

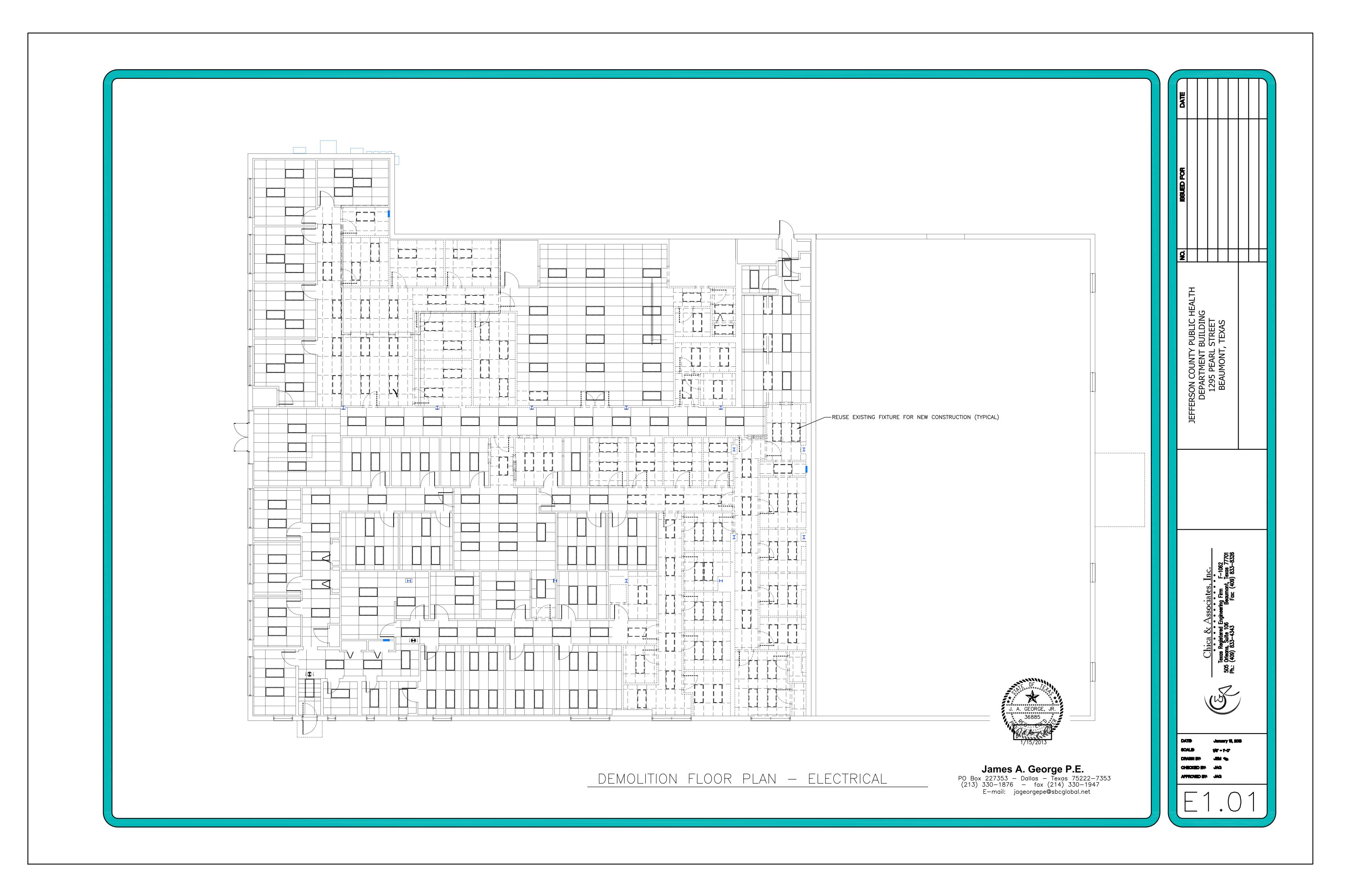


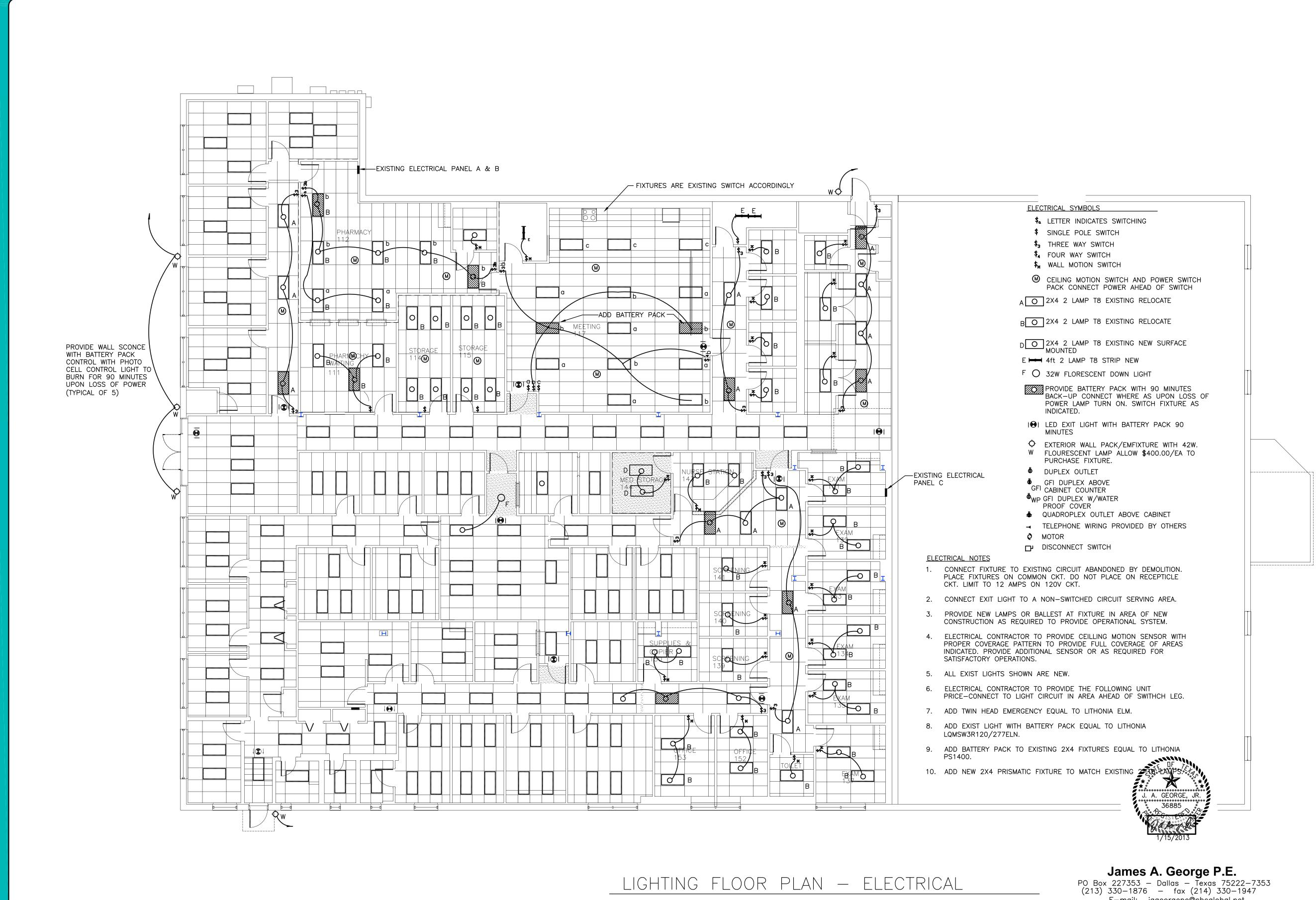
HVAC GENERAL NOTES 1. FURNISH AND INSTALL ALL MATERIALS AND LABOR REQUIRED TO PROVIDE COMPLETE AND OPERABLE HVAC SYSTEMS WITH ALL ITEMS AND APPURTENANCES NECESSARY EVEN THOUGH NOT SPECIFICALLY CALLED 2. COORDINATE EXACT ROUTING OF ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION OF WORK. 3. ALL SUPPLY AIR DUCTWORK (EXCEPT WHERE INDICATED OTHERWISE) SHALL BE INSULTED WITH 1" THICK 0.75 LB/CF FSK WRAP INSULATION. WHERE DUCTWORK HAS INTERNAL LINER, 1" WRAP INSULATION MAY BE OMITTED. 4. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. INSTALL TURNING VANES IN ALL DUCTWORK ELBOWS. 5. ALL WORK AND/OR MATERIALS SHALL BE INSTALLED BY A LICENSED CONTRACTOR AND SHALL CONFORM TO ALL APPLICABLE NATIONAL AND LOCAL BUILDING AND MECHANICAL CODES. 6. MECHANICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION AND ROUTING OF DUCTWORK WITH REFLECTED CEILING PLANS AND ELECTRICAL LIGHTING LAYOUT. 7. INSTALL 1" THICK ACOUSTICAL DUCT LINER IN ALL RETURN AIR PLENUMS AND FIRST 15 FEET OF SUPPLY AND RETURN DUCTWORK FOR EACH AIR HANDLING SYSTEM. ALL DUCT SIZES SHOWN ON PLANS ARE NET INSIDE CLEAR DIMENSIONS. 8. FLEXIBLE DUCT MAY BE USED AT ALL AIR DEVICE CONNECTIONS BUT MAY NOT EXCEED 5' IN LENGTH. 9. ALL DUCT RUN OUTS NOT SIZED ON THE PLANS SHALL BE THE SAME SIZE AS THE AIR DEVICE NECK. 10. CLEAN AND REPAINT EXISTING DIFFUSERS AND GRILLES BEING REUSED. <u>HVAC LEGEND</u> FUTURE DUCTWORK, GRILLES PIPING AND EQUIPMENT CEILING SUPPLY AIR DIFFUSER WITH FLEXIBLE DUCT CONNECTION RETURN OR EXHAUST GRILLE SIDEWALL RETURN AIR GRILLE ROUND FLEXIBLE DUCTWORK 4' LENGTH MAXIMUM TEMPERATURE SENSOR VOLUME DAMPER FIRE DAMPER MOTORIZED CONTROL DAMPER CONDENSATE DRAIN DUCT SMOKE DETECTOR DIFFUSER OR GRILLE DESIGNATION

James A. George P.E.

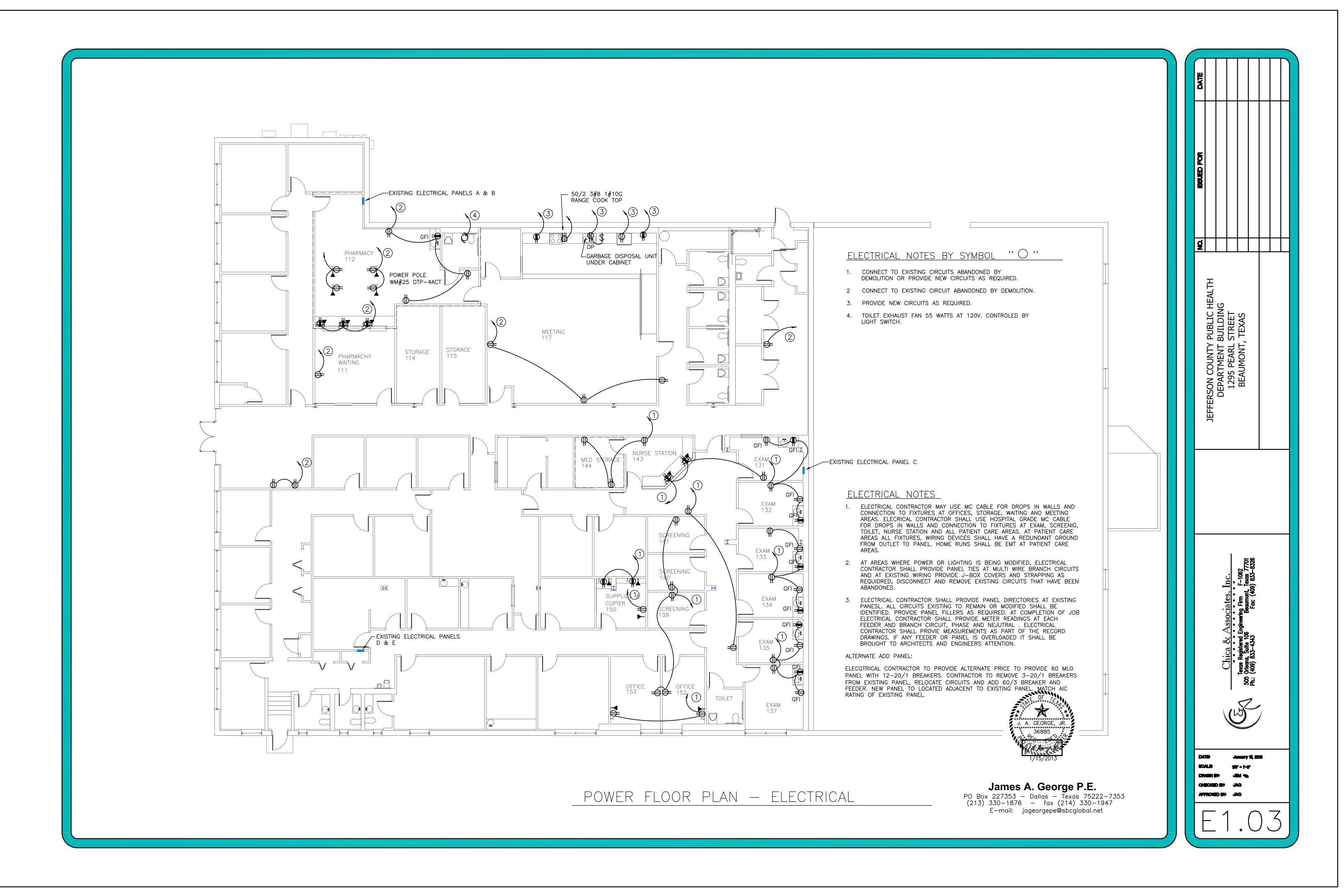
PO Box 227353 — Dallas — Texas 75222—7353
(213) 330—1876 — fax (214) 330—1947
E-mail: jageorgepe@sbcglobal.net

NOTES AND SYMBOLS - MECHANICAL





E-mail: jageorgepe@sbcglobal.net



PRODUCTS

- 1.A. RIGID STEEL CONDUIT (GRC GALVANIZED RIGID CONDUIT): CONSTRUCTED OF MILD STEEL PIPING, GALVANIZED INSIDE AND OUTSIDE, IN ACCORDANCE WITH U.L. SAFETY STANDARD 8
- 1.B. INTERMEDIATE METAL CONDUIT (IMC): CONSTRUCTED OF ZINC COATED STEEL TUBING MANUFACTURED IN ACCORDANCE WITH U.L. SAFETY STANDARD 1242 AND ANSI C80.6.
- ELECTRIC METALLIC TUBING (EMT): HIGH GRADE MILD STRIP STEEL, HOT GALVANIZED O. WITH AN DRGANIC CORROSION RESISTANT I.D. COATING, IN ACCORDANCE WITH U.L. SAFETY STANDARD #797 AND ANSI CB0.3.
- LIQUIDITIGHT FLEXIBLE CONDUIT: MANUFACTURED AS SPECIFIED FOR FLEXIBLE META CONDUIT WITH A COPPER GROUNDING STRAND AND FACTORY—APPLIED NEOPRENE JACKET. LIQUID-TIGHT PLEXIBLE CONDUIT SHALL MEET THE REQUIREMENTS OF UL 360.
- 2. COUPLINGS AND TERMINATORS
- 2A. FOR RIGID STEEL OR INTERMEDIATE METAL CONDUIT: FACTORY-MADE THREADED COUPLINGS OF SAME MATERIAL AS THE CONDUIT.
- FOR ELECTRICAL METALLIC TUBING: STEEL SET SCREW COUPLINGS; STEEL SET SCREW BOX CONNECTORS WITH MYLON INSULATED THROAT AND LOCKMUTS AT ALL BOXES AND CABINET TERMINATIONS OR NON-INSULATED BOX CONNECTOR, LOCKNUT AND NYLON—INSULATED GROUNDING BUSHING ON ALL TUBING WHERE GROUNDING BUSHINGS
- 2.C. NOT USED

3. JUNCTION AND PULL BOXES

- 3.A. SIZE BOXES IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC. BOXES SHALL BE NO SMALLER THAN 4 INCHES SQUARE BY 1-1/2 INCHES DEEP WITH COYERS ACCESSIBLE AT ALL TIMES. SET BOXES ON CONCEALED CONDUITS WITH COVERS FLUSH WITH THE FINISHED WALL OR CEILING LINE.
- 3.B. PROVIDE JUNCTION AND PULL BOXES OF APPROPRIATE DIMENSIONS FOR CONDUITS AND CONDUCTORS NOTED, WHERE SHOWN AND WHERE NECESSARY FOR THE INSTALLATION AN PULLING OF CABLES AND WIRES. INSTALL COVERS ON JUNCTION BOXES AND CONDULETS AFTER WIRING AND CONNECTIONS ARE COMPLETED.

- 4A. OUTLET BOXES SHALL BE UL LISTED, AND OF SIZES AND TYPES REQUIRED FOR THE APPLICATION. OUTLET BOXES SHALL BE SHEET STEEL, NO LIGHTER THAN 14 GAUGE, GALVANIZED AFTER FABRICATION. SET BOX SO FACE OF BOX WILL FINISH FLUSH WITH
- FOR LIGHTING FIXTURE OUTLETS: 4 INCH SQUARE BY 1-1/2 INCHES DEEP WITH RAISED FIXTURE RING.
- FOR WALL SWITCHES, RECEPTACLES, AND COMMUNICATION USE: 4 NCH SQUARE, BY 1-1/2 INCHES DEEP. USE BOXES WITH PLASTER RINGS IN ALL PLASTERED WALLS WHERE WALL THICKNESS PERMITS. USE BOKES LESS THAN 1-1/2 INCH DEEP ONLY IN LOCATIONS WHERE DEEP BOXES CANNOT BE ACCOMMODATED BY CONSTRUCTION.

- 4.C. UL LISTED; SIZED INDICATED OR REQUIRED; HINGED COVER, SECURED WITH CAPTIVE SCREWS: COMPLETE WITH ALL REQUIRED FITTINGS, COUPLINGS, HANGERS AND
- 4.D. CORROSION RESISTANT PRIMER AND ANSI GRAY EPOXY PAINT FINISH. CORROSION RESISTANT BOLTS OR SCREWS. SCREWS OR BOLTS INSTALLED TOWARD THE INSIDE FITTED WITH SPRING NUTS OR OTHERWISE PREVENTED FROM DAMAGING CONDUCTOR INSULATION.

PULL CORDS

5A. PROMDE A NYLON POLYETHYLENE CORD, WITH A TENSILE STRENGTH OF NOT LESS THAN 200 POUNDS, IN EACH EMPTY CONDUIT TO FACILITATE THE FUTURE INSTALLATION OF CONDUCTORS. INCORPORATE PLASTIC TAGS FOR IDENTIFICATION.

- 6.A. CONDUCTORS SHALL BE 98% CONDUCTIVITY SOFT DRAWN ANNEALED COPPER, 600 VOLT, THHM/THMN INSULATION. #10 AND SMALLER — SOLID. #8 AND LARGER — STRANDED.
- 6.B. NO CONDUCTORS SHALL BE SMALLER THAN NO. 12, EXCEPT FDR SIGNAL OR CONTROL circuits and for individual lighting fixture taps as permitted by NEC.
- 6.C. FOR HOME RUNS ON 120-VOLT, 20-AMPERE BRANCH CIRCUITS, WHERE LENGTH OF RUN FROM PANELBOARD TO FIRST OUTLET EXCEEDS 100 LINEAR FEET, USE NO. 10 CONDUCTORS. WHERE LENGTH OF RUN IS 100 LINEAR FEET OR LESS, USE NO. 12
- 6.D. FOR HOME RUNS ON 277-VOLT, 20-AMPERE BRANCH CIRCUITS, WHERE LENGTH OF RUN FROM PANELBOARD TO FIRST OUTLET EXCEEDS 200 LINEAR FEET, USE NO.10 CONDUCTORS. WHERE LENGTH OF RUN IS 100 LINEAR FEET OR LESS, USE NO.12
- 6.E. METAL-CLAD CABLE SHALL NOT BE USED.
- HEALTHCARE GRADE AC CABLES: HEATHCARE GRADE AC CABLES SHALL CONSIST OF FACTORY ASSEMBLED THIN INSULATED COPPER CONDUCTORS WITH PAPER WRAP ON EACH CONDUCTOR, ENCLOSED IN AN INTERLOCKED CALVANIZED STEEL ARMOR, COLOR CODED GREEN. THE CABLE SHALL BE MANUFACTURED IN ACCORDANCE WITH UL 4, 83, 1479 AND 1581. THE CONDUCTORS SHALL HAVE AN OPERATING TEMPERATURE OF 90 DEGREE C. GROUNDING MEANS SHALL BE PROVIDED WITH AN INTEGRAL BOND WIRE/ARMOR COMBINATION PLUS AN INSULATED GREEN GROUNDING CONDUCTOR. HEALTHCARE GRADE AC CABLES SHALL BE AFC HCF-90 OR APPROVED EQUAL.
- WIRING DEVICES, COVER PLATES AND ACCESSORIES
- 7.A. PROVIDE WIRING DEVICES AND ASSOCIATED ACCESSORIES OF HOSPITAL GRADE. DEVICES OF LEVITON, HUBBELL OR PASS & SEYMOUR ARE ACCEPTABLE. SUBMIT FOR REVIEW A COMPLETE LIST OF ANY SUBSTITUTES OFFERED FROM THOSE SPECIFIED.
- 7.B. COLOR OF WALL SWITCHES, RECEPTACLES AND FACEPLATES: MATCH EXITING.
- 7.C. WIRING DEVICES ON EMERGENCY POWER SHALL BE RED. 7.D. DEVICE FACEPLATES SHALL BE STAINLESS STEEL.
- 7.E. DEVICE FACEPLATE ON NORMAL AND EMERGENCY RECEPTACLES SERVING PATIENT CARE
- CHARACTERS SHALL BE 3/16 IN HEIGHT AND FILLED WITH BLACK PAINT. SWITCHES: WHERE LIGHTING CIRCUITS ARE SHOWN TO BE LINE VOLTAGE SWITCHED, PROVIDE WITH SPECIFICATION GRADE, HORSEPOWER RATED, UL LISTED, BACK— AND SIDE-WIRED, TOGGLE SWITCHES RATED 20-AMP, 120 VOLTS OR 277 VOLTS. SMITCHES SHALL BE SPST, DPST, 3-WAY OR 4-WAY, WITH OR WITHOUT PILOT LIGHT, AS INDICATED ON THE DRAWINGS.

AREAS SHALL BE ENGRAVED WITH CIRCUIT NUMBER SERVING SAME. ENGRAVED

7.G. RECEPTACLES

WALL RECEPTACLES SHALL BE HOSPITAL GRADE, RATED 20-AMP, 120-VOLT, 2 POLE, 3-WIRE, GROUNDING TYPE, SIDE-WIRED, NEMA 5-20R.

7.G.2. GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES SHALL BE HOSPITAL GRADE, 20 AMP, 120

YOLT, 2 POLE, 3—WIRE, NEMA 5—20R.

7.G.3. ISOLATED GROUND RECEPTACLES SHALL BE HOSPITAL GRADE, 20A, 120 VOLT, 2 POLE, 3-WIRE, NEWA IC5-20R.

- 7.G.4. SPECIAL PURPOSE RECEPTACLES SHALL BE AS INDICATED ON THE DRAWINGS.
- 8.A. TRANSFORMER KVA AND VOLTAGE RATINGS: AS INDICATED ON THE DRAWINGS.
- 8.B. GENERAL LIGHTING AND DISTRIBUTION TRANSFORMERS

DEGREE C UL COMPONENT RECOGNIZED INSULATION SYSTEMS.

- 8.B.1. TRANSFORMER COILS: CONTINUOUS WOUND CONSTRUCTION AND IMPREGNATED WITH NON-HYGROSCOPIC, THERMOSETTING VARNISH. 8.B.2. TRANSFORMERS 15KVA AND LARGER SHALL BE 150 DEGREE TEMPERATURE RISE ABOVE 4
- full capacity primary taps. 8.B.3. INSULATING MATERIALS ARE TO BE IN ACCORDANCE WITH NEMA ST20 STANDARDS FOR 220

DEGREE C AMBIENT. TRANSFORMERS 25KVA AND LARGER SHALL HAVE A MINIMUM OF 4-2 1/2%

8.B.4. CONSTRUCT ALL CORES OF HICH CRADE, NON-AGING SILICON STEEL WITH HIGH MAGNETIC PERMEABILITY AND LOW HYSTERESIS AND EDDY CURRENT LOSSES, CORE AND COIL SHALL BE SOLATED FROM BASE OF THE ENCLOSURE BY MEANS OF RUBBER, MBRATION—ABSORBING MOUNTS. THERE SHALL BE NO METAL—TO—METAL CONTACT BETWEEN THE CORE. AND COIL AND THE

8.B.S. VISIBLY GROUND THE CORE OF THE TRANSFORMER TO THE ENCLOSURE BY MEANS OF A FLEXIBLE GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH APPLICABLE UL AND NEC

8.B.6. THE TRANSFORMER ENCLOSURES SHALL BE VENTILATED AND BE FABRICATED OF HEAVY GAUGE, SHEFT STEEL CONSTRUCTION. THE ENTIRE ENCLOSURE SHALL BE FINISHED UTILIZING A CONTINUOUS PROCESS CONSISTING OF DEGREASING, CLEANING AND PHOSPHATIZING, FOLLOWED BY ELECTROSTATIC DEPOSITION OF A POLYMER POLYESTER POWER COATING AND BAKING CYCLE TO PROVIDE UNIFORM COATING OF ALL EDGES AND SURFACES. THE COATING SHALL BE ANSI 49

8.B.7. THE MAXIMUM TEMPERATURE OF THE TOP OF THE ENCLOSURE SHALL NOT EXCEED 50 DEGREE C RISE ABOVE A 40 DEGREE C AMBIENT.

8.B.8. SOUND LEVELS SHALL BE WARRANTED BY THE MANUFACTURER NOT TO EXCEED THE FOLLOWING:

15 TO 50kVA - 45db; 51 TO 150kVA - 50db; 151 TO 300kVA - 55db; 301 TO 500kVA - 60 db

- OVERCURRENT PROTECTIVE DEVICES
- 9.A. MOLDED CASE CIRCUIT BREAKERS
- 9.4.1. AS MANUFACTURED BY THE MANUFACTURER OF THE PANELBOARD IN WHICH INSTALLED.
- 9.A.2. ONE, TWO OR THREE POLE WITH RATINGS INDICATED ON THE DRAWINGS; (STANDARD) OR (HIGH INTERRUPTING) CONSTRUCTION AS REQUIRED BY THE SHORT CIRCUIT RATINGS INDICATED ON

9.A.3. QUICK-MAKE, QUICK-BREAK, CALIBRATED FOR OPERATION IN AN AMBIENT TEMPERATURE OF 40 DEGREE C. TRIP INDICATION BY HANDLE POSITION, TRIP-FREE. TWO AND THREE POLE BREAKERS: COMMON TRIP WITH SINGLE OPERATING HANDLE WITHOUT HANDLE TIES, PERMANENT TRIP UNIT CONTAINING INDMIDUAL THERMAL AND MAGNETIC TRIP ELEMENTS IN EACH POLE. FRAME SIZES GREATER THAN 100 AMPERES: VARIABLE MAGNETIC TRIP ELEMENTS WHICH ARE SET BY A SINGLE

9.A.4. REMOVABLE LUGS, UL LISTED FOR COPPER AND ALLIMINUM CONDUCTORS. LISTED FOR NSTALLATION OF MECHANICAL OR COMPRESSION TYPE LUGS.

- DISCONNECT SWITCHES
- 10.A. AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, CUTLER-HAMMER OR SEMENS.
- 10.B. FUSBLE/NON-FUSIBLE SWITCHES

10.B.1. ALL SWITCHES: HEAVY DUTY TYPE; UL LISTED AND MEET LATEST NEMA STANDARDS KS-1; HORSEPOWER RATED, QUICK-MAKE, QUICK-BREAK, VISIBLE BLADES IN "OFF" POSITION; removable arc suppressors: lugs front removable and ul listed for 75 degree c ALUMINUM DR COPPER WIRE; OPERATING HANDLE IN CONTROL OF SWITCH WITH DOOR OPEN AND CLOSED: HANDLE POSITION CLEARLY INDICATE "ON" AND "OFF" POSITIONS; PROVISIONS FOR PADLOCKING IN "OFF" POSITION; SAFETY INTERLOCKS TO PREVENT THE ENCLOSURE DOOR FROM BEING OPENED WHILE THE HANDLE IS IN THE "ON" POSITION AND TO PREVENT THE HANDLE FROM BEING TURNED TO THE "ON" POSITION WHILE THE ENCLOSURE DOOR IS OPEN; MEANS TO PERMIT AUTHORIZED PERSONNEL TO RELEASE THE SAFETY INTERLOCKS FOR MAINTENANCE OR INSPECTION; AUXILIARY POLES, AS REQUIRED, TO DISCONNECT CONTROL VOLTAGE(S) WHEN POWER YOLTAGE IS DISCONNECTED.

10.B.2 ENCLOSURES: NEMA 1 OR NEMA 3R, AS INDICATED ON DRAWINGS; CLEAN STEEL, GALVANIZED AFTER FORMING, PRIMED AND GREY BAKED ENAMEL FINISHED: NEMA 1 COVERS ON PIN TYPE HINGES; NEMA 3R COVERS SECURABLE IN THE OPEN POSITION. INTERCHANGEABLE BOLT-ON THREADED HUBS ON NEWA 3R STATCHES THRU 200 AMPERE.

10.B.3. FUSBLE SWITCHES: FOR 600 AMPERE AND SMALLER SWITCHES, PROVIDE UL LISTED REJECTION CLIPS TO REJECT ALL FUSES EXCEPT CLASS R; FOR 800 AMPERE AND LARGER INITCHES, PROVIDE FUSE CLIPS FOR CLASS L FUSES. ALL SWITCHES UL LISTED SHORT CIRCUIT RATING OF 20,000 AMPERES RMS SYMMETRICAL.

10.C. ENCLOSED CIRCUIT BREAKER

10.C.1. ENCLOSURES: NEWA 1 OR NEWA 3R AS INDICATED ON THE DRAWINGS. NEWA 1 enclosures; furnished with knockouts where practical; fabricated from sheet steel. GALVANIZED AFTER FORMING: ELECTRODEPOSITED, GRAY BAKED ENAMEL FINISH. PROVIDE PADLOCKING PROVISIONS TO ALLOW LOCKING THE CIRCUIT BREAKER IN THE "OFF" POSITION. NEMA 3R FINCLOSURES FOR CIRCUIT BREAKERS RATED THRU THE 225 AMPERE FRAME SIZE FURNISHED WITH PROVISIONS FOR INTERCHANGEABLE, BOLT-ON HUBS. NEWA 3R ENCLOSURE COVERS SECURABLE IN THE OPEN POSITION. PROVIDE PADLOCKING PROVISIONS TO ALLOW LOCKING THE ENCLOSURE COVER CLOSED.

- 11.A. AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, CUTLER-HAMMER OR SEMENS.
- 11.B. LIGHTING AND APPLIANCE PANELBOARDS

11.B.1. PANELBOARD BUS STRUCTURE AND MAIN LUGS OR MAIN CIRCUIT BREAKER SHALL HAVE CURRENT RATINGS AS INDICATED ON THE DRAWINGS. BUS BARS SHALL ACCEPT BOLT—ON CIRCUIT BREAKERS. ALL CURRENT CARRYING PARTS OF THE BUS STRUCTURE SHALL BE PLATED. UL

11.B.2.THE PANELBOARD BUS ASSEMBLY SHALL BE ENCLOSED IN A SURFACE OR FLUSH MOUNTED STEEL CABINET AS INDICATED ON THE DRAWINGS.

11.B.3. EACH PANELBOARD SHALL BE LABELED WITH A SHORT CIRCUIT CURRENT RATING EQUAL. TO OR GREATER THAN THE FAULT CURRENT INDICATED ON THE DRAWINGS.

- 12. GROUNDING
- 12.A. GROUNDING SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- 12.B. GROUNDING CONDUCTORS SHALL BE ANNEALED COPPER CABLES OF THE SIZES INDICATED OR

12.C. A "CREEN WIRE" EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED WITHIN EACH FEEDER AND BRANCH CIRCUIT RACEWAY, WHETHER METALLIC OR NON-METALLIC, TO FORM A COMPLETE AND CONTINUOUS GROUNDING PATH. CONNECT GROUNDING CONDUCTORS TO GROUND TERMINALS AT EACH END OF THE RUN.

ELECTRICAL SPECIFICATIONS

- 12.D. SIZE GROUNDING CONDUCTORS IN ACCORDANCE WITH TABLES 250-66 AND 250-122 OF
- 12.E. CONNECT THE SECONDARY NEUTRAL POINT AND THE ENCLOSURE IN EACH DRY TYPE TRANSFORMER TOCETHER AND RUN A GROUNDING ELECTRODE CONDUCTOR FROM THEIR COMMON POINT OF CONNECTION TO THE ELECTRICAL ROOM GROUND BAR AND TO
- 12.F. PANELBOARD BONDING: THE EQUIPMENT GROUNDING TERMINAL BUSSES OF THE NORMAL AND ESSENTIAL BRANCH—CIRCUIT PANELBOARDS SERVING THE SAME INDIVIDUAL PATIENT VICINITY SHALL BE BONDED TOGETHER WITH AN INSULATED CONTINUOUS COPPER. CONDUCTOR NOT SMALLER THAN NO. 6. WHERE MORE THAN TWO PANELS SERVE TH SAME LOCATION, THIS CONDUCTOR SHALL BE CONTINUOUS FROM PANEL TO PANEL, BU SHALL BE PERMITTED TO BE BROKEN IN ORDER TO TERMINATE ON THE GROUND BUS IN

- 13.A. PROVIDE A LIGHTING FIXTURE COMPLETE WITH LAMPS, BALLASTS, AND OTHER REQUIRED APPURTENANCES FOR EACH LIGHTING OUTLET SHOWN ON THE DRAWINGS. LIGHT FIXTURES SHALL BE AS DESCRIBED IN THE "LIGHTING FIXTURE SCHEDULE". EACH UNIT SHALL BE FURNISHED WITH ALL MOUNTING AND TRIM ACCESSORIES TO SUIT THE SPECIFIC SERVICES APPLIED. FINISHES SHALL BE FACTORY-STANDARD, EXCEPT WHERE SCHEDULED OTHERWISE
- 13.B. LAMPS SHALL BE MANUFACTURED BY GENERAL ELECTRIC, PHLIPS, CR OSRAN/SYLVANIA, EXCEPT WHERE SCHEDULED OTHERWISE.
- 13.C. INCANDESCENT LAMPS: IN GENERAL, THIEY SHALL BE INSIDE FROSTED, DESIGNED FOR 130—VOLT OPERATION. WHERE REFLECTOR STYLE LAMPS ARE SCHEDULED, FURNISH BEAM PATTERN INDICATED ON THE DRAWINGS. SPECIAL PURPOSE INCANDESCENT AND INCANDESCENT QUARTZ LAMPS: OF WATTAGE, AND CONFIGURATION AS SCHEDULED AND AS RECOMMENDED BY THE LUMINAIRE MANUFACTURER.
- 13.D. FLUORESCENT LAMPS: IN GENERAL, 48-INCH LENGTH, T-5, PROGRAM START, ENERGY-SAVING, LAMP COLOR AS INDICATED.
- FLUORESCENT BALLASTS: IN GENERAL, ELECTRONIC TYPE FOR BOTH STANDARD FLUORESCENT AND COMPACT FLUORESCENT; 10%, THD LESS THAN 10 INPUT POWER FACTOR ABOVE 95 MANUFACTURED BY MOTOROLA, SYLVANIA, ADVANCE.
- 13.F. HIGH INTENSITY DISCHARGE (HID) BALLASTS: IN GENERAL, REGULATORY TYPE DESIGNED TO START AND OPERATE THE SPECIFIED LAMP CONBINATION. UNIT DESIGNED FOR RELIABLE START AND OPERATION TO AN AMBIENT TEMPERATURE OF -20 degrees F. At RATED LINE YOLTAGE, THE POWER FACTOR. SHALL BE NOT LESS THAN 95%
- 14. FIRE ALARM SYSTEM
- FURNISH AND INSTALL FIRE ALARM AND DETECTION SYSTEM ADDITIONS AND RELOCATIONS AS INDICATED ON THE DRAWINGS, IN COMPLIANCE WITH NFPA, STATE AND LOCAL CODES.
- 14.B. NEW DEVICES SHALL BE FROM THE SAME MANUFACTURER AS EXISTING AND SHALL BE CONNECTED TO EXISTING SYSTEM, COORDINATE WITH THE EXISTING FIRE ALARM SYSTEM epresentative for all reduirbments.
- 14.C. PROVIDE ALL REQUIRED UPGRADES, IF ANY, OF EXISTING SYSTEM HARDWARE TO ACCOMMODATE THE ADDITION OF NEW DEVICES, INCLUDING AUXILIARY POWER SUPPLY,
- 14.D. THE EXISTING SYSTEM OPERATION SHALL REMAIN UNCHANGED PROVIDING CONTINUAL SERVICE DURING ALL PHASES OF THE RENOVATION AND EXPANSION.
- 15. TELEPHONE/DATA SYSTEM
- 15.A. AT ALL WALL DATA/VOICE OUTLET LOCATIONS, PROVIDE BACK BOXES AND 3/4" EMPTY

CONDUIT WITH PULL CORD TO ABOVE ACCESSIBLE CEILING.

GENERAL CONDITIONS

EXPANSION CARDS AND OTHER ACCESSORIES.

- THE SCOPE OF THE WORK SHALL INCLUDE THE FURNISHING AND INSTALLATION OF THE NECESSARY MATERIAL AND LABOR TO ACCOMPLISH THE WORK INDICATED BY THE DRAWINGS AND
- THE CONTRACTOR SHALL OBTAIN PERMITS, PLAN CHECKS, INSPECTIONS AND APPROVALS APPLICABLE TO THE WORK AS REQUIRED BY THE REGULATORY AUTHORITIES. FEES AND COSTS OF ANY NATURE WHATSOEVER INCIDENTAL TO THESE PERMITS, INSPECTIONS AND APPROVALS SHALL BE ASSUMED AND PAID BY THE CONTRACTOR.
- 3. ALL WORK BY THIS CONTRACTOR SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, LOCAL BUILDING CODES AND STANDARDS.
- 4. APPLICABLE CODES AND STANDARDS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
- NATIONAL FIRE PROTECTION ASSOCIATION NATIONAL ELECTRICAL CODE
- NATIONAL SAFETY CODE SAFETY CODE
- STATE OF TEXAS BUILDING CODES STATE OF TEXAS

COORDINATION WITH OTHER TRADES.

- CITY CODES AND AMENDMENTS In case of difference between applicable codes and standards and the contract DOCUMENTS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT/ENGINEER IN WRITING
- COMPLY WITH THE REQUIREMENTS OF APPLICABLE CODES AND STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING SUCH DEFECTS. MATERIALS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE NEW AND SHALL BEAR

OF SUCH DIFFERENCE. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT

- THE U.L. LABEL WHERE APPLICABLE, UNLESS NOTED OTHERWISE. SHOULD THE CONTRACTOR SUPPLY ANY EQUIPMENT DIFFERING FROM THE SPECIFIED ITEMS IN THE CONTRACT DOCUMENTS WITHOUT NOTIFICATION TO THE ENGINEER, HE SHALL BEAR ALL
- COSTS TO UPGRADE DEFICIENCIES ARISING FROM SUCH. 8. THE CONTRACTOR SHALL INSTALL ELECTRICAL SYSTEMS WITHOUT INTERFERENCE AND IN STRICT
- 9. THE CONTRACT DOCUMENTS DO NOT PROPOSE TO SHOW ALL EXISTING SYSTEMS, EQUIPMENT OR MATERIAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE EXISTING CONDITIONS AT THE JOB SITE BEFORE SUBMITTING PROPOSALS. SUBMISSION OF PROPOSALS SHALL BE TAKEN AS EMDENCE THAT SUCH INSPECTION HAS TAKEN PLACE.
- 10. WHERE ONLY ONE MANUFACTURER'S NAME IS LISTED IN THE EQUIPMENT SPECIFICATION, OTHER MANUFACTURERS OF SIMILAR CHARACTERISTICS AND OF EQUAL OR BETTER PERFORMANCE CAPACITIES MAY BE CONSIDERED FOR "DR EQUAL" ACCEPTANCE BY THE ENGINEER SUBSTITUTION REQUESTS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL. WHERE MORE THAN ONE MANUFACTURER IS LISTED IN THE NOTES AND EQUIPMENT SPECIFICATIONS, ONLY THOSE NAMED MANUFACTURERS WILL BE CONSIDERED FOR ACCEPTANCE.
- 11. PROVIDE ACCESS, INCLUDING NECESSARY ACCESS DOORS, FOR NEW AND EXISTING EQUIPMENT REQUIRING OPERATION AND/OR MAINTENANCE. RELOCATE EXISTING AND LOCATE ALL NEW EQUIPMENT SUCH THAT OPERATION OR MAINTENANCE IS NOT RESTRICTED.
- INSTALL ALL ELECTRICAL EQUIPMENT WITH WORKING CLEARANCES IN COMPLIANCE WITH NEC
- 13. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR AFTER COMPLETION AND ACCEPTANCE BY THE

EXECUTION

- 1. INSTALLATION OF BUILDING CONDUIT
- 1.A. ALL INTERIOR RACEWAYS SHALL BE EMT UNLESS NOTED OTHERWISE. RACEWAYS IN DAMP or wet locations, or in hazardous locations, shall be grc or Mc.
- CONDUITS SHALL BE OF SUCH SIZE AND SO INSTALLED THAT THE CONDUCTORS MAY BE DRAWN THROUGH WITHOUT INJURY OR EXCESSIVE STRAIN, SHALL BE SECURED AT CABINETS AND BOXES WITH GALVANIZED LOCKNUTS, BOTH INSIDE AND OUTSIDE, AND SHALL HAVE APPROPRIATE BUSHINGS INSIDE. BUSHINGS SHALL BE INSULATING TYPE WITH
- 1.C. USE LENGTHS OF FLEXIBLE METAL CONDUIT NOT LESS THAN 12 INCHES LONG AT FINAL CONNECTIONS TO ALL MOTORS, TRANSFORMERS AND SIMILAR DEVICES SUBJECT TO MOVEMENT. USE FLEXIBLE METAL CONDUITS FOR FINAL CONNECTIONS TO RECESSED LIGHTING FIXTURES. USE LIQUID TIGHT FLEXIBLE METAL CONDUIT, WITH APPROPRIA CONNECTIONS, IN DAMP OR WET LOCATIONS, AT MOTOR OR EQUIPMENT LOCATIONS IN MECHANICAL EQUIPMENT ROOMS, AT OR NEAR PUMPS, AND WHEN INSTALLED OUTDOORS.
- 1.D. GROUND METALLIC CONDUITS AS REQUIRED BY NEC.
- INSTALL RACEWAYS CONTINUOUS FROM OUTLET TO OUTLET BOX, OR CABINET, WITH A MAXIMUM OF 150 FEET BETWEEN PULLS. IN AREAS WHERE THERE ARE NO SUSPENDED CELLINGS, RUN ALL CONDUITS PARALLEL/PERPENDICULAR TO BUILDING SURFACE PLANES.

IN SYSTEMS OPERATING AT MORE THAN 300 VOLTS BETWEEN PHASE CONDUCTORS, AND

PARTITIONS, CAREFULLY FILL ANY SPACE BETWEEN THE OUTSIDE OF THE RACEWAY AND

LARGER THAN NO. 12. INDIVIDUAL BRANCH CIRCUIT WIRING FOR NO. 12 CONDUCTORS

THE BUILDING MATERIAL TO PREVENT PASSAGE OF AIR, WATER, SMOKE, AND FUMES.

- WHERE DIFFERENT PHASE CONDUCTORS ARE TO BE RUN TO A COMMON GANG WAL SWITCH BOX, PROVIDE SUBSTANTIAL BARRIERS BETWEEN ADJACENT SWITCHES IN THE BOX SO THAT TWO DIFFERENT PHASE WIRES WILL NOT BE IN THE SAME COMPARTMENT. WHEREVER RACEWAYS PASS THROUGH FLOORS, WALLS, PENETRATIONS, OR OTHER
- FILLING MATERIAL SHALL BE A UL LISTED, INTUMESCENT SEALING HAVING FIRE/SMOKE RESISTIVE RATING EQUAL TO THE BUILDING MATERIAL PENETRATED. CONDUITS UTILIZED THROUGHOUT THE PROJECT SHALL NOT BE SMALLER THAN 3/4 INCH FOR FEEDERS, MULTIPLE BRANCH CIRCUIT HOMERUNS AND HOMERUNS OF CONDUCTORS
- SHALL BE ACCEPTABLE IN 1/2" CONDUIT, I.E. 2#12, 1#12G, 1/2"C. 2. INSTALLATION OF PULL AND JUNCTION BOXES
- FASTEN ALL BOXES SECURELY TO THE BUILDING CONSTRUCTION, INDEPENDENT OF
- 2.B. ON CONCEALED CONDUIT SYSTEMS WHERE BOXES ARE NOT OTHERWISE ACCESSIBLE, SET BOXES FLUSH WITH FINISHED SURFACES FOR ACCESS, AND PROVIDE OVERLAPPING
- 3. INSTALLATION OF OUTLET BOXES
- TERMINATE CONDUITS AT A METAL OUTLET BOX AT EACH OUTLET OR DEVICE. ALL BOXES
- SHALL CONFORM TO THE NEC. 3.B. OUTLET BOXES SHALL BE SUPPORTED INDEPENDENT OF THE CONCUIT SYSTEM.
- 4. INSTALLATION OF CONDUIT HANGERS AND SUPPORTS
- 4.A. FURNISH AND INSTALL ALL HANGERS AND SUPPORTS REQUIRED BY RACEWAY SYSTEMS.
- 4.B. SUPPORT ALL ABOVE—GROUND ELECTRICAL CONDUITS FROM THE BUILDING STRUCTURE/CONSTRUCTION. SUPPORT CONDUITS RUNNING VERTICALLY OR HORIZONTALLY along walls with calvanized malleable iron one—hole clamps. Carry INDMOUALLY SUPPORTED HORIZONTAL CONDUITS 1-1/4 INCH AND LARGER ON SUITABLE
- 4.C. LOCATE HANGERS AND TRAPEZES TO SUPPORT HORIZONTAL RACEWAYS WITHOUT APPRECIABLE SAGGING. HANGER SPACING SHALL NOT EXCEED NEC REQUIREMENTS, OR ECOMMENDATIONS OF THE NECA "STANDARD OF INSTALLATION".
- WHERE CONDUITS SMALLER THAN 1-1/4 INCH ARE INSTALLED ABOVE REMOVABLE TYPE DRY CEILINGS, SUPPORT THEM ON SUITABLE HANGER RODS WITH METAL CLIPS AT A DISTANCE ABOVE THE CELING SUFFICIENT TO PERMIT REMOVAL OF CEILING PANELS AND LAY-IN LIGHT FOXTURES. LOCATE SUCH CONDUITS SO AS NOT TO HINDER ACCESS TO MECHANICAL EQUIPMENT THROUGH CEILING PANELS.

- 5. INSTALLATION OF CONDUCTORS PULL NO CONDUCTORS INTO CONDUITS UNTIL ALL WORK OF A NATURE WHICH MAY CAUSE
- INJURY TO CONDUCTORS IS COMPLETED. 5.B. RUM FEEDERS IN CONTINUOUS PIECES, WITHOUT JOINTS OR SPLICES, INSOFAR AS

GRADE AC CABLES SHALL NOT BE USED FOR HOMERUNS. HEALTHCARE GRADE AC CABLES

- 5.C. RUM CONDUITS FOR EMERGENCY POWER CONDUCTORS SEPARATE FROM ALL OTHER WIRING. INSTALLATION OF HEALTHCARE GRADE AC CABLES: HEALTHCARE GRADE AC CABLES SHALL BE ALLOWED TO BE INSTALLED WITHIN WALL CAVITY DOWN TO NORMAL POWER RECEPTACLES OR ELECTRICAL OUTLETS FROM J-BOXES ABOVE CEILING. HEALTHCARE
- SHALL NOT BE USED FOR CIRCUITS ON EMERGENCY POWER. SEGREGATION OF WIRING SYSTEMS
- SEGREGATION OF WIRING SYSTEMS SHALL NOT BE COMPROMISED BY THE USE OF COMMON
- PULLBOXES, WIREWAYS, CABINETS OR ANY OTHER TYPE OF ENCLOSURE. 6.B. THE RACEWAY SYSTEM FOR EACH FEEDER SHALL BE A SEPARATE SYSTEM COMPLETELY
- FAULT ISDLATED FROM ALL OTHER RACEWAY SYSTEMS. 6.C. THE RACEWAY SYSTEM FOR THE BRANCH CIRCUITS OF EACH PANELBOARD SHALL BE A
- 7. INSTALLATION OF TRANSFORMERS

SEPARATE SYSTEM COMPLETELY FAULT ISOLATED FROM ALL OTHER RACEWAY SYSTEMS.

PROVIDE WALL MOUNTED TRANSFORMERS WITH NEOPREME VIBRATION ISOLATORS BETWEEN

7.A. INSTALL FLOOR MOUNTED TRANSFORMERS ON A 3" HIGH CONCRETE HOUSEKEEPING PAD AND A NEOPRENE VIBRATION, ISOLATING PAD.

WALL AND TRANSFORMER

OBSERVATIONS AT THE SITE.

- 8. EXISTING SYSTEMS TO REMAIN 8.A. THE CONTRACT DOCUMENTS DD NOT PROPOSE TO SHOW ALL EXISTING SYSTEMS, MATERIAL OR EQUIPMENT. OBTAIN DATA RELATED TO EXISTING CONDITIONS FROM EXISTING DOCUMENTS, NEASUREMENTS, NOTATIONS, PHOTOGRAPHS, SURVEYS AND OTHER
- 8.B. REMOVE EXISTING WIRE, CONDUIT, EQUIPMENT, FIXTURES AND OTHER ITEMS TO PROVIDE ACCESS FOR WORK IN EXISTING FACILITIES. REINSTALL AND REFINISH ITEMS REMOVED, OR OTHERWISE DAMAGED, TO MATCH EXISTING ADJACENT SURFACED UPON COMPLETION OF
- 8.C. WHERE EXISTING FUNCTIONS TO REMAIN IN USE ARE DISRUPTED, THEY SHALL BE FULLY RESTORED AFTER DISRUPTION, IN FULL COMPLIANCE WITH THIS DIVISION OF THE

8.D. MODIFY, REMOVE OR RELOCATE MATERIALS AND ITEMS INDICATED ON THE DRAWINGS OR

REINSTALLATION OR REUSE, WHICH ARE FOUND TO BE IN DAMAGED CONDITION. AWAIT

REQUIRED BY THE INSTALLATION OF NEW WORK. WORKING JOINTLY WITH THE ARCHITECT. ESTABLISH AND MARK SALVAGE AND DEMOLITION ITEMS BEFORE COMMENCING WORK; REPORT ITEMS SCHEDULE FOR RELOCATION,

- DEMOLITION EQUIPMENT, DEVICES AND WATERIAL SHALL BE REMOVED FROM THE SITE AND disposed of by the contractor. Salvaged equipment and devices shall be the PROPERTY OF THE CONTRACTOR UNLESS NOTED OTHERWISE.
- MAKE MINOR RELOCATIONS NECESSITATED BY THE CONDITIONS AT THE SITE OR AS DIRECTED BY THE ARCHITECT, WITHOUT ADDITIONAL COST TO THE OWNER. REPAIR AND RESTORE TO GOOD FUNCTIONAL CONDITION, EQUIPMENT, MATERIALS AND ITEMS SCHEDULED FOR RELOCATION, WHICH ARE DAMAGED DURING DISMANTLING OR REASSEMBLY OPERATIONS NEW MATERIALS AND ITEMS OF SIMILAR DESIGN AND QUALITY MAY BE SUBSTITUTED FOR MATERIALS AND ITEMS INDICATED TO BE RELOCATED UPON APPROVAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. REMOVE CAREFULLY, IN REVERSE OFDER TO ORIGINAL ASSEMBLY OR PLACEMENT, ITEMS WHICH ARE TO BE RELOCATED. PROTECT ITEMS UNTIL RELOCATION IS COMPLETE. CLEAN AND REPAIR ITEMS TO BE RELOCATED, AND PROVIDE NEW MATERIALS, FITTINGS AND APPURITENANCES REQUIRED TO COMPLETE THE RELOCATIONS AND TO RESTORE TO GOOD OPERATING ORDER. PERFORM THE RELOCATION WORK IN
- RELOCATING DEVICES: REMOVE AND REINSTALL IN LOCATIONS DESIGNATED BY THE ARCHITECT TEMPERATURE CONTROL SYSTEM DEVICES, RELAYS, WIRE, CONDUIT, FIXTURES,

- 9.A ENGAGE THE SERVICES OF AN APPROVED TESTING LABORATORY TO PROVIDE TESTS AND INSPECTIONS FOR THE SWITCHBOARD, DISTRIBUTION PANELBOARDS, FEEDER CIRCUIT BREAKERS, FEEDER CONDUCTORS, TRANSFORMERS AND GROUNDING SYSTEM. THE TESTS and inspections shall prove that the equipment is installed properly and is
- PERFORM ROUTINE INSULATION RESISTANCE, CONTINUITY, AND ROTATION TESTS FOR
- 9.C. TEST THE EFFECTIVENESS OF THE GROUNDING SYSTEM IN PATIENT CARE AREAS BY VOLTAGE NEASUREMENTS AND IMPEDANCE MEASUREMENTS IN CONFORMANCE WITH NFPA 99
- 9.C.1. VOLTAGE LIMIT SHALL BE 20 MV.
- CONTRACTOR SHALL KEEP A CLEAN SET OF DRAWINGS ON THE JOB, NOTING DAILY ALL ances hade in these drawings in connection with the final installation including with his request for final payment, turn over a clean, neatly marked set of
- DRAWINGS. CONTRACTOR SHALL ALSO FURNISH ONE (1) SET OF AS-BUILTS BLUELINE PRINTS. 11. IN ADDITION TO THE ABOVE, CONTRACTOR SHALL ACCUMULATE DURING THE JOB'S PROGRESS,
- 11.A. ALL WARRANTIES AND GUARANTEES AND MANUFACTURER'S DIRECTIONS ON EQUIPMENT AND MATERIAL COVERED BY THE CONTRACT INCLUDING THE NAMES, ADDRESSES AND TELEPHONE NUMBERS OF THE WANUFACTURER'S REPRESENTATIVE.
- (ORIGINAL DATA, NO COPIES).
- 11.C. COPIES OF APPROVED SHOP DRAWINGS
- 11.E. TEST REPORTS REQUIRED BY THESE SPECIFICATIONS.
- ADDRESS AND TELEPHONE NUMBERS OF LOCAL SUPPLIER OR AGENT. 12. ALL OF THE ABOVE DATA SHALL BE SUBMITTED TO THE ENGINEER FOR HIS REVIEW AT SUCH TIME AS THE CONTRACTOR SUBMITS HIS LAST ESTIMATE PRIOR TO HIS FINAL

PAYMENT, BUT IN NO CASE, LESS THAN TWO WEEKS BEFORE FINAL INSPECTION.

FURTHER INSTRUCTIONS FROM THE ARCHITECT BEFORE COMMENCING WITH WORK.

ACCORDANCE WITH APPLICABLE PORTIONS OF THESE SPECIFICATIONS, UTILIZING SKILLED

equipment and other devices required for the operation of the various systems THAT ARE INSTALLED IN EXISTING-TO-BE-REMOVED CONSTRUCTION.

- OPERATIONAL WITHIN INDUSTRY AND MANUFACTURER'S TOLERANCES.
- DISTRIBUTION AND UTILIZATION EQUIPMENT PRIOR TO, AND IN ADDITION TO, THE TESTS SPECIFIED TO BE PERFORMED BY THE TESTING LABORATORY.
- 9.C.2. IMPEDANCE LIMIT SHALL BE 0.1 OHM.
- EXACT DIMENSIONED LOCATIONS OF ALL NEW AND UNCOVERED EXISTING UTILITIES AND SHALL, REPRODUCIBLE WYLARS SHOWING "AS INSTALLED" WORK TO THE ARCHITECT FOR SUBSEQUENT REVIEW AND TRANSMITTAL TO THE OWNER. CONTRACTOR SHALL NOTE ALL CONSTRUCTION CHANGES, DATE EACH SHEET AND LABEL "AS-BUILTS" IN THE REVISION BLOCK ON THE
- THE FOLLOWING DATA, IN TRIPLICATE, PREPARED IN A NEAT BROCHURE OR PACKET FOLDER AND TURNED OVER TO THE ARCHITECT FOR REVIEW AND SUBSEQUENT DELIVERY TO THE OWNER.
- 11.B. APPROVED FIXTURE BROCHURES, WIRING DIAGRAMS AND CONTROL DIAGRAMS
- 11.D. OPERATING INSTRUCTIONS FOR ALL ELECTRICAL SYSTEM EQUIPMENT. OPERATING INSTRUCTIONS SHALL ALSO INCLUDE RECOMMENDED MAINTENANCE PROCEDURES.
- 11.F. ANY AND ALL OTHER DATA AND/OR DRAWINGS REQUIRED DURING CONSTRUCTION.

11.G. REPAIR PARTS LISTS OF ALL MAJOR ITEMS OF EQUIPMENT INCLUDING NAME,

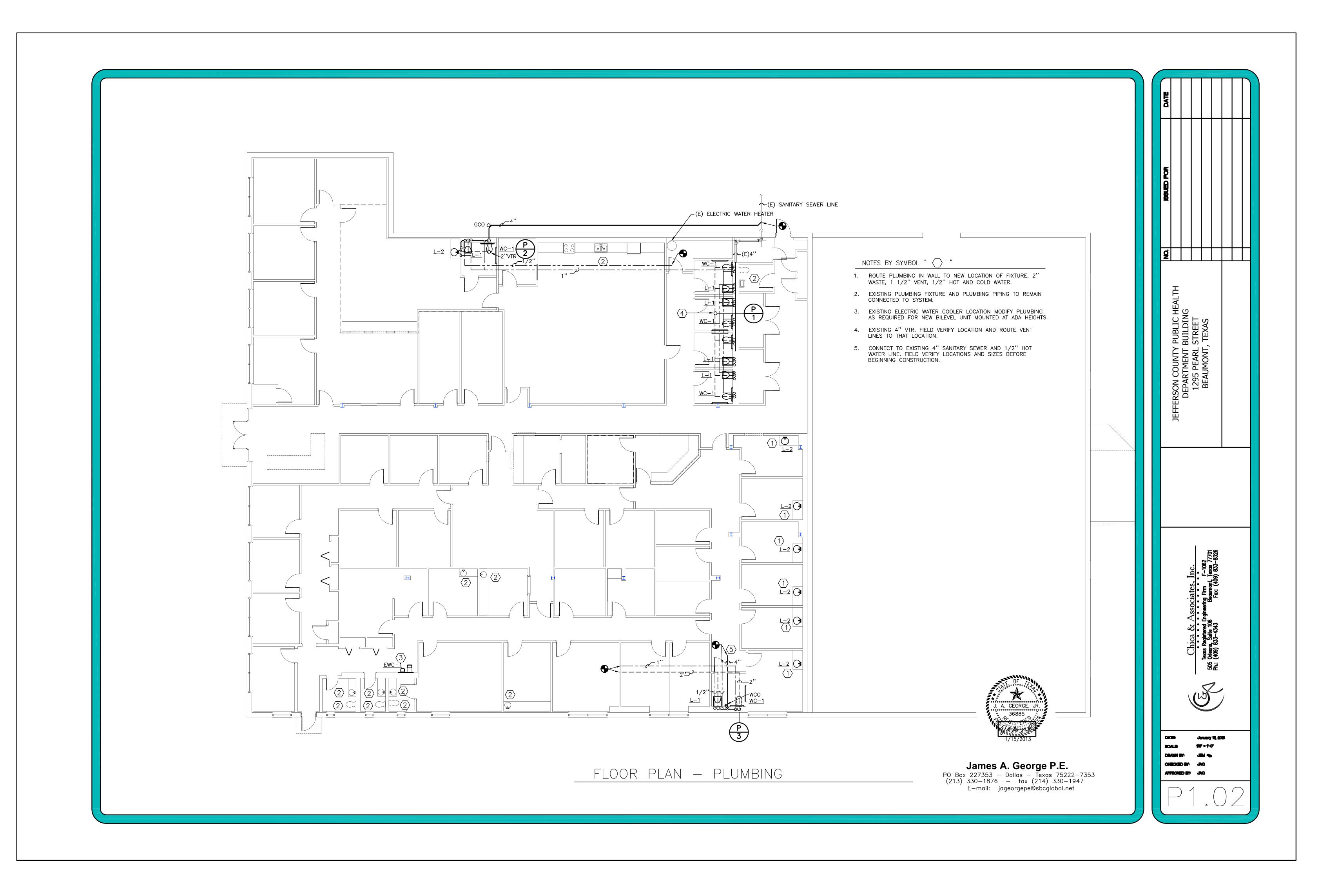
ON CC EPART 1295 BEAU



Jenuary 15, 2013 Jenuary 25, 2013 - Final

CHECKED BY: WAI







- 1. ALL PIPING SHOWN IS ABOVE CEILING IN AREAS WITH DROPPED CEILING OR AT BOTTOM OF SUPPORT STRUCTURE FOR FLOOR OR ROOF ABOVE IN EXPOSED STRUCTURE AREAS, UNLESS NOTED
- 2. SECURE AND VERIFY ALL MEASUREMENTS AND CONDITIONS AT JOB BEFORE PROCEEDING WITH FABRICATION OF WORK.
- 3. PROVIDE ALL ADDITIONAL STEEL, HANGER MATERIALS, RODS & CLAMPS AS REQUIRED FOR COORDINATION WITH WORK OF OTHER TRADES.
- 4. THE CONTRACTOR IS RESPONSIBLE FOR FIRE STOPPING AT ALL PENETRATIONS OF FIRE AND SMOKE RATED STRUCTURES, FLOORS AND PARTITIONS. REFER TO ARCHITECTURAL FLOOR PLANS FOR LOCATIONS OF ALL RATED STRUCTURES.
- 5. PIPING LAYOUT IS ONLY SCHEMATIC, EXACT LOCATION OF PIPES TO BE COORDINATED WITH BUILDING STRUCTURE AND WORK OF OTHER CONTRACTORS.
- 6. CONCEAL PIPING WHENEVER POSSIBLE UNLESS NOTED OTHERWISE.
- 7. RUN ALL WATER LINES LEVEL.
- 8. SUPPORT CAST IRON SANITARY AND STORM PIPING NOT IN EARTH, ON 5'-0" CENTERS, ALL STEEL PIPING ON 10'-0" CENTERS, COPPER PIPING ON 8'-0" CENTERS.
- 9. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LOCAL PLUMBING CODE.
- 10. PROVIDE CLEANOUTS AT NOT MORE THAN 50 FT. APART IN HORIZONTAL STORM AND SANITARY DRAINAGE LINES 4" SIZE OR LESS, AND NOT MORE THAN 100 FT. APART FOR LARGER PIPES.
- 11. PROVIDE CLEANOUTS AT BASE OF ALL SANITARY STACKS.
- 12. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION GREATER THAN 45° IN SANITARY AND CONDENSATE DRAIN PIPES.
- 13. COLD WATER PIPE SERVING FLUSH VALVES SHALL EXTEND FULL SIZE TO THE END OF PIPE CHASE RUN AND A SHOCK ABSORBER SHALL BE INSTALLED.
- 14. ALL FIXTURES TO BE EQUIPPED WITH STOP VALVES IN ACCESSIBLE LOCATION. PROVIDE ACCESS DOOR WHERE REQUIRED.
- 15. NO PLUMBING PIPING IS TO RUN THROUGH OR ABOVE ELECTRICAL UTILITY TELEPHONE EQUIPMENT OR ELEVATOR MACHINE ROOMS OR CLOSETS (INCLUDING ELEVATOR SHAFTS), EXCEPT FOR PIPING SERVING EQUIPMENT OR DEVICES FOR THAT SPECIFIC AREA. PROVIDE DRIP PANS BELOW ANY LIQUID TRANSMISSION PIPING THAT IS REQUIRED IN THESE AREAS.
- 16. PROVIDE SHUT-OFF VALVES AT ALL COLD AND HOT WATER PIPES SERVING SINGLE OR GROUP OF FIXTURES AT TAKE-OFF FROM WATER MAIN.

<u>PLUMBING</u>	SYMBOLS
	COLD WATER (CW)
	HOT WATER (110° HW)

— – — DIRECTION OF FLOW — C — CONDENSATE DRAIN LINE

GREASE WASTE _____ DIRECTION OF PITCH (DOWN) ---- VENT (SANITARY SEWER)

----- G ------ NATURAL GAS SHUTOFF (GATE VALVE) SHUTOFF (BALL VALVE)

———— CHECK VALVE BALANCE/SHUTOFFF VALVE STRAINER

NEW TO EXISTING CONNECTION FLOOR CLEANOUT

WALL CLEANOUT GRADE CLEANOUT

CLEANOUT NON-FREEZE WALL HYDRANT

CONDENSATE DRAIN WATER HAMMER ARRESTER

INVERT ELEVATION

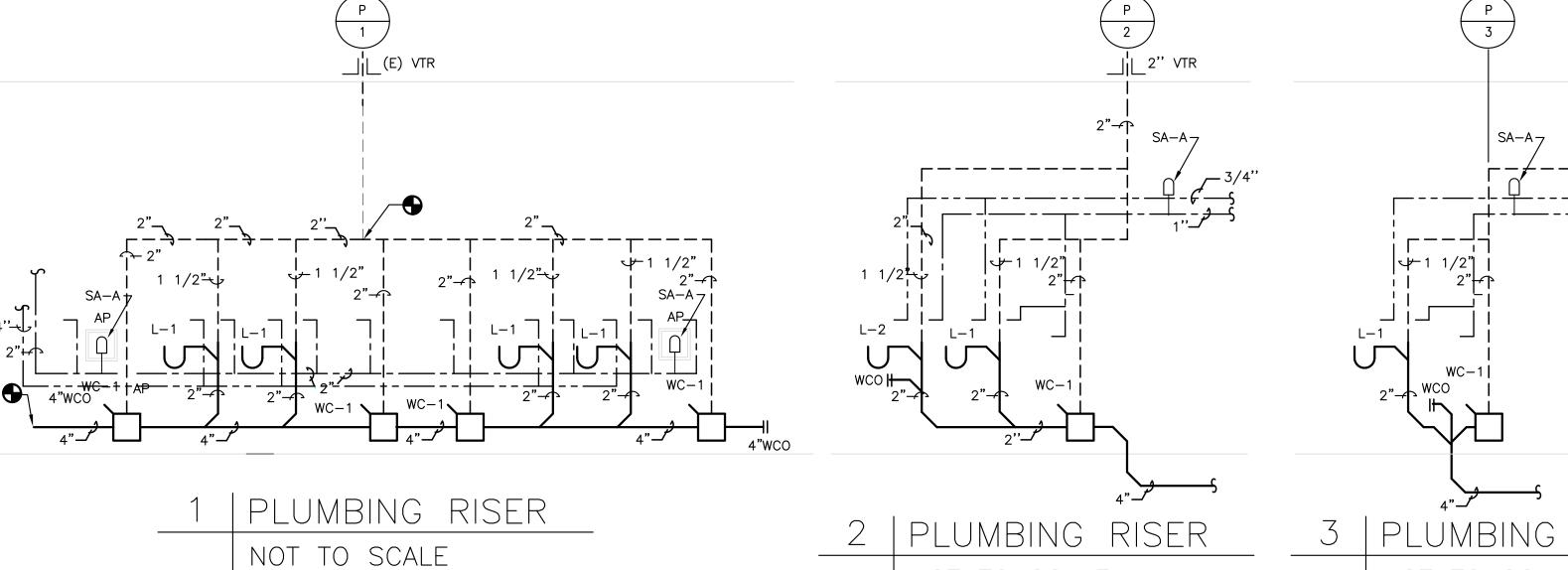
HUB DRAIN FLOOR DRAIN

VENT THRU ROOF SINK

SANITARY SEWER WATER CLOSET

LAVATORY

			PLUMBING FIXTURE SCHEDULE							
SYMBOL	FIXTURE		DESCRIPTION	MATERIAL	ACCESSORIES	SAN	VENT	HW	CW	NOTES/COMMEN
L-1	Basin	E	American Standard Ravenna #0268.444 Basin, wall hung		American Standard Reliant 3 #7385.004 1.5 GPM (5.7 LPM) max flow aerator outlet, Single lever faucet. McGuire #155WCC offset open grid drain. McGuire #BV2165N3 polished brass Faucet Supplies. McGuire #8902CBSAN.	2"	1 1/2"	1/2"	1/2"	
L-2	Basin		American Standard Aqualyn #0476.028 Basin, for Self-rimming / Drop-in installation.		American Standard Reliant 3 #7385.004 1.5 GPM (5.7 LPM) max flow aerator outlet, Single lever faucet. McGuire #155AC open grid drain. McGuire #BV2165N3 polished brass Faucet Supplies. McGuire #8872CB P-Trap.	2"	1 1/2"	1/2"	1/2"	
WC-1	Toilet	E	American Standard #2257.001.020 Afwall Flowise Elongated LESS EVERCLEAN Toilet, vitreous china, wall hung, operates in the range of 1.1 US Gal to 1.6 US Gal (4.2 L to 6 L) per flush.		Centoco #500STSCC.001 heavy duty toilet seat, white solid plastic, open front less cover. Sloan #WES 111-CP Uppercut, exposed manual Dual Flush Flushometer, 1.6 US Gal (6 L) full flush / 1.1 US Gal (4.2 L) partial flush. Watts #ISCA-101 mounted on concr	4"	2"		1"	
EWC-1	Fountain Coolers	E	Acorn Aqua self-contained vandal resistant bi-level pressure water cooler that shall deliver a minimum of 8.0 GPH (30.3 LPH) of water at 50°F (10°C) cooled from 80°F (26.7°C) inlet water and 90°F (32.2°C) ambient. Unit shall be activated from both front	Stainless Steel Receptor and Stainless Steel Cabinet	Supply: McGuire #HST11LK p-Trap: McGuire #8872C Carrier: Watts #CA-421-2	2"	1 1/2"	-	1/2"	-



NOT TO SCALE

1. MODIFY PLUMBING AS REQUIRED TO KEEP EXISTING WATER CLOSET AND LAVATORY OPERATIONAL.

- 2. REFERENCE PLUMBING FIXTURE SCHEDULE FOR MISSING WATER PIPE SIZES.
- 3. EXISTING WATER AND SEWER LINES MAY BE RE-USED IF SIZE AND LOCATION IS CORRECT.

PLUMBING RISER

NOT TO SCALE

NOTES, RISERS, AND SCHEDULE - PLUMBING



James A. George P.E.

PO Box 227353 - Dallas - Texas 75222-7353
(213) 330-1876 - fax (214) 330-1947
E-mail: jageorgepe@sbcglobal.net

