate build in vibration dampening systems.
- E. Sound levels shall conform to the NEMA standards after installation.
- F. Provide transformer with 6 taps.
- G. Transformers 25 KVA and above 80 degrees C rise above 40 degrees C ambient.

1.03 INSTALLATION

- A. Install the transformer according to the manufacturer's installation manual.

1.04 ACCEPTABLE MANUFACTURES

- A. Square D
- B. General Electric

END OF SECTION

SECTION 16510

LUMINARIES

1.01 GENERAL

- A. Provide a luminaire for each luminaire symbol shown on the drawings.
- B. The descriptions and catalog numbers establish the quality, appearance, and performance of the specified luminaires.
- C. Verify all dimensions and electrical characteristics with actual project conditions.
- D. If conditions do not permit the installation of any of the lighting details as specified, request inspections prior to fabrication.

END OF SECTION