JEFFERSON COUNTY PURCHASING DEPARTMENT

Deborah L. Clark, Purchasing Agent

1149 Pearl Street
1st Floor, Beaumont, TX 77701

OFFICE MAIN: (409) 835-8593
FAX: (409) 835-8456

LEGAL NOTICE
Advertisement for Invitation for Bids

August 13, 2024

Notice is hereby given that sealed bids will be accepted by the Jefferson County Purchasing Department for Invitation for Bid **(IFB 24-039/MR), Jefferson County Correctional Facility Renovations to Buildings A & C, pursuant to Chapter 262, Texas Local Government Code, the County Purchasing Act and 2 CFR Sections 200.318-326.** Specifications for this project may be obtained from the Jefferson County website, https://www.co.jefferson.tx.us/Purchasing/ or by calling 409-835-8593.

Bids are to be sealed and addressed to the Purchasing Agent with the bid number and name marked on the outside of the envelope or box. Bidders shall forward an original and two (2) copies of their bid to the address shown below. Jefferson County does not accept bids submitted electronically. Late bids will be rejected as non-responsive. Bids will be publicly opened and read aloud in the Jefferson County Engineering Department Conference Room (5th Floor, Historic Courthouse) 1149 Pearl Street, Beaumont, Texas 77701, at the time and date below. Bidders are invited to attend the sealed bid opening.

BID NAME:	**IFB 24-039/MR**
BID NUMBER:	**Jefferson County Correctional Facility Renovations to Buildings A & C, pursuant to Chapter 262, Texas Local Government Code, the County Purchasing Act and 2 CFR Sections 200.318-326**
DUE BY TIME/DATE:	**11:00 AM CT, Wednesday, September 25, 2024**
MAIL OR DELIVER TO:	**Jefferson County Purchasing Department** **1149 Pearl Street, 1st Floor** **Beaumont, Texas 77701**

There will be a **Pre-Bid Conference and Walk-Through** at **2:00 pm CT on Thursday**, **August 22, 2024**, at Jefferson County Correctional Facility located at 5030 Hwy 69 S, Beaumont, TX 77705.

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 contract execution and prior to the issuance of Notice to Proceed and/or Purchase Order, the Bidder shall furnish the following bonds: Performance Bond to the County for the full amount of the contract if the contract exceeds one hundred thousand dollars ($100,000). Payment Bond to the County for the full amount of the contract if the contract exceeds twenty-five thousand dollars ($25,000.00).

Any questions relating to these bid requirements should be directed to Mistey Reeves, Assistant Purchasing Agent at 409-835-8593 or via email at: mistey.reeves@jeffcotx.us. If no response in 72 hours, contact Deborah Clark, Purchasing Agent at 409-835-8593 or via email at: deb.clark@jeffcotx.us.

Jefferson County encourages Disadvantaged Business Enterprises (DBEs), Minority/Women Business Enterprises (M/WBEs), and Historically Underutilized Businesses (HUBs) to participate in the bidding process. Jefferson County does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment, or the provisions of services. Individuals requiring special accommodations are requested to contact our office at least seven (7) days prior to the bid due date at 409-835-8593.

All interested firms are invited to submit a bid in accordance with the terms and conditions stated in this bid.
Bidders are strongly encouraged to carefully read the entire invitation, as failure to return and/or complete all required documentation will result in a response being declared as non-responsive.

Deborah L. Clark, Purchasing Agent
Jefferson County, Texas

PUBLISH:
Beaumont Enterprise & Port Arthur News:
August 14, 2024
The Examiner:
August 15, 2024 & August 22, 2024

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BID SUBMISSIONS:

One (1) Original and two (2) Bid Copies; with all copies to include a Completed Copy of this specifications packet (including technical specifications), in its entirety.

Each Bidder shall ensure that required parts of their bid submission are completed with accuracy and submitted as per the requirements within this specifications packet, including any addenda.

Additionally, Bidder shall monitor the Jefferson County Purchasing Department Website for any addenda, additional instructions, or bid updates. https://www.co.jefferson.tx.us/Purchasing/

Failure to return and/or complete all required documentation will result in a response being declared as non-responsive.

SECTION 1: GENERAL CONDITIONS OF BIDDING AND TERMS OF CONTRACT

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

1. BIDDING.

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

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

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

1.4 WITHDRAWAL OF BID PRIOR TO OPENING.
A bid may be withdrawn before the opening date by submitting a written request to the Purchasing Agent. If time allows, the Bidder may submit a new bid. Bidder assumes full responsibility for submitting a new bid before or at the specified time and date bids are due. Jefferson County reserves the right to withdraw a request for bids before the opening date.

1.5 WITHDRAWAL OF BID AFTER OPENING.
Bidder agrees that its offer may not be withdrawn or cancelled by the Vendor for a period of ninety (90) days following the date and time designated for the receipt of bids unless otherwise stated in the bid and/or specifications.

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

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

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

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

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

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

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

1.13 BID AWARD.
Award of contract shall be made to the most responsible, responsive Bidder, whose offer is determined to be the best value, taking into consideration the relative importance of price. Jefferson County reserves the right to be the sole judge as to whether items bid will serve the purpose intended.

Jefferson County reserves the right to award based upon individual line items, sections or total bid.

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

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

1.16 GENERAL BID BOND/SURETY REQUIREMENTS.
Failure to furnish bid bond/surety, if requested, will result in bid being declared non-responsive. Non-responsive bids will not be considered for award.

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

1.18 RESPONSIVENESS.
A responsive bid shall substantially conform to the requirements of this Invitation to Bid and/or specifications contained herein. Bidders who substitute any other terms, conditions, specifications and/or requirements or who qualify their bids in such a manner as to nullify or limit their liability to the contracting entity shall have their bids deemed non-responsive. Also, bids containing any clause that would limit contracting authority shall be considered non-responsive. Examples of non-responsive bids include but shall not be limited to: a) bids that fail to conform to

required delivery schedules as set forth in the bid request; b) bids with prices qualified in such a manner that the bid price cannot be determined, such as with vague wording that may include "price in effect at the time of delivery," and c) bids made contingent upon award of other bids currently under consideration.

1.19 RESPONSIBLE STANDING OF BIDDER.

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

1.20 CONFIDENTIAL/PROPRIETARY INFORMATION.

If any material in the bid submission is considered by Bidder to be confidential or proprietary information (including manufacturing and/or design processes exclusive to the Bidder), Bidder **must** clearly mark the applicable pages of bid submission to indicate each claim of confidentiality. Additionally, Bidder must include a statement on company letterhead identifying all Bid Submission section(s) and page(s) that have been marked as confidential. Jefferson County will protect from public disclosure such portions of a bid, unless directed otherwise by legal authority, including existing open records acts. Merely making a blanket claim that the entire bid submission is protected from disclosure because it contains some proprietary information is not acceptable, and will make the entire bid submission subject to release under the Texas Public Information Act.

By submitting a bid, Bidder agrees to reproduction by Jefferson County, without cost or liability, of any copyrighted portions of Bidder's bid submission or other information submitted by Bidder.

1.21 PUBLIC BID OPENING.

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

2. PERFORMANCE.

2.1 DESIGN, STRENGTH, AND QUALITY.

Design, strength, and quality of materials and workmanship must conform to the highest standards of manufacturing and engineering practices. The apparent silence of specifications and/or plans as to any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail. All interpretations of these specifications and/or plans shall be made on the basis of this statement.

2.2 AGE AND MANUFACTURE.

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

2.3 DELIVERY LOCATION.

All deliveries will be made to the address(es) specified on the purchase order during normal office working hours of 8:00 am CT to 4:00 pm CT, Monday through Friday, unless otherwise authorized by the Purchasing Agent or designee.

2.4 DELIVERY SCHEDULE.

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

2.5 DELIVERY CHARGES.

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

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

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

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

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

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

2.11 PATENTS AND COPYRIGHTS.
The successful Vendor agrees to protect the County from claims involving infringements of patents and/or copyrights.

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

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

2.14 MAINTENANCE.
Maintenance required for equipment bid should be available in Jefferson County by a manufacturer authorized maintenance facility. Cost for this service shall be shown on the bid sheet as requested or on a separate sheet, as required. If Jefferson County opts to include maintenance, it shall be so stated in the purchase order and said cost will be included. Service will commence only upon expiration of applicable warranties and should be priced

accordingly.

2.15 MATERIAL SAFETY DATA SHEETS.

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

2.16 EVALUATION.

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

3. PURCHASE ORDERS AND PAYMENT.

3.1 PURCHASE ORDERS.

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

3.2 INVOICES.

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

3.3 PROMPT PAYMENT.

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

3.4 FUNDING.

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

4. CONTRACT.

4.1 CONTRACT DEFINITION.

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

4.2 CHANGE ORDER.

No different or additional terms will become part of this contract with the exception of a change order. No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in

the resulting contract. All change orders to the contract will be made in writing and at the discretion and approval of Jefferson County. No change order will be binding unless signed by an authorized representative of the County and the vendor.

4.3 PRICE RE-DETERIMINATION.

A price re-determination may be requested at the time of annual renewal. All requests for price re-determination shall be in written form. Cause for such request, i.e., manufacturer's direct cost, postage rates, Railroad Commission rates, Federal/State minimum wage law, Federal/State unemployment taxes, F.I.C.A, Insurance Coverage Rates, etc., shall be substantiated in writing by the source of the cost increase. The Bidder's past experience of honoring contracts at the bid price will be an important consideration in the evaluation of the lowest and best bid. Jefferson County reserves the right to accept or reject any/all requests for price re-determination as it deems to be in the best interest of the County.

4.4 TERMINATION.

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

4.5 CONFLICT OF INTEREST.

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

4.6 INTEREST BY PUBLIC OFFICIALS.

No public official shall have interest in this contract, in accordance with Texas Local Government Code.

4.7 PRE-AWARD/CONTRACT CONTACT BETWEEN COUNTY AND VENDORS.

The Jefferson County Purchasing Department may initiate discussions with selected vendors; however, discussions may not be initiated by vendors.

The Jefferson County Purchasing Department expects to conduct discussions with vendor's representatives authorized to contractually obligate the vendor with an offer.

Vendors shall not contact any Jefferson County personnel during the IFB process without the express permission from the Jefferson County Purchasing Agent. The Purchasing Agent will disqualify any vendor who has made site visits, contacted Jefferson County personnel, or distributed any literature without authorization from the Jefferson County Purchasing Department.

All correspondence relating to this IFB, from advertisement to award shall be sent to the Jefferson County Purchasing Department. All presentations and/or meetings between Jefferson County and the vendor relating to this IFB shall be coordinated by the Jefferson County Purchasing Department.

Selected vendors may be expected to make a presentation/product demonstration to an Evaluation Committee. Proposals, vendor presentations, and product/service evaluations may develop into negotiating sessions with the

vendor(s) as selected by the Evaluation Committee. Jefferson County expects to conduct negotiations with vendor representatives authorized to contractually obligate the vendor with an offer. If vendor is unable to agree to contract terms and conditions, Jefferson County reserves the right to terminate contract negotiations with that vendor and initiate negotiations with another vendor. In addition to a presentation, visits by the Evaluation Committee to representative vendor client sites may be conducted where the proposed solution can be demonstrated in a production environment.

4.8 INJURIES OR DAMAGES RESULTING FROM NEGLIGENCE.

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

4.9 WARRANTY.

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

4.10 UNIFORM COMMERCIAL CODE.

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

4.11 VENUE.

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

4.12 SALE, ASSIGNMENT, OR TRANSFER OF CONTRACT.

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

4.13 SILENCE OF SPECIFICATIONS.

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

5. REJECTION OR WITHDRAWAL.

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

6. EMERGENCY/DECLARED DISASTER REQUIREMENTS.

In the event of an emergency or if Jefferson County is declared a disaster area, by the County, State, or Federal Government, this Acceptance of Offer may be subjected to unusual usage. Contractor shall service the county during such an emergency or declared disaster under the same terms and conditions that apply during non-emergency/disaster conditions. The pricing as specified in this Acceptance of Offer shall apply to serving the County's needs regardless of the circumstances. If Contractor is unable to supply the services under the terms of the

Acceptance of Offer, then Contractor shall provide proof of such disruption and a copy of the invoice from Contractor's supplier(s).

Additional profit margin as a result of supplying services during an emergency or declared disaster shall not be permitted. In the event that additional equipment, supplies, and materials are required during the declared disaster, additional shipping, handling and drayage fees may apply.

7. AWARD.

The bid will be awarded to the responsible, responsive bidder(s) whose bid, conforming to the solicitation, will be most advantageous to Jefferson County – price and other factors considered. Unless otherwise specified in this IFB, Jefferson County reserves the right to accept a bid in whole or in part, and to award by item or by group, whichever is deemed to be in the best interest of Jefferson County. Any bidder who is in default to Jefferson County at the time of submittal of the bid shall have that bid rejected.

Jefferson County reserves the right to clarify any contractual terms with the concurrence of the Contractor; however, any substantial non-conformity in the offer, as determined by Jefferson County, shall be deemed non-responsive and the offer rejected.

In evaluating bids, Jefferson County shall consider the qualifications of the bidders, and, where applicable, operating costs, delivery time, maintenance requirements, performance data, and guarantees of materials and equipment.

In addition, Jefferson County may conduct such investigation as it deems necessary to assist in the evaluation of a bid and to establish the responsibility, qualifications, and financial ability of the bidders to fulfill the contract.

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

8. CONTRACT.

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

9. WAIVER OF SUBROGATION.

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

10. FISCAL FUNDING.

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

11. BID RESULTS.

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

Department.

12. CHANGES AND ADDENDA TO BID DOCUMENTS.

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

13. SPECIFICATIONS.

Unless otherwise stated by the bidder, the bid will be considered as being in accordance with Jefferson County's applicable standard specifications, and any special specifications outlined in the bid document. References to a particular trade name, manufacturer's catalogue, or model number are made for descriptive purposes to guide the bidder in interpreting the requirements of Jefferson County, and should not be construed as excluding bids on other types of materials, equipment, and supplies. However, the bidder, if awarded a contract, will be required to furnish the particular item referred to in the specifications or description unless departure or substitution is clearly noted and described in the bid.

Jefferson County reserves the right to determine if equipment/ product being bid is an acceptable alternate. All goods shall be new unless otherwise so stated in the bid. Any unsolicited alternate bid, or any changes, insertions, or omissions to the terms and conditions, specifications, or any other requirements of the bid, may be considered non-responsive.

14. DELIVERY.

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

15. INTERPRETATION OF BID AN/OR CONTRACT DOCUMENTS.

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

16. CURRENCY.

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

17. PRICING.

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

18. NOTICE TO PROCEED/PURCHASE ORDER.

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

19. CERTIFICATION.

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

- The submission of the offer did not involve collusion or other anti-competitive practices.
- The Bidder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to any public servant in connection with the submitted offer.

- The Bidder hereby certifies that the individual signing the bid is an authorized agent for the Bidder and has the authority to bind the Bidder to the contract.

20. DEFINITIONS.

"County" – Jefferson County, Texas.
"Contractor" – The Bidder whose proposal is accepted by Jefferson County.

21. SMALL, MINORITY & WOMEN BUSINESS ENTERPRISE PARTICIPATION

It is the desire of Jefferson County to increase the participation of Small, 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.

Minority owned business may be eligible for contract procurement assistance with public and private sector entities from MBDA Centers

Dallas Fort Worth MBDA Business Center
8828 N. Stemmons Freeway, Ste. 550 B
Dallas, TX 75247
214-920-2436
Website: https://www.mbdadfw.com
Email: admin1@mbdadallas.com

El Paso MBDA Business Center
2401 East Missouri Avenue
El Paso, TX 79903
915-351-6232
Website: https://www.mbda.gov/business-center/el-paso-mbda-business-center
Email: treed@ephcc.org

Houston MBDA Business Center
3100 Main Street, Ste. 701
Houston, TX 77002
713-718-8974
Website: https://www.mbda.gov/business-center/houston-mbda-business-center
Email: mbda@hccs.edu

San Antonio MBDA Business Center
501 W. Cesar E. Chavez Blvd., Ste. 3.324 B
San Antonio, TX 78207
210-458-2480
Website: https://www.mbda.gov/business-center/san-antonio-mbda-business-center
Email: Jacqueline.jackson@utsa.edu

Small and woman-owned business may be eligible for assistance from U.S. Small Business Administration (SBA):
Website: https://www.sba.gov/local-assistance

Dallas/Fort Worth District Office
150 West Parkway, Ste. 130
Euless, TX 76040
817-684-5500
Website: https://www.sba.gov/district/dallas-fort-worth
Email: dfwdo.email@sba.gov

El Paso District Office
211 N. Florence St, Ste. 201
El Paso, TX 79901
915-834-4600
Website: https://www.sba.gov/district/el-paso
Email: Suzanne.aguirre@sba.gov

Houston District Office
8701 S. Gessner Dr, Ste. 1200
Houston, TX 77074
713-773-6500
Website: https://www.sba.gov/district/houston
Email: houston@sba.gov

Lower Rio Grande Valley District Office
2422 E. Tyler Ave, Suite E
Harlingen, TX 78550
956-427-8533
Website: https://www.sba.gov/district/lower-rio-grande-valley
Email: lrgvdo.email@sba.gov

San Antonio District Office
615 E. Houston St, Ste 298
San Antonio, TX 78205
210-403-5900
Website: https://www.sba.gov/district/san-antonio
Email: sado.email@sba.gov

West Texas District Office
1205 Texas Ave, Room 408
Lubbock, TX 79401
806-472-7462
Website: https://www.sba.gov/district/west-texas
Email: lubdo@sba.gov

HUB certification information can be found at:

Statewide Procurement Division HUB Program
P.O. Box 13528
Austin, TX 78711
512-463-5872 or 888-863-5881
Website: https://comptroller.texas.gov/purchasing/vendor/hub
Email: statewidehubprogram@cpa.texas.gov

PROPOSER: INSERT HUB, SBE, MBE or WBE Certification behind this page.

SECTION 2: FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) MANDATED CONTRACT PROVISIONS FOR NON-FEDERAL ENTITY UNDER FEDERAL AWARDS REQUIRED BY 2 C.F.R. §200.326 APPENDIX II TO 2 CFR §200

2 CFR 200.327 Contract provisions. The non-Federal entity's contracts should contain applicable provisions described in Appendix II to Part 200—Contract Provisions for non-Federal Entity Contracts Under Federal Awards. The non-Federal entity's contracts must contain the provisions described in Appendix II to Part 200—Contract Provisions for non-Federal Entity Contracts Under Federal Awards, as applicable. ***Language as of August 31, 2022.**

THRESHOLD	PROVISION	CITATION
>$250,000 (Simplified Acquisition Threshold)	Contracts for more than the simplified acquisition threshold, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where Contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.	2 CFR 200 APPENDIX II (A)
>$10,000	All contracts in excess of $10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be affected and the basis for settlement.	2 CFR 200 APPENDIX II (B)
None	Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor." 41 CFR 60-1.4 Equal opportunity clause. (b) Federally assisted construction contracts. (1) Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause: The [recipient] hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause: During the performance of this contract, the Contractor agrees as follows: (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, 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, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:	2 CFR 200 APPENDIX II I and 41 CFR §60-1.4(b)

Employment, upgrading, 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 setting forth the provisions of this nondiscrimination clause.

(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, sexual orientation, gender identity, or national origin.

(3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in

	Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law. (8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States. The [recipient] further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if the [recipient] so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract. The [recipient] agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of Contractors and Subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance. The [recipient] further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractors and Subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the [recipient] agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the [recipient] under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such [recipient]; and refer the case to the Department of Justice for appropriate legal proceedings.	
>$2,000	Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions	2 CFR 200 APPENDIX II (D)

	Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, Contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, Contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR 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"). The Act provides that each Contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.	
>$100,000	Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each Contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.	2 CFR 200 APPENDIX II (E)
None	Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.	2 CFR 200 APPENDIX II (F)
>$150,000	Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended - Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).	2 CFR 200 APPENDIX II (G)

>$25,000	Debarment and Suspension (Executive Orders 12549 and 12689) - A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.	2 CFR 200 APPENDIX II (H)
>$100,000	Byrd Anti-Lobbying Amendment (31 U.S.C. 1352) - Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.	2 CFR 200 APPENDIX II (I) and 24 CFR §570.303
	See 2 CFR §200.323.	2 CFR 200 APPENDIX II (J)
	See 2 CFR §200.216.	2 CFR 200 APPENDIX II (K)
	See 2 CFR §200.322.	2 CFR 200 APPENDIX II (L)
>$10,000	A non-Federal entity that is a state agency or agency of a political subdivision of a state and its Contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.	2 CFR 200.323
>$100,000	*§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).	
None	Section 889(b)(1) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (FY2019 NDAA) and 2 C.F.R. § 200.216, as implemented by FEMA Policy 405-143-1, Prohibitions on Expending FEMA Award Funds for Covered Telecommunications Equipment or Services (Interim), prohibit the obligation or expending of federal award funds on certain telecommunication products or from certain entities for national security reasons. Effective August 13, 2020, FEMA recipients and subrecipients, as well as their Contractors and Subcontractors, may not obligate or expend any FEMA award funds to: Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to: (1) Procure or obtain; (2) Extend or renew a contract to procure or obtain; or (3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered	2 CFR 200.216

	telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities). (i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities). (ii) Telecommunications or video surveillance services provided by such entities or using such equipment. (iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country. (b) In implementing the prohibition under Public Law 115-232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement equipment and services, and to ensure that communications service to users and customers is sustained. (c) See Public Law 115-232, section 889 for additional information. (d) See also § 200.471.	
None	As appropriate and to the extent consistent with law, the non-Federal entity should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award. For purposes of this section: (1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. (2) "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.	2 CFR 200.322(a)(b)(1)(2)
None	The Federal awarding agency must establish conflict of interest policies for Federal awards. The non-Federal entity must disclose in writing any potential conflict of interest to the Federal awarding agency or pass-through entity in accordance with applicable Federal awarding agency policy.	2 CFR 200.112

None	The Federal awarding agency and the non-Federal entity should, whenever practicable, collect, transmit, and store Federal award-related information in open and machine-readable formats rather than in closed formats or on paper in accordance with applicable legislative requirements. A machine-readable format is a format in a standard computer language (not English text) that can be read automatically by a web browser or computer system. The Federal awarding agency or pass-through entity must always provide or accept paper versions of Federal award-related information to and from the non-Federal entity upon request. If paper copies are submitted, the Federal awarding agency or pass-through entity must not require more than an original and two copies. When original records are electronic and cannot be altered, there is no need to create and retain paper copies. When original records are paper, electronic versions may be substituted through the use of duplication or other forms of electronic media provided that they are subject to periodic quality control reviews, provide reasonable safeguards against alteration, and remain readable.	2 CFR 200.336
None	Contracting with HUB, small and minority businesses, women's business enterprises, and labor surplus area firms. (a) The non-Federal entity must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. (b) Affirmative steps must include: (1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists; (2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources; (3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises; (4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; (5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and (6) Requiring the prime Contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (b)(1) through (5) of this section.	2 CFR 200.321
None	Financial records, supporting documents, statistical records, and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. The only exceptions are the following: (a) If any litigation, claim, or audit is started before the expiration of the 3-year period, the records must be retained until all litigation, claims, or audit findings involving the records have been resolved and final action taken. (b) When the non-Federal entity is notified in writing by the Federal awarding agency, cognizant agency for audit, oversight agency for audit, cognizant agency for indirect costs, or pass-through entity to extend the retention period. (c) Records for real property and equipment acquired with Federal funds must be retained for 3 years after final disposition.	2 CFR 200.334

	(d) When records are transferred to or maintained by the Federal awarding agency or pass-through entity, the 3-year retention requirement is not applicable to the non-Federal entity. (e) Records for program income transactions after the period of performance. In some cases, recipients must report program income after the period of performance. Where there is such a requirement, the retention period for the records pertaining to the earning of the program income starts from the end of the non-Federal entity's fiscal year in which the program income is earned. (f) Indirect cost rate proposals and cost allocations plans. This paragraph applies to the following types of documents and their supporting records: Indirect cost rate computations or proposals, cost allocation plans, and any similar accounting computations of the rate at which a particular group of costs is chargeable (such as computer usage chargeback rates or composite fringe benefit rates). (1) *If submitted for negotiation.* If the proposal, plan, or other computation is required to be submitted to the Federal Government (or to the pass-through entity) to form the basis for negotiation of the rate, then the 3-year retention period for its supporting records starts from the date of such submission. (2) *If not submitted for negotiation.* If the proposal, plan, or other computation is not required to be submitted to the Federal Government (or to the pass-through entity) for negotiation purposes, then the 3-year retention period for the proposal, plan, or computation and its supporting records starts from the end of the fiscal year (or other accounting period) covered by the proposal, plan, or other computation.	
None	CONTRACTS WITH COMPANIES ENGAGED IN BUSINESS WITH IRAN, SUDAN, OR FOREIGN TERRORIST ORGANIZATION PROHIBITED. A governmental entity may not enter into a governmental contract with a company that is identified on a list prepared and maintained under Section 2270.0052, 2270.0102, or 2270.0152. In accordance with Texas Government Code, Chapter 2252, Subchapter F, **Respondent** hereby represents and warrants that it is not a company identified on the lists prepared and maintained under Texas Government Code §§ 2270.0052 (companies with business operations in Sudan), 2270.0102 (companies with business operations in Iran), or 2270.0152 (companies known to have contracts with or provide supplies or services to a foreign terrorist organization). Notwithstanding the foregoing, a company that the United States government affirmatively declares to be excluded from its federal sanctions regime relating to Sudan, Iran, or to a foreign terrorist organization, is not subject to contract prohibition under this clause. A company claiming such exemption must submit the official copy of the declaration.	Texas Government Code 2252.152
>$100,000	PROVISION REQUIRED IN CONTRACT. (a) This section applies only to certain solicitations and contracts. Section 2271.002 of the Texas Government Code states the following: (a) This section applies only to a contract that: (1) is between a governmental entity and a company with 10 or more full-time employees; and (2) has a value of $100,000 or more that is to be paid wholly or partly from public funds of the governmental entity. (b) A governmental entity may not enter into a contract with a company for goods or services unless the contract contains a written verification from the company that it:	Texas Government Code 2271.002

	(1) does not boycott Israel; and (2) will not boycott Israel during the term of the contract. Section 2271.001(2) of the Government Code defines “company" to be the meaning assigned by Section 808.001 of the Texas Government Code, except that the term does not include a sole proprietorship.	
Option Contract Language for contracts awarded prior to Grant Award	The contract award is contingent upon the receipt of federal funds. If no such funds are awarded, the contract shall terminate.	Optional
	Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.	42 U.S.C. 6201
	The Firm agrees that no otherwise qualified individual with disabilities shall, solely by reason of his/her disability, be denied the benefits of, or be subjected to discrimination, including discrimination in employment, under any program or activity receiving federal financial assistance.	Section 504 of the Rehabilitation Act of 1973, as amended.

BYRD ANTI-LOBBYING CERTIFICATION

Certification for Contracts, Grants, Loans, and Cooperative Agreements-The undersigned certifies, to the best of his or her 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 subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients 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 than $100,000 for each such failure.

The Contractor_____ certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C.Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official

_____

Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

DEBARMENT/SUSPENSION CERTIFICATION

Non-Federal entities and Contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, Debarment and Suspension (1986) and Executive Order 12689, Debarment and Suspension (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (No procurement Debarment and Suspension).

This requirement applies to all FEMA grant and cooperative agreement programs.

Federal Executive Order (E .O.) 12549 "Debarment" requires that all Contractors receiving individual awards, using federal funds, and all sub recipients certify that the organization and its principals are not debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from doing business with the Federal Government. By signing this document, you certify that your organization and its principals are not debarred. Failure to comply or attempts to edit this language may disqualify your bid. Information on debarment is available at the following websites: www.sam.gov and https://acguisition.qov/far/index.html see section 52.209-6.

The Contractor _____ certifies or affirms by your signature that neither you nor your principal is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official

_____

Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

1. EQUAL EMPLOYMENT OPPORTUNITY (Equal Opportunity Clause)

(For all awarded contracts that meet the definition of "federally assisted construction contract" provided in 41 CFR Part 60-1.3)

During the performance of this contract, the Contractor agrees as follows:

1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, 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, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

   Employment, upgrading, 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 setting forth the provisions of this nondiscrimination clause.

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, sexual orientation, gender identity, or national origin.

3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.

4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or order this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of Contractors and Subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a Contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon Contractors and Subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official

_____

Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

SECTION 3: SPECIAL REQUIREMENTS/BID SUBMISSION INSTRUCTIONS

The following requirements and instructions **supersede** General Requirements where applicable.

1. SUBMISSION OF BID.

Bidder is Responsible for Submitting:

One (1) Original and two (2) Bid Copies; with all copies to include a Completed Copy of this Specifications Packet (including technical specifications), **in its entirety.**

The County requests that bid submissions NOT be bound by staples or glued spines.

Each Bidder shall ensure that required parts of their bid submission are completed with accuracy and submitted as per the requirements within this specifications packet, including any addenda.

Additionally, Bidder shall monitor the Jefferson County Purchasing Department Website for any addenda, additional instructions, or bid updates. https://www.co.jefferson.tx.us/Purchasing/

Failure to return and/or complete all required documentation will result in a response being declared as non-responsive.

Bids must be submitted in complete original form by mail or messenger to the following address:
Jefferson County Purchasing Department
1149 Pearl Street, 1st Floor
Beaumont, TX 77701

BID PACKAGING: Bidder shall submit response in a tightly sealed opaque envelope or box, plainly marked "SEALED BID." The outside of the envelope of box shall also include the IFB Number, IFB Name, IFB Due Date, and the Bidder's Name and Address; and shall be addressed to the Purchasing Agent.

All submissions must be received by 11:00 am CT, Wednesday, September 25, 2024.

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

Jefferson County will not accept any responsibility for bids being delivered by third party carriers.

Late bids will not be accepted and will be returned unopened to the Bidder.
Jefferson County shall not be responsible for any effort or cost expended in the preparation of a response to this IFB.

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

All protests should be coordinated through the Purchasing Office prior to award recommendation to Commissioners' Court.

COURTHOUSE SECURITY: All visitors to the Courthouse must pass through Security. Respondents planning to hand deliver proposals must allow time to get through Security, as a delay in entering the Courthouse will not be accepted as an excuse for late submittal. Mondays and Tuesdays are particularly heavy days.

In response to the Covid-19 pandemic, Jefferson County has implemented precautionary measures as currently recommended by the CDC within its facilities. Bidders are strongly urged to plan accordingly.

COUNTY HOLIDAYS (2024):

January 15	(Monday)	Martin Luther King, Jr. Day
March 29	(Friday)	Good Friday
May 27	(Monday)	Memorial Day
June 19	(Wednesday)	Juneteenth
July 4	(Thursday)	Independence Day
September 2	(Monday)	Labor Day
November 11	(Monday)	Veteran's Day
November 28 & 29	(Thursday & Friday)	Thanksgiving
December 25 & 26	(Wednesday & Thursday)	Christmas
January 1, 2025	(Wednesday)	New Year's

Submissions During Time of Inclement Weather, Disaster, or Emergency:

In case of inclement weather or any other unforeseen event causing the County to close for business on the date of a bid/proposal/statement of qualifications submission deadline, the IFB closing will automatically be postponed until the next business day that County offices are open to the public. Should inclement weather conditions or any other unforeseen event cause delays in courier service operations, the County may issue an addendum to all known vendors interested in the project to extend the deadline. It will be the responsibility of the vendor to notify the county of their interest in the project should these conditions impact their ability to submit a bid/proposal/statement of qualifications submission before the stated deadline. The County reserves the right to make the final judgement call to extend any deadline.

Should an emergency or unanticipated event interrupt normal County processes, and bid/proposal/statement of qualifications submissions cannot be received by the Jefferson County Purchasing Department's office by the exact time specified in the IFB and urgent County requirements preclude amendment to the IFB, the time specified for receipt of Statements of Qualifications will be deemed to be extended to the same time of day specified in the solicitation on the first business day on which normal County processes resume.

2. PRE-BID MEETING AND WALK-THROUGH.

There will be a Pre-Bid Meeting and Walk-Through on Thursday, August 22, 2024, at 2:00 PM CT, at Jefferson County Correctional Facility, located at 5030 Hwy 69 S, Beaumont, Texas 77705.

3. QUESTIONS/DEADLINE FOR QUESTIONS.

Questions may be emailed to **Mistey Reeves, Assistant Purchasing Agent** at: mistey.reeves@jeffcotx.us. If no response in 72 hours, contact **Deborah Clark, Purchasing Agent** at: deb.clark@jeffcotx.us. The Deadline for asking questions or requesting additional information (in writing) is 5:00 pm, CT, Friday, September 13, 2024**.**

4. VENDOR REGISTRATION (System for Award Management).

Vendors doing business with Jefferson County are **required** to be registered with The System for Award Management (SAM), with an "active" status. The System for Award Management (SAM) is the Official U.S. Government system that consolidated the capabilities of CCR/FedReg, ORCA, and EPLS. There is NO fee to register for this site. Entities may register at no cost directly from the SAM website at: https://www.sam.gov

In instances where a vendor has either an "Inactive" SAM Registration or is not currently registered with the System for Award Management, the Purchasing Department may *initially* accept proof (printout from the SAM website) that the vendor has begun the registration process in order for the IFB/RFQ/RFP submission to be considered as "responsive" to the specifications for the project.
However, the SAM Registration must be completed (showing "active" status, with no exclusions) prior to the award and/or execution of an agreement or contract for the project.

<u>BIDDER</u>: INSERT PROOF OF SYSTEM FOR AWARD MANAGEMENT (SAM) BEHIND THIS PAGE.

5. FORM 1295 (Texas Ethics Commission) SUBMISSSION REQUIREMENT/INSTRUCTIONS FOR BIDDERS.
All Non-Exempt Bidders are required to submit a completed FORM 1295 with bid submission.

1. Submit a FORM 1295 online via the Texas Ethics Commission website link below.
Vendors must enter the required information on Form 1295, and print a copy of the completed form.
The form will include a certification of filing that will contain a unique certification number.

2. Submit a FORM 1295 hard copy (completed & signed by an Authorized Agent of the Awarded Vendor), to the Jefferson County Purchasing Department **with bid submission.**

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

A sample of a completed FORM 1295 is included on **PAGE 32**.

FORM 1295 Implementation Background:
In accordance with House Bill 1295 (passed January 1, 2016), Vendors entering into contracts and professional agreements with Jefferson County will be required to complete a Certificate of Interested Parties (FORM 1295), **unless contract is considered exempt as described below.**

In 2017, the Texas legislature amended the law to require Form 1295 to include an "unsworn declaration" which includes, among other things, the date of birth and address of the authorized representative signing the form. The unsworn declaration, including the date of birth and address of the signatory, replaces the notary requirement that applied to contracts entered into before January 1, 2018. The TEC filing application does not capture the date of birth or street address of the signatory and it will not appear on forms that are filed using the TEC filing application.

Changes to the law requiring certain businesses to file a Form 1295 are in effect for contracts entered into or amended on or after January 1, 2018. The changes exempt businesses from filing a Form 1295 for certain types of contracts and replace the need for a completed Form 1295 to be notarized. Instead, the person filing a 1295 needs to complete an "unsworn declaration."

Question: Will the date of birth and address provided appear on the TEC's website when the form is filed?

Answer: No. The TEC filing application does not capture the date of birth or street address of the signatory and it will not appear on forms that are filed using the TEC filing application. Although the TEC does not capture the date of birth and street address of the signatory, the contracting state agency or governmental agency will have a physical copy of the form that includes the date of birth and address of the signatory. The TEC cannot answer whether the contracting state agency or governmental agency may release such information. Questions regarding the Texas Public Information Act may be directed to the Office of the Attorney General. See also Paxton v. City of Dall., No. 03-13-00546-CV, 2015 Tex. App. LEXIS 5228, at *10-11 (App.—Austin May 22, 2015) (mem. op.) (pet. denied) (available here)

FORM 1295 EXEMPTIONS:
What type of contracts are exempt from the Form 1295 filing requirement under the amended law?
The amended law adds to the list of types of contract exempt from the Form 1295 filing requirement.

A completed Form 1295 is not required for:
- a sponsored research contract of an institution of higher education
- an interagency contract of a state agency or an institution of higher education
- a contract related to health and human services if: the value of the contract cannot be determined at the time the contract is executed; and any qualified vendor is eligible for the contract
- a contract with a publicly traded business entity, including a wholly owned subsidiary of the business entity
- a contract with an electric utility, as that term is defined by Section 31.002, Utilities Code
- a contract with a gas utility, as that term is defined by Section 121.001, Utilities Code

SAMPLE COMPLETED FORM 1295

VENDOR: FORM 1295 MUST BE COMPLETED/SUBMITTED ON TEXAS ETHICS COMMISSION WEBSITE. HARD COPY OF FORM 1295 IS TO BE PRINTED, COMPLETED, SIGNED, AND SUBMITTED WITH BID/PROPOSAL/AGREEMENT/CONTRACT.

JEFFERSON COUNTY WILL CONFIRM RECEIPT OF COMPLETED HARD COPY WITH THE TEXAS ETHICS COMMISSION.

CERTIFICATE OF INTERESTED PARTIES — FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.

VENDOR:ENTER YOUR BUSINESS NAME, CITY, STATE, AND COUNTRY HERE

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.

JEFFERSON COUNTY, TEXAS

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.

VENDOR: ENTER BID/PROPOSAL/CONTRACT/AGREEMENT REF# AND TITLE HERE.

4 Name of Interested Party	City, State, Country (place of business)	Nature of Interest (check applicable)	
		Controlling	Intermediary
VENDOR: ENTER EACH PERSON HAVING INTEREST, OWNERS ARE THE CONTROLLING PARTIES.		X	
VENDOR: WORKERS (OR NON-OWNERS) IN YOUR COMPANY ARE INTERMEDIARY PARTIES.			X

5 Check only if there is NO Interested Party. CHECK BELOW IF APPLICABLE ☐

6 UNSWORN DECLARATION VENDOR: COMPLETE, DATE, AND SIGN THIS DECLARATION SECTION.

My name is _____, and my date of birth is _____.

My address is _____, _____, _____, _____, _____.
(street) (city) (state) (zip code) (country)

I declare under penalty of perjury that the foregoing is true and correct.

Executed in _____ County, State of _____ , on the _____ day of _____, 20_____.
(month) (year)

_____
Signature of authorized agent of contracting business entity
(Declarant)

ADD ADDITIONAL PAGES AS NECESSARY

Form provided by Texas Ethics Commission www.ethics.state.tx.us Revised 12/22/2017

NOTE: JEFFERSON COUNTY WILL KEEP A COPY OF THIS FORM ON FILE FOR EACH BID/PROPOSAL/CONTRACT/AGREEMENT AND EACH VENDOR RESPONDING TO BIDS/PROPOSALS.

BIDDER: INSERT COMPLETED FORM 1295 BEHIND THIS PAGE.

6. MULTIPLE VENDOR AWARD.

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

7. DELIVERY.

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

8. PAYMENT.

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

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

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

9. USAGE REPORTS.

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

10. INSURANCE.

The Contractor (including any and all Subcontractors as defined in Section 11.1.3 below) shall, at all times during the term of this contract, maintain insurance coverages with not less than the type and requirements shown below. Such insurance is to be provided at the sole cost of the Contractor. These requirements do not establish limits of the Contractor's liability.

All policies of insurance shall waive all rights of subrogation against the County, its officers, employees and agents; a copy of the policy wording or endorsement is required.

Contractor shall furnish Jefferson County with Certificate of Insurance naming Jefferson County as additional insured and will provide the actual policy wording or endorsement showing as such.

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

Minimum Insurance Requirements:

Public Liability, including Products & Completed Operations	$1,000,000
Excess Liability	$1,000,000

Property Insurance (policy below that is applicable to this project):
Improvements & Betterments Policy: Improvements/Remodeling (for Lease Tenants)
Builder's Risk Policy: Structural Coverage for Construction Projects
Installation Floater Policy: Improvements/Alterations to Existing Structure

Workers' Compensation Statutory Coverage (See Section 9 Below)

11. WORKERS' COMPENSATION INSURANCE

11.1 Definitions:

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

11.1.2 **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.

11.1.3 **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.

11.2 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.

11.3 The Contractor must provide a certificate of coverage to the governmental entity prior to being awarded the contract – **refer to Section 10 above**.

11.4 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.

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

11.5.1 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

11.5.2 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.

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

11.7 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.

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

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

11.9.1 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.

11.9.2 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.

11.9.3 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.

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

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

11.9.4.2 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.

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

11.9.6 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

11.9.7 Contractually require each person with whom it contracts to perform as required by paragraphs **11.1. – 11.7**., with the certificates of coverage to be provided to the person for whom they are providing services.

11.10 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.

11.11 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.

<u>BIDDER</u>: INSERT COPY OF CERTIFICATE OF INSURANCE (COI) BEHIND THIS PAGE.

Note: For bid purposes, a general COI will suffice. However, a COI that includes the notation that "Jefferson County as an additional insured" will be required from Awarded Bidder(s) prior to the issuance of a Purchase Order.

BIDDER INFORMATION FORM

Instructions: Complete the form below. Please provide legible, accurate, and complete contact information. PLEASE PRINT.

Bid Number & Name: (IFB 24-039/MR) Jefferson County Correctional Facility Renovations to Buildings A & C

Bidder's Company/Business Name: _____

Bidder's TAX ID Number: _____

If Applicable: **HUB Vendor No**. _____ **DBE Vendor No**. _____

Contact Person: _____ **Title:** _____

Phone Number (with area code): _____

Alternate Phone Number if available (with area code):_____

Fax Number (with area code):_____

Email Address: _____

Mailing Address (Please provide a <u>physical address for bid bond return</u>, if applicable):

_____
Address

_____
City, State, Zip Code

REQUIRED FORM
<u>Bidder</u>: Please complete this form and include with bid submission.

SECTION 4: MINIMUM SPECIFICATIONS

The following requirements and specifications supersede General Bid Requirements where applicable. Any questions relating to bid submission or bid item specifications requirements should be directed to Mistey Reeves, Assistant Purchasing Agent at 409-835-8593 or via email at: mistey.reeves@jeffcotx.us. If no response in 72 hours, contact Deborah Clark, Purchasing Agent at 409-835-8593 or via email at: deb.clark@jeffcotx.us. Please reference Bid Number: IFB 24-039/MR.

SCOPE OF PROJECT:

Jefferson County is soliciting bids for the renovation of the Jefferson County Correctional Facility Buildings A & C. These buildings are currently inmate dorms. This building is being renovated to accommodate maximum security cells. The scope of this project includes construction materials and work including, but not limited to:

- Purchase and installation of all masonry work.
- Purchase, fabrication and installation of hollow metal door frames and hollow metal doors.
- Purchase and installation of detention locks and door hardware.
- Purchase and installation of commercial door locks & door hardware.
- Purchase and installation of intercoms, CCTV system, door control system and wiring.
- Purchase and installation of smoke detectors/fire alarm system.
- Purchase and installation of plumbing.
- Purchase and of chain link fencing including gate/door, lock boxes, etc.
- Purchase and installation of epoxy wall finish and floor finish where required.
- Purchase and installation of all electrical work. Installation of all wiring.
- Purchase and installation of all mechanical/HVAC work.
- Purchase/provide all materials required to perform work noted above

TERMS:

The awarded contractor is responsible for all permits, license and fees associated with the project. Any changes to the Project Plans must be approved by Jefferson County Commissioners' Court and the Project Architect Burns Architecture, LLC.

PROJECT MANUAL:

The Project Manual for this project may be found starting on page 60 of this Invitation for Bid.

BID FORM:

The Bid Form for this project is on page 44 of this Invitation for Bid.

OFFER AND ACCEPTANCE FORM
OFFER TO CONTRACT

To Jefferson County:

We hereby offer and agree to furnish the materials or service in compliance with all terms, conditions, specifications, and amendments in the Invitation for Bid and any written exceptions in the offer.

We understand that the items in this Invitation for Bid, including, but not limited to, all required certificates are fully incorporated herein as a material and necessary part of the contract.

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

We acknowledge receipt of the following amendment(s): _____, _____, _____, _____.

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

	For clarification of this offer, contact:
Company Name	
Address	Name & Title
City State Zip	Phone Fax
Signature of Person Authorized to Sign	E-mail
Printed Name	
Title	

REQUIRED FORM
<u>Bidder</u>: Please complete this form and include with bid submission.

ACCEPTANCE OF OFFER

The Offer is hereby accepted for the following items: Jefferson County Correctional Facility Renovations to Buildings A & C.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the Invitation for Bid, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by Jefferson County.

This contract shall henceforth be referred to as Contract No. 24-039/MR, Jefferson County Correctional Facility Renovations to Buildings A &C. The Contractor has not been authorized to commence any billable work or to provide any material or service under this contract until Contractor receives a purchase order and/or a notice to proceed from the Jefferson County Purchasing Agent.

COUNTERSIGNED:

Jeff R. Branick, County Judge **JEFFERSON COUNTY, TEXAS**	**Date**

ATTEST:

Roxanne Acosta Hellberg, County Clerk **JEFFERSON COUNTY, TEXAS**	**Date**

BIDDER: INSERT ALL ADDENDA BEHIND THIS PAGE.
PLEASE BE SURE TO COMPLETE, SIGN, ATTEST, AND DATE EACH ADDENDUM.

<u>BIDDER</u>: INSERT BID SECURITY BEHIND THIS PAGE.

Description	Unit	Bid Amount
Base Bid per Specifications	Lump Sum	$

BIDDER ACKNOWLEDGEMENT OF BID ADDENDA (IF APPLICABLE):

Addendum 1 _____ Date Received_____

Addendum 2 _____ Date Received_____

Addendum 3 _____ Date Received_____

BIDDER: INCLUDE FULL, SIGNED, & ATTESTED COPY OF EACH ADDENDUM ISSUED WITH BID SUBMISSION.

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

VENDOR REFERENCES FORM

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

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

REFERENCE ONE

Government/Company Name: _____

Address: _____

Contact Person and Title: _____

Phone: _____ Fax: _____

Email Address: _____ Contract Period: _____

Scope of Work:

REFERENCE TWO

Government/Company Name: _____

Address: _____

Contact Person and Title: _____

Phone: _____ Fax: _____

Email Address: _____ Contract Period: _____

Scope of Work:

REFERENCE THREE

Government/Company Name: _____

Address: _____

Contact Person and Title: _____

Phone: _____ Fax: _____

Email Address: _____ Contract Period: _____

Scope of Work: _____

SIGNATURE PAGE

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

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

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

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

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

Bidder (Entity Name)	Signature
Street & Mailing Address	Print Name
City, State & Zip	Date Signed
Telephone Number	Fax Number
E-mail Address	

REQUIRED FORM
<u>Bidder</u>: Please complete this form and include with bid submission.

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her 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 subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients 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 than $100,000 for each such failure.

The Contractor, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

_____

Signature of Contractor's Authorized Official

_____

Name and Title of Contractor's Authorized Official *(Please Print)*

_____

Date

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor doing business with local governmental entity

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

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

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

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

OFFICE USE ONLY

Date Received

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

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

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

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

_____
Name of Officer

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

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

4

_____ _____
Signature of vendor doing business with the governmental entity Date

Adopted 8/7/2015

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

LOCAL GOVERNMENT OFFICER CONFLICTS DISCLOSURE STATEMENT

FORM CIS

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

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

OFFICE USE ONLY

Date Received

1 **Name of Local Government Officer**

2 **Office Held**

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

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

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

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

Date Gift Accepted _____ Description of Gift _____

(attach additional forms as necessary)

6 **AFFIDAVIT**

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

_____
Signature of Local Government Officer

AFFIX NOTARY STAMP / SEAL ABOVE

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

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

Adopted 8/7/2015

THIS FORM IS FOR OFFICE USE ONLY

GOOD FAITH EFFORT (GFE) DETERMINATION CHECKLIST

Bidder intends to utilize Subcontractors/Subconsultants in the fulfillment of this contract (if awarded).
☐ Yes ☐ No

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

Did the Prime Contractor/Consultant . . .?

☐ Yes ☐ No 1. To the extent practical, and consistent with standard and prudent industry standards, divide the contract work into the smallest feasible portions, to allow for maximum HUB Subcontractor participation?

☐ Yes ☐ No 2. **Notify** in writing a reasonable number of HUBs, allowing sufficient time for effective participation of the planned work to be subcontracted?

☐ Yes ☐ No 3. **Provide** HUBs that were genuinely interested in bidding on a Subcontractor, adequate information regarding the project (i.e., plans, specifications, scope of work, bonding and insurance requirements, and a point of contract within the Prime Contractor/Consultant's organization)?

☐ Yes ☐ No 4. **Negotiate** in good faith with interested HUBs, and not reject bids from HUBs that qualify as lowest and responsive Bidders?

☐ Yes ☐ No 5. **Document** reasons HUBs were rejected? Was a written rejection notice, including the reason for rejection, provided to the rejected HUBs?

☐ Yes ☐ No 6. If Prime Contractor/Consultant has zero (0) HUB participation, **please explain the reasons why.**

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

Printed Name of Authorized Representative	Signature
Title	Date

REQUIRED FORM
<u>Bidder</u>: Please complete this form and include with bid submission.

NOTICE OF INTENT (NOI) TO SUBCONTRACT WITH HISTORICALLY UNDERUTILIZED BUSINESS (HUB)

Bidder intends to utilize Subcontractors/Subconsultants in the fulfillment of this contract (if awarded).
☐ Yes ☐ No

Instructions for Prime Contractor/Consultant: Bidder shall submit this form with the bid; however, the information below may be submitted after contract award, but prior to beginning performance on the contract.

Please submit one form for each HUB Subcontractor/Subconsultant with proper signatures, per the terms and conditions of your contract.

Contractor Name: _____ HUB: ☐ Yes ☐ No

Address: _____
Street City State Zip

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

Project Title & No.: _____

Prime Contract Amount: $ _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

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

Address: _____
Street City State Zip

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

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

Description of Subcontract Work to be Performed: _____

_____

_____ _____ _____
Printed Name of Contractor Representative Signature of Representative Date

_____ _____ _____
Printed Name of HUB Signature of Representative Date

Note: Nothing on this Notice of Intent Form is intended to confer any rights, expressed or implied, to any third parties.

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

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

HISTORICALLY UNDERUTILIZED BUSINESS (HUB)
SUCONTRACTING PARTICIPATION DECLARATION FORM

Bidder intends to utilize Subcontractors/Subconsultants in the fulfillment of this contract (if awarded).
☐ Yes ☐ No

Prime Contractor: _____ HUB: ☐ Yes ☐ No

HUB Status (Gender & Ethnicity): _____

Address: _____
Street City State Zip

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

Project Title & No.: _____ IFB/RFP No.: _____

Total Contract: $ _____ Total HUB Subcontract(s): $ _____

Construction HUB Goals: 12.8% MBE:: _____ % 12.6% WBE: _____ %

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

FOR HUB OFFICE USE ONLY:

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

PART I. HUB 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: _____

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

HISTORICALLY UNDERUTILIZED BUSINESS (HUB)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

HUB Subcontractor Disclosure

PART I: Continuation Sheet (Duplicate as Needed)

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

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

Address: _____
Street City State Zip

Contact person: _____ Title: _____

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

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

Description of Subcontract Work to be Performed: _____

HUB Subcontractor Name: _____

HUB Status (Gender & Ethnicity): _____

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

Address: _____
Street City State Zip

Contact person: _____ Title: _____

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

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

Description of Subcontract Work to be Performed: _____

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

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

HISTORICALLY UNDERUTILIZED BUSINESS (HUB)
SUCONTRACTING PARTICIPATION DECLARATION FORM

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

Instructions to Bidder: 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: _____

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

HISTORICALLY UNDERUTILIZED BUSINESS (HUB)
SUBCONTRACTING PARTICIPATION DECLARATION FORM

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

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

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

Description of Subcontract Work to be Performed: _____

_____

Subcontractor Name: _____

Address: _____
Street City State Zip

Contact person: _____ Title: _____

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

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

Description of Subcontract Work to be Performed: _____

_____

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

Name (print or type): _____

Title: _____

Signature: _____

Date: _____

E-mail address: _____

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

Name (print or type): _____

Title: _____

Date: _____

E-mail address: _____

REQUIRED FORM
Bidder: Please complete this form and include with bid submission.

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) "Non-resident 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.

REQUIRED FORM
<u>Bidder</u>: Please complete this form and include with bid submission.

HOUSE BILL 89 VERIFICATION

I, _____, the undersigned representative of (company or business name)_____ (heretofore referred to as company) being an adult over the age of eighteen (18) years of age, after being duly sworn by the undersigned notary, do hereby depose and verify under oath that the company named above, under the provisions of Subtitle F, Title 10, Government Code Chapter 2270:

1. Does not boycott Israel currently; and
2. Will not boycott Israel during the term of the contract.

Pursuant to Section 2270.002, Texas Government Code:

1. "**Boycott Israel**" means refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations specifically with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made ordinary business purposes; and

2. "**Company**" means a for-profit sole proprietorship, organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, or an limited liability company, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate of those entities or business association that exist to make a profit.

_____
Signature of Company Representative

_____
Date

On this _____ day of _____, 20____, personally appeared

_____, the above-named person, who after by me being duly sworn, did swear and confirm that the above is true and correct.

Notary Seal

_____
Notary Signature

_____
Date

REQUIRED FORM
<u>Bidder</u>: Please complete this form and include with bid submission.

SENATE BILL 252 CERTIFICATION

On this day, I, Deborah L. Clark, Purchasing Agent for Jefferson County, Texas, pursuant to Texas Government Code, Chapter 2252, Section 2252.152 and Section 2252.153, certify that I did review the website of the Comptroller of the State of Texas concerning the listing of companies that is identified under Section 806.051, Section 807.051, or Section 2253.253 and I have ascertained that the below named company is not contained on said listing of companies which do business with Iran, Sudan, or any Foreign Terrorist Organization.

_____

Company Name

_____

IFB/RFP/RFQ number

Certification check performed by:

_____

Purchasing Representative

_____

Date

THIS FORM IS FOR OFFICE USE ONLY

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_____, 20___.

REQUIRED FORM
<u>Bidder</u>: Please complete this form and include with bid submission.

_____
Notary Public in and for
the State of _____

PROJECT MANUAL

JEFFERSON COUNTY CORRECTIONAL CENTER RENOVATIONS TO BUILDINGS A & C

HIGHWAY 69 SOUTH

BEAUMONT, TEXAS 77705

Burns Architecture, LLC

JOB NO.: JCCCAC-23

DATE: March 29, 2024

ISSUED FOR BIDDING: July 30, 2024

3/29/2024

Architect

BURNS ARCHITECTURE, LLC
ARCHITECTS · ADVISORS · CONSULTANTS

SECTION 000102
PROJECT DIRECTORY

JEFFERSON COUNTY CORRECTIONAL CENTER RENOVATIONS
BUILDINGS A&C

BEAUMONT, TEXAS

March 29, 2024
ISSUED FOR BIDDING: 7/30/2024

COUNTY JUDGE	JEFF BRANICK
COUNTY COMMISSIONERS	
PRECINCT 1	VERNON PIERCE
PRECINCT 2	CARY ERICKSON
PRECINCT 3	MICHAEL SINEGAL
PRECINCT 4	EVERETTE "BO" ALFRED
SHERIFF	ZENA STEPHENS

ARCHITECT:

Burns Architecture, LLC
PO Box 2639
Galveston, TX 77553
Principal: Kenneth C. Burns, AIA
Phone: (817) 247-6640
Email: kburns@burns3.com

3/29/2024

STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING ENGINEER:

GLS
1609 S. Chestnut, Suite 202
Lufkin, Texas 75901
Principal: Zach Parker, P.E.
Phone: (936) 637-4900
Email: zparker@glstexas.com

COUNTY CONSTRUCTION CONTACT:

Captain Kenneth Harrell
5030 Hwy 69 South
Beaumont, Texas 77705
Phone: (409) 550-7427
Email: kharrell@co.jefferson.tx.us

SECTION 000102
PROJECT DIRECTORY

JEFFERSON COUNTY CORRECTIONAL CENTER RENOVATIONS
BUILDINGS A&C

BEAUMONT, TEXAS

March 29, 2024

COUNTY JUDGE	JEFF BRANICK
COUNTY COMMISSIONERS	
PRECINCT 1	EDDIE ARNOLD
PRECINCT 2	CARY ERICKSON
PRECINCT 3	MICHAEL SINEGAL
PRECINCT 4	EVERETTE "BO" ALFRED
SHERIFF	ZENA STEPHENS

ARCHITECT:

Burns Architecture, LLC
PO Box 2639
Galveston, TX 77553
Principal: Kenneth C. Burns, AIA
Phone: (817) 247-6640
Email: kburns@burns3.com

3/29/2024

STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING ENGINEER:

GLS
1609 S. Chestnut, Suite 202
Lufkin, Texas 75901
Principal: Zach Parker, P.E.
Phone: (936) 637-4900
Email: zparker@glstexas.com

COUNTY CONSTRUCTION CONTACT:

Captain Kenneth Harrell
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JEFFERSON COUNTY CORRECTIONAL CENTER RENOVATIONS-BUILDINGS A & C

3/29/2024

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None this project.

SECTION 011000
PROJECT DESCRIPTION

JEFFERSON COUNTY CORRECTIONAL CENTER
RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TEXAS

This project is the renovations to Buildings A & C at the Jefferson County Correctional Center located at 5030 Highway 69 South, Beaumont, TX 77705. The project shall be a lump sum bid.

General Contractors bidding this project shall include the following work in their bid:

Work by Contractors:

1. Purchase and installation of all masonry work.
2. Purchase, fabrication and installation of hollow metal door frames and hollow metal doors.
3. Purchase and installation of detention locks and door hardware.
4. Purchase and installation of commercial door locks & door hardware.
5. Purchase and installation of intercoms, CCTV system, door control system and wiring.
6. Purchase and installation of smoke detectors/fire alarm system.
7. Purchase and installation of plumbing.
8. Purchase and of chain link fencing including gate/door, lock boxes, etc.
9. Purchase and installation of epoxy wall finish and floor finish where required.
10. Purchase and installation of all electrical work. Installation of all wiring.
11. Purchase and installation of all mechanical/HVAC work.
12. Purchase/provide all materials required to perform work noted above.

Work by Jefferson County:

1. Sawcutting existing concrete slabs.
2. All demolition and removal of demolished items.
3. Installation of countertops at control rooms.
4. Installation of dayroom furnishings to include table, seat, TV, kiosk, inmate phone and detention mirror.
5. Painting of all surfaces.
6. Installation of all bunks.
7. Purchase/provide all materials required to perform work noted above.

The specifications included herein apply to each section of work listed above unless noted: (By Owner).

END OF SECTION

SECTION 013300
SUBMITTALS AND SUBSTITUTIONS

PART 1 GENERAL

1.1. DESCRIPTION

A. Work included: Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

1.2. QUALITY ASSURANCE

A. Coordination of submittals:
   1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
   2. Verify that each item and the submittal for it conform in all respects with the specified requirements.

B. Substitutions:
   1. The Contract is based on the standards of quality established in the Contract Documents. Substitutions will be considered only when approved by the Architect at time of bidding. Acceptance of the contractor's bid does not constitute automatic approval of the proposed substitution. No additional monies will be paid to the contractor when proposed substitutes are not approved, and the original item or product specified is required to be installed.
   2. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this work by the Architect.
   3. In the event a contractor, sub-contractor, supplier, installer, and/or vendor intends to provide and/or install materials other than specified, he/she may do so provided the substitution complies with the contract document’s requirements in each and all respects.

C. "Or equal":
   1. Where the phrase "or equal," occurs in the contract documents, the bidder may propose equal products. The burden rests upon the bidder to confirm products are Equal. Architect will not review and provide written approval to bidder. Should any product be proposed that proves to not be Equal, bidder shall provide an equal product at no additional cost to Owner.

1.3. SUBMITTALS

A. Make submittals of Shop Drawings, Samples, substitution requests, and other items in accordance with the provisions of this Section. Provide all long lead items to Architect within 20 days after Notice to Proceed.

PART 2 PRODUCTS

2.1. SHOP DRAWINGS

A. Scale and measurements: Make Shop Drawings accurately to a scale sufficiently large enough to show all pertinent aspects of the item or items and its method of connection to the work.

B. Drawing and Data Submittals:
   1. Submit one (1) set electronically. Contractor shall establish a system of tracking and handling submittals electronically.
   2. If drawings cannot be submitted electronically, submit two (2) complete sets; 1 set will be retained by the Architect, 1 set will be returned to the CM.

C. Review comments of the Architect will be shown on the shop drawings when it is returned to the CM. The CM may make and distribute such copies as are required for his purposes.

2.2. MANUFACTURER'S LITERATURE

A. Where contents of submitted literature from manufacturers include data not pertinent to the submittal, clearly show, which portions of the contents is being submitted for review.

B. Submit the number of copies, which are required to be returned plus, one copy which will be retained by the Architect and an additional copy when consultants are included.

2.3. SAMPLES

A. Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under "Identification of Submittals" below.

B. Number of Samples required:
   1. Unless otherwise specified, submit actual samples in the quantity, which is required to be returned, plus two, which will be retained by the Architect.
   2. By pre-arrangement in specific cases, a single Sample may be submitted for review and, when approved, be installed in the work at a location agreed upon by the Architect.

2.4. COLORS AND PATTERNS

A. Unless the precise color and pattern is specifically called out in the Contract Documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color samples and pattern charts to the Architect for selection. Photocopies of color charts or samples printed from the manufacturer’s website are not acceptable.

PART 3 EXECUTION

3.1. IDENTIFICATION OF SUBMITTALS

A. Consecutively number all submittals.

1. When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new transmittal number.
2. On re-submittals, cite the original submittal number for reference.

B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.

C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number, specification section, and drawing in which the item was included.

D. Maintain an accurate submittal log for the duration of the work, showing current status of all submittals at all times. Make the submittal log available to the Architect for his review at each monthly meeting.

3.2. GROUPING OF SUBMITTALS

A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
1. Partial submittals may be rejected as not complying with the provisions of the Contract and of this section.
2. Submit in one package, physical samples of all materials requiring a color selection. No color selections will be made until all color samples requiring selection have been submitted.
3. Color selections for exterior and interior may be submitted as two distinct groupings.

3.3. TIMING OF SUBMITTALS

A. Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and re-submittals, and for placing orders and securing delivery.

B. In scheduling, allow at least fifteen (15) calendar days for review by the Architect and Architect's consultants following his receipt of the submittal.

3.4. ARCHITECT'S/ARCHITECT'S CONSULTANT'S REVIEW

A. Review by the Architect or Architect's Consultant's does not relieve the sub-contractor from responsibility for errors, which may exist in the submitted data.

B. Revisions:
1. Make revisions required by the Architect or Architect's Consultants.
2. Make only those revisions directed or approved by the Architect or Architect's Consultants.

3.5. COORDINATION DRAWINGS

A. Provide information required by Project Coordinator for preparation of coordination drawings.

B. Review drawings prior to submission to Architect.

3.6. SUBMITTALS FOR REVIEW

A. Submit the following for individual sections, submit them for review:
   1. Product data.
   2. Shop drawings.
   3. Samples for selection.
   4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Division 1.

3.7. SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Design data.
   2. Certificates.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field report.
   7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

3.8. SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and Maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

C. Submit two copies of project close out documents.

END OF SECTION

SECTION 01 73 19

INSTALLATION - MECHANICAL

PART 1—GENERAL

1.1 SCOPE

The scope of the mechanical phase of this project shall include all labor, materials, equipment, etc., required to fulfill the intent of the Contract Documents and shall include the work specified under the subsequent sections of these specifications.

1.2 RELATED DOCUMENTS

All applicable provisions of Divisions 0 and 1 govern work under this Division. Refer to these articles in the specifications for additional information.

1.3 REFERENCE STANDARDS

A. All work shall be performed in full accord with the latest editions of the applicable state, and national building codes and local ordinances.

B. Refer to each section for applicable codes and reference standards.

1.4 FEES, PERMITS AND TAXES

The Contractor shall make arrangements for and pay for all inspection fees, connections fees permits required by local authorities. The Contractor shall also pay all taxes levied for labor and materials associated with work under this Division.

1.5 SUBMITTALS

A. The symbol "<S>" indicates a requirement for submittals.

B. Refer to SECTION 01300 for additional information on submittals.

C. Refer to AIA General Conditions.

D. In addition to the requirements of the above referenced portions of this specification, all Subcontractors proposing to do work under this Division shall comply with the following additional requirements:

1. These specifications and drawings are intended to indicate a standard of quality for materials and equipment which is established by the listing of manufacturers' names and catalog numbers and/or by referenced standards. Materials and equipment that do not comply with these standards of quality will not be considered for substitution.
2. As soon as practicable and within thirty (30) days after the award of the contract and before beginning the fabrication of any material or the installation of any equipment, data shall be submitted for approval on equipment and materials where noted. Materials (pipe, fittings, etc.) may be enlisted with the name of the manufacturer and identifying catalogue numbers. Data for equipment shall include manufacturer's

name, catalogue data, diagrams, drawings and other descriptive data as required or requested by the Architect/Engineer for evaluation.

3. Notwithstanding any reference in the specifications to any article, device, product, material, fixture, form or type of construction by name, make or catalogue number, such references shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition; and the Contractor, in such cases, may at his option use any article, device, product material, fixture, form or type of construction which in the judgment of the Architect/Engineer expressed in writing, is equal to that specified.
4. All data shall be carefully examined and shall be forwarded for approval with a signed certification to the effect that the data has been carefully checked and found to be correct with respect to dimensions and available space and that the equipment complies with all requirements for the specifications.
5. Point out in writing all deviations between the plans and specifications and the materials submitted.
6. It is understood that proof of equality is the responsibility of the Contractor and/or supplier and that it is not the responsibility of the Architect/Engineer to prove the inequality of the proposed substitutions. Furthermore the decisions of the Architect/Engineer are final.

E. While it is not the intention of the Architect/Engineer to discriminate against any manufacturer of equipment which is equal to specified equipment, a strict interpretation of such equality will be exercised by the Architect/Engineer in considering any equipment offered as a substitute for equipment offered as a substitute for equipment named in the specification. It shall be the responsibility of the Contractor to submit with each request for approval of substitute material or equipment, sufficient data to show conclusively that it is equal to the material or equipment specified.

F. Contractor shall submit shop drawings and/or diagrams for approval and for job coordination in all cases where significant deviations from the contract drawings are contemplated because of job conditions, interferences, or substitutions of equipment, or when requested by the Architect/Engineer for purposes of clarification of the Contractor's intent. He shall also submit detailed shop drawings, rough-in sheets, etc., for all special or custom built items of equipment.

G. Should any substitute items be submitted and disapproved, then those items must be furnished exactly as described herein.

H. The Architect/Engineer's review of shop drawings and/or submittal data shall not relieve the Contractor of responsibility for deviations from the contract drawings or specifications.

I. The size of mechanical equipment shown on the drawings is based on the dimensions of a particular manufacturer. While other manufacturers may 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 when required by the Architect/Engineer or Owner to indicate a suitable arrangement.

J. Space allocations and utility rough-ins have been designed on the basis of equipment items named by manufacturer and model number. If any equipment not so named is offered which differs substantially in dimension or configuration from the named equipment, provide scaled shop drawings showing that the substitute can be installed in the same space available without interfering with other trades or with access for operation and maintenance in the completed project. The Installer shall coordinate final rough-in locations with actual

equipment furnished.

1.6 OPERATING AND MAINTENANCE MANUALS AND INSTRUCTIONS

A. The symbol "<OM>" indicates a requirement for operating and maintenance manuals to be furnished.

B. The Owner's operating personnel shall be instructed by the Contractor on how to start and operate each item of equipment. Safety features shall be pointed out, particularly the possible trouble shooting which might be done to remedy operating problems.

C. The Owner's operating personnel shall be thoroughly instructed in the operation of the control system. Instruction should include an explanation of the control system and system sequence of operation, the proper set points of each thermostat, etc., and how to change the settings to accommodate overheating and overcooling, or incorrect humidity. Instructions shall include an explanation of components which should not be tampered with or control settings which should not be changed except by authorized personnel of the Control Manufacturer. Thermostat keys shall be turned over to the Owner.

D. Relative to the air conditioning system, instruct the Owner's operating personnel in the following:

1. Removal of service access panels from equipment. If special tools are required, turn over to the Owner at last one set.
2. Method of removing air filters.
3. Method of cleaning permanent type air filters.
4. How to drain and fill all piping and equipment.
5. How to vent air from the system.
6. Location of concealed valves, traps, air splitters, automatic valves and dampers, etc., requiring periodic maintenance and location of access to them.

E. Provide (2) two copies of operating and maintenance manuals. Manuals shall be bound in large ring, loose-leaf binders and contain the following:

1. Manufacturer's instructions and/or installation manual.
2. Manufacturer's service manual.
3. Manufacturer's lubrication chart listing types of lubricant to be used on each item of equipment and recommended frequency of lubrication.
4. Electrical diagrams of each equipment "packaged" control system.
5. Diagrams of automatic temperature control systems, identifying each item by name, location and number showing sequence of operation. Each component of a control system shall be identified. All diagrams shall be up-to-date, reflecting any on-the-job changes.
6. Parts lists and identifying part numbers with prices of each part. The name and address of the nearest distributor from which parts can be obtained.

1.7 WARRANTY

Contractor shall warrant all workmanship, material, equipment systems etc., provided by him for a period of one year after substantial completion of the project. This warranty means that Contractor shall make good to the Owner, at no cost, any defects that become apparent during the year following substantial completion. This warranty is in addition to any other guarantees or warranties

and is not intended to limit such other guarantees or warranties.

1.8 DEFINITIONS

The following words and phrases as used herein are hereby defined:

A. "Provide": Furnish and install all material and labor required for a complete installation ready for operation in accordance with the intent of the Contract Documents.

B. "As required": Indicates that the Contractor shall perform the work or provide the material as indicated in accordance with manufacturer's installation instructions; and in accordance with applicable codes or regulations; and in a workmanlike manner as defined by good local practice.

C. "Or equal": Indicates that the Contractor may substitute equipment by another manufacturer if the features of the equipment indicated by manufacturer's name and/or described are, in the judgment of the Architect/Engineer, adequate. Submittals for approval are required where indicated.

D. "Contractor": Where the word "Contractor" is used, then refer to the Contractor engaged to execute the work under this division of the specifications only, even though he maybe technically described as a sub-contractor.

E. "Intent of the Contract Documents": The specific intent of these documents is to provide to the Owner, in a thoroughly functional condition, all the various systems, equipment, etc., indicated herein. Final authority over interpretation of the "intent" shall rest with the Architect/Engineer.

F. "Shall": Indicates a mandatory requirement.

1.9 INSPECTION OF THE SITE

A. The drawings are prepared from the best information available and reflect all conditions commensurate with this information. However, the contractor should visit the site prior to submitting a proposal and should verify the locations, sizes, depths, pressures, etc., of all existing utilities and familiarize himself with working conditions, hazards, existing grades, soil conditions will impair the proper operation of the utilities, the Architect/Engineer should be notified in writing.

B. All proposals shall take these existing conditions and any revision required into consideration.

1.10 CONSTRUCTION REQUIREMENTS

A. The Contractor shall be responsible for getting his material and apparatus into the building and shall carefully lay out his work at the site to conform to the structural conditions, to provide proper grading of lines, to avoid all obstructions and to conform to the details of the installation supplied by the manufacturer of the equipment to be installed. Furnish all necessary pipe lines and control lines whether indicated on the drawings or not. The drawings do not give exact details as to elevations of pipe lines nor do they show exact locations of pipe to scale.

B. Piping elevations shall be handled by giving precedence to pipes which require a stated grade for proper operation. Devices necessary for installation and support of pipes, and equipment(such as sleeves, inserts, etc.) shall be located and installed as the construction progresses in order to allow completion of each phase of the work in the proper sequence.

C. Drawings showing the extent and arrangement of the work of a particular trade shall be used together with drawings showing extend and arrangement of work of other trades to insure that the Contractor in laying out and installing his work shall do so in a manner such that the work of the several trades may progress in the most direct, workmanlike and harmonious manner.

D. The Contractor shall be responsible for the proper location and size of slots, holes or openings in the building structure pertaining to his work, and for the correct location of pipe sleeves. The drawings indicate the extend and general arrangement of the various systems, but if any departures from these drawings are deemed necessary by the Contractor, detailed drawings and descriptions of these departures and a statement of the reasons therefore shall be submitted to the Architect/Engineer as soon as practicable.

No departures from the arrangements shown on the drawings shall be made without prior written approval of Architect/Engineer.

E. In general, piping and ductwork in finished areas of the building shall be run concealed unless noted and directed otherwise. Should any conditions arise which would cause any piping or ductwork to be exposed in finished areas, it shall be immediately called to the Architect/Engineer's attention. In unfinished spaces such as equipment rooms, all pipe and duct shall be run as high as possible, shall be run to a continuous grade and shall be grouped wherever it is feasible to do so.

F. Equipment shall be installed in such a manner to make oiling devices and parts requiring service and maintenance readily accessible.

G. All pipe, duct, etc., shall be cut accurately to measurements established at the building and shall be worked into place without springing or forcing. All ducts and pipes run exposed in machinery and equipment rooms shall be installed parallel to the building planes except that the lines shall be sloped to obtain the proper pitch. Piping and ducts run above furred ceilings, etc., shall be similarly installed, except as otherwise shown. All pipe openings shall be kept closed during construction until the systems are closed with final connections.

H. The construction details of the building are illustrated on the Architectural and Structural drawings. The trades shall acquaint themselves with the details before submitting their bid as no allowance will be made because of unfamiliarity with these details. For new construction, place all inserts to accommodate the ultimate installation of pipe hangers in the forms before concrete is poured and set sleeves in forms before construction. For existing construction, all required inserts shall be "drilled-in" and all openings required through concrete or masonry shall be "saw-cut" or "core drilled" with tools specifically designed for this purpose. Explosive or compression driven inserts shall only be allowed for use as approved by SMACNA and the manufacturer of these devices. All concealed lines shall be installed as required by the pace of the job to precede the general construction.

I. The mechanical plans do not give exact locations of outlet, fixtures, equipment items, etc. The exact location of each item 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 other trades. Minor relocations necessitated by the conditions at the site or directed by the Owner shall be made without additional cost to the Owner.

J. 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. The trade furnishing the equipment shall be responsible prior to ordering same in the event that equipment specified and/or approved is incompatible with this requirement.

1.11 SLEEVES

A. Each and every pipe and duct, regardless of material, which passes through a concrete slab, (except slab on grade), masonry wall, roof or other portion of the building structure shall be free from the structure and shall pass through a sleeve furnished and installed by the Subcontractor responsible for the work involved.

B. Above grade and dry location sleeves shall be constructed from 20 to 22 gauge galvanized steel and shall be flush on both sides of wall surface penetrated. The sleeves shall be sized to allow free passage of the pipe to be inserted, and when this pipe is to be insulated, the sleeves shall be large enough to pass the insulation. Floor sleeves located in pipe chases shall extend up two inches (2") above the floor slab.

C. Sleeves passing through walls or floors on or below grade and/or in moist areas 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 caulked to insure a waterproof penetration. Fire ratings of rated walls and floors shall be maintained by the use of approved materials.

1.12 ISOLATION

A. Transmission of perceptible vibration, structure-borne noise, or objectionable air borne noise to occupied areas by equipment installed under this contract will not be permitted.

B. The isolation supplier shall be a firm or individual capable of dealing effectively with vibration and noise characteristics, effects and criteria and have facilities and capabilities for measuring and evaluating such disturbances and the preparation of drawing and installation instructions.

1.13 CONSTRUCTION SAFETY

Contractor assumes all responsibility regarding the safety of his personnel on the project during construction. The Contract Documents do not include materials, procedures, components, etc., required to insure construction safety. Refer to General Conditions and Supplementary General Conditions for additional information.

1.14 DAMAGE

A. Contractor shall be responsible for damage to project caused by Contractor's failure to recognize hazards associated with items such as leaks, scheduling of work, inexperienced workmen, excessive cutting, etc.

B. Contractor shall repair, at no expense to the Owner, any such damage to the satisfaction of the Owner.

C. Contractor shall familiarize himself with working conditions to the extent that he shall be responsible for damage to concealed piping, wiring and other equipment to remain and shall repair any damage caused by his negligence at no cost to the Owner.

1.15 FLOOR, CEILING AND WALL PLATES

In addition to the requirements of the above referenced portions of this specification, all Subcontractors shall furnish a chromium plated sectional escutcheon in each finished space on each pipe of hanger rod penetrating a wall, floor or ceiling. Escutcheons shall be sized to fit snugly to all lines and where the lines are insulated, the escutcheons shall be fit snugly over the insulation. Where required, these plates shall be provided with set screws so that they fit snugly against the finished surface. All equipment rooms are classified as finished space.

1.16 SAFETY GUARDS

Contractor shall furnish and install all safety guards required. All belt driven equipment, projecting shafts and other rotating parts shall be enclosed or adequately guarded.

1.17 STORAGE OF MATERIALS

Each Contractor shall provide space for storage of materials, equipment or tools at ground level. Any storage contemplated within the building will be allowed only upon specific approval of the Architect/Engineer.

1.18 LOCAL CUSTOMS

Each Sub-contractor shall comply with local customs as to which particular trade shall install any part or parts of any work or equipment specified herein.

1.19 MANUFACTURER'S DIRECTIONS

The manufacturer’s published directions shall be followed in the delivery, storage, protection, installation, piping and wiring of all equipment and material. The Contractor shall promptly notify the Architect/Engineer in writing of any conflict between the requirements of the contract documents and the manufacturer’s directions and shall obtain the Architect/Engineer's instructions before proceeding with the work. Any such work performed that does not comply with the manufacturers' directions shall have deficiencies corrected at no cost to the Owner.

PART 2—PRODUCTS

2.1 MATERIALS

All materials shall be new and free from defects at the time of installation. Materials 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.

2.2 MANUFACTURER'S REQUIREMENTS

When a manufacturer's name appears in these specifications, it is not to be construed that the manufacturer does not have to meet the full requirements of the specifications or that his standard cataloged item will be acceptable.

2.3 SERVICE AND REPAIR PARTS

All equipment installed on this project shall have local representation, local factory authorized service, and a local stock of repair parts.

2.4 FLAME SPREAD PROPERTIES OF MATERIALS

All materials and adhesives used for air conditioning filters, acoustical lining, and insulation shall conform to NFPA and UL life, safety and flame spread properties of materials. The composite classifications shall not exceed 25 for a flame spread rating and 50 for a smoke developed rating for these classifications as listed for the basic materials. The finishes, adhesives, etc., specified for each system and shall be such when completely assembled.

2.5 ACCESS PANELS

Provide flush mounted metal access panels and frames with concealed hinges and key actuated locks for all concealed and otherwise inaccessible valves, parts, fittings, equipment, filters, etc. and as required for inspection or service.

PART 3—EXECUTION

3.1 WORKMANSHIP

A. All work shall be done by experienced craftsmen skilled in the applicable trade.

B. Unprofessional and incomplete work shall be rejected and corrected at no additional expense.

3.2 PROTECTION OF EQUIPMENT

A. The Contractor shall continuously maintain adequate protection of stored materials and installed equipment. Fixtures and equipment, whether located inside or outside, shall be tightly covered with sheet polyethylene or waterproof tarpaulin as protection against dirt, rust, moisture and abuse from other trades. Adequate air circulation shall be provided under any protective sheet to prevent condensate build up.

B. Materials and equipment shall not be stored directly on the ground. Ductwork, piping and equipment shall not be used by other trades as supports for scaffolds or personnel. At the completion of the work, equipment, fixtures, exposed supports and piping shall be cleaned of loose dirt, construction debris, over spray, etc., to the satisfaction of the Architect/Engineer. Repairs made necessary by damage shall be paid for by the Contractor.

3.3 PROTECTION OF STRUCTURE

Contractor in performing his work shall take particular care not to damage the structure. All finished floors and step treads shall be covered to prevent any damage by workmen or their tools and equipment during the construction of the building. In addition, each Contractor shall protect any materials on the job site whether a part of this contract or the property of another Contractor.

3.4 FOUNDATIONS

Equipment shall be set in place on the bases, leveled and aligned by means of shims, piped, then grouted in, in that order. After grouting, the forms shall be removed and the surfaces of the foundation shall be hand-rubbed with carborundum. Concrete work shall conform to the requirements of General Specifications, Concrete Work, of this specification.

3.5 CONFLICTS, INTERFERENCES AND COORDINATION BETWEEN TRADES

A. The drawings are not to be construed as shop drawings, but indicate the extent, general location, arrangement, etc., of piping systems and equipment.

B. Each trade shall coordinate its work with that of the other trades. Piping interference shall be handled by giving precedence to pipe lines which require a stated grade for proper operation. Where space requirements conflict, the following order of precedence shall be observed:

1. Building lines
2. Structural members
3. Soil and drain piping
4. Vent piping
5. Refrigerant piping
6. Condensate piping
7. Supply ductwork
8. Exhaust ductwork
9. Domestic water
10. Electrical conduit
11. Natural gas piping

C. In the event of conflicts between specifications and drawings, drawings shall take precedence over specifications except in matters pertaining to quality, applications, and coordination between trades, which shall be governed by specifications.

D. In the event of conflict between codes, as interpreted by the authority having jurisdiction and the contract documents, the codes shall govern.

E. In the event of conflict between manufacturer's installation instructions and the drawings, the manufacturer's installation instructions shall govern.

3.6 CUTTING AND PATCHING

A. Contractor shall not cut any structural element or any finished work without permission from the Architect/Engineer.

B. Contractor shall cut and patch all paving as required by the installation of buried piping, including utilities.

3.7 CONCRETE WORK

All forming, reinforcing and concrete as indicated such as equipment bases, plumbing stack support pads, grease interceptors, catch basin and headwalls, shall conform to applicable portion of Division 3 CONCRETE.

3.8 PAINTING

A. All exposed piping, equipment, etc., shall be left clean and free from rust or grease and ready for the paint.

B. Where equipment finishes are damaged, Contractor shall obtain matching color touch-up paint from the equipment's manufacturer and paint as required.

3.9 LUBRICATION

Contractor shall provide all lubricants for the operation of all equipment until acceptance. The Contractor shall be required to protect all bearings during the installation and shall thoroughly grease steel shafts to prevent corrosion. All motors and other equipment shall be provided with covers as required for proper protection during construction. All equipment bearings requiring periodic lubrication shall be provided with proper fittings for this purpose. Where equipment requiring such lubrication is not readily accessible due to location, copper tubing extensions shall be provided in addition to lubrication fittings.

3.10 ELECTRICAL WORK

The electrical design and drawings are based on the equipment scheduled and shown on the drawings and should any mechanical equipment requiring changes to the electrical design be approved, the required electrical changes shall be made at the expense of the trade furnishing the changed equipment and at no cost to the Owner.

3.11 EQUIPMENT CONNECTION

Contractor shall bring required services to equipment items furnished under other sections of this specification or by the Owner, Make final connections, and leave equipment ready for operation. Where it is necessary for Contractors performing work covered by this section to make final connections to items of equipment being furnished by Contractors under other sections, all such work shall be performed in a neat and workmanlike manner and all materials shall be of quality and finish normally used for such installation.

3.12 OPERATING PRIOR TO COMPLETION

When any piece of mechanical or electrical equipment is operable and it is to the advantage of the Contractor to operate the equipment, he may do so providing that he properly cleans the equipment, installs clean filter media, properly adjusts and completes all punch list items before final acceptance by the Owner. The date of acceptance and the start of the warranty may not be the same date.

3.13 EQUIPMENT AND ARRANGEMENTS

All equipment shall be installed in a manner to permit access to all surfaces requiring access. All valves, motors, drives, lubrication devices, filters and other necessary items shall be installed in a position to allow removal for service without disassembly of another part.

3.14 EXECUTION OF WORK

The Contractor shall plan, schedule and execute his work and that of any of his Subcontractors so as not to interfere with the work of other trades or Contractors in the building or on the premises.

3.15 FLASHING AND WATERPROOFING

All building penetrations to outside shall be flashed and counter flashed as required to eliminate leaks.

3.16 TESTS

All tests shall be made by Contractor and repeated until approved by the Architect/Engineer. Piping systems shall not be covered or otherwise concealed until tests have been made and approvals obtained. Notify the Architect/Engineer four days prior to tests to allow for scheduling. Test the piping systems as indicated in applicable articles.

3.17 FINAL OBSERVATIONS

It shall be the duty of the Contractor to make a careful inspection trip of the entire project, assuring himself that the work on the project is ready for final acceptance, before calling upon the Architect/Engineer to make a final observation.

3.18 DEMOLITION AND SALVAGE

A. Where demolition of equipment or materials is required Contractor shall minimize cutting and exercise all due caution to leave undamaged surfaces, material and equipment meant to remain.

B. All existing items that are to be removed shall remain the property of the Owner unless declared as unsalvageable. Unsalvageable materials shall become the property of the Contractor and be removed from the site. Items declared as Owner's property shall be neatly stored on the site as directed by the Owner.

END OF SECTION

SECTION 017823
OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1. DESCRIPTION

A. Work included: To aid the continued instruction of operating and maintenance personnel, and to provide a positive source of information regarding the products incorporated into the work, furnish and deliver the data described in this Section and in pertinent other Sections of these Specifications.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Required contents of submittals also may be amplified in pertinent other Sections of these Specifications.

1.2. QUALITY ASSURANCE

A. In preparing data required by this Section, use only personnel who are thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with the requirements of this Section, and skilled in technical writing to the extent needed for communicating the essential data.

1.3. SUBMITTALS

A. Comply with pertinent provisions of Division 1.

B. Submit preliminary draft of the proposed Manual or Manuals to the CM who will forward them to the Architect for review and comments.

C. Unless otherwise directed in other Sections or in writing by the Architect, submit the final Manual to the CM prior to indoctrination of operation and maintenance personnel.

PART 2 PRODUCTS

2.1. INSTRUCTION MANUALS

A. Where instruction Manuals are required to be submitted under other Sections of these Specifications, prepare in accordance with the provisions of this Section.

B. Format:
   1. Size: 8½"×11"
   2. Paper: White bond, at least 20 lb. weight
   3. Text: Neatly written or printed.
   4. Drawings: 11" in height preferable; bind in with text; foldout acceptable but fold to fit within the Manual and provide a drawing pocket inside rear cover or bind in with text.
   5. Flysheets: Separate each portion of the Manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.
   6. Binding: Use heavy-duty plastic or fiberboard covers with binding mechanism concealed inside the Manual; 3-ring binders will be acceptable; all binding is subject to the Architect's approval.

7. Measurements: Provide all measurements in U.S. Standard units such as feet and inches, lbs. and cfm; where items may be expected to be measured within ten years in accordance with metric formulas, provide additional measurements in the "International System of Units" (SI).

C. Provide front and back covers for each Manual, using durable material approved by the Architect, and clearly identified on or through the cover with at least the following information:

OPERATING AND MAINTENANCE INSTRUCTIONS

Name and Address of Work

Name of Contractor

General Subject of this Manual

D. Contents: Include at least the following:
1. Neatly typewritten index near the front of the Manual, giving immediate information as to location within the Manual of all emergency information regarding the installation.
2. Complete instructions regarding operation and maintenance of all equipment involved including lubrication, disassembly, and re-assembly.
3. Complete nomenclature of all parts of all equipment.
4. Complete nomenclature and part number of all replaceable parts, name, and address of nearest vendor, and all other data pertinent to procurement procedures.
5. Copy of all guarantees and warranties issued.
6. Manufacturer's bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items included in this installation and deleting, or otherwise clearly indicating, all manufacturer's data with which this installation is not concerned.
7. Such other data as required in pertinent Sections of these Specifications.

PART 3 EXECUTION

3.1. INSTRUCTION MANUALS

A. Preliminary:
1. Prepare a preliminary draft of each proposed Manual.
2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.
3. Secure the Architect's and CM’s approval prior to proceeding.

B. Final: Complete the Manuals in strict accordance with the approved preliminary drafts and the Architect's and CM’s review comments.

C. Revisions:
1. Following the indoctrination and instruction of operation and maintenance personnel, review all proposed revisions of the Manual with the Architect and CM.

END OF SECTION

SECTION 03 30 00

CONCRETE STRUCTURES

PART 1 - GENERAL

1.1 DESCRIPTION

A. This item governs for construction of concrete structures, foundations, paving and slabs-on-ground.

1.2 RELATED WORK

A. 00300 – INFORMATION AVAILABLE TO BIDDERS (Subsurface Exploration)

B. 01410 – TESTING LABORATORY SERVICES

C. 02220 – STRUCTURAL EXCAVATION AND BACKFILL

D. 07190 – WATERPROOFING

1.3 SUBMITTALS

A. Submit mix designs for strength.

B. Samples – Submit samples of the following for testing:

1. Aggregate samples indicating full range of size and type.
2. Admixtures proposed for use.
3. Cement proposed for use.

C. Tests – Make test specimens maintain check on concrete strength throughout job. Refer to SECTION 01410 – TESTING LABORATORY SERVICES.

D. Provide manufacturer literature on any proposed additive, including accelerators, retarders, and curing agents. Do not use any additive until approved by Engineer.

E. Contractor assumes responsibility for design of concrete.

1.4 REFERENCE STANDARDS

ACI 117	Standard Specifications for Tolerances for Concrete Construction and Materials
ACI 211	Recommended Practice for Selecting Proportions for Normal Weight Concrete
ACI 301	Specifications for Structural Concrete for Buildings
ACI 305	Recommended Practice for Hot Weather Concreting
ACI 306	Recommended Practice for Cold Weather Concreting
ACI 315	Detailing Reinforced Concrete Structures
ACI 318	Building Code Requirements for Reinforced Concrete
ASTM A185	Specifications for Welded Wire Fabric
ASTM A615	Specifications for Deformed Reinforcing Steel
ASTM C33	Specifications for Concrete Aggregates
ASTM C94	Specifications for Ready Mixed Concrete
ASTM C150	Specifications for Portland Cement

ASTM C260 Specifications for Air Entraining Admixtures for Concrete

PART 2 - PRODUCTS

2.1 CONCRETE

Ready mixed conforming to ASTM C94 or site mixed.

A. Cement – ASTM C150, Type 1; no caked cement; one brand for one structure; deliver in bags for site mixing. No fly ash or cement substitute is allowed to replace required cement content.

B. Water – Free from oils, acids, alkalis, organic matter, salts, or other deleterious substances.

C. Coarse Aggregate – ASTM C33. Refer to ACI 301-3.6 for maximum size, other than the following:

1. Slabs-on-Ground: 1-inch maximum.
2. Grade Beams: 1-inch maximum.
3. Drilled Piers: 1-inch maximum.
4. Above Ground Floor Slabs: ½-inch maximum.

D. Fine Aggregate Natural sand meeting requirements of ASTM C33.

E. Admixture

1. Water Reducer and Set Retarder – ASTM C494; A, B, or D. Do not use chlorides.
2. Air Entrainer – ASTM C260.
3. Approved Manufacturers – Obtain written approval for admixture manufacturers other than:
   a. W.R. Grace.
   b. Sika Chemical Corp.
4. Super Plasticizer – (Contractor's Option) Provide a high range water reducer conforming to ASTM C494, Type F. Use amount recommended by the manufacturer.
   a. "WRDA 19" as manufactured by W.R. Grace.
   b. "Sikament" as manufactured by Sika Chemical Corp.

F. Classification

Class	Type	Min. 28-day Compress. Strength (lbs./in^2)	Max. Water/ Cement Ratio	Min. Cement (lbs./yd^3)	Consistency Range in Slump (in.)	Air Content (%)
A	Structural Foundations, Slab-on-Ground, Concrete Structures, Floor Slabs	3,000	0.55	470 (5 bags)	3 to 6	4 to 6
A	Curbs, Walks, Paving, Slope Paving	3,000	0.55	470 (5 bags)	3 to 6	4 to 6
C	Fill, Pipe Blocking, Seal Slabs	2,000	0.74	376 (4 bags)	3 to 6	3 to 5

Include in maximum water, free water in aggregate minus absorption of aggregate based on a thirty-minute absorption period. Class A Structural concrete is to be used for structures, foundations, and slabs unless otherwise specified on plans. Slump ranges may be exceeded when super plasticizers are used.

2.2 REINFORCING STEEL

A. Bars – ASTM A615 (Deformed).

1. No. 3 Bars, Stirrups and Ties – Grade 40
2. No. 3 Bars, Main Reinforcing – Grade 60
3. No. 4 and Larger Bars – Grade 60

B. Welded Wire Fabric – ASTM A185.

2.3 EXPANSION JOINT

A. Unless otherwise shown expansion joint material to be asphalt or asphalt impregnated fiber joint in accordance with ASTM D994 or ASTM D1751-83 respectively.

B. Performed rubber or cork in accordance with ASTM D1752-84, per Reflex of J.D. Russell Co., (800) 826-7008.

2.4 CURING MATERIAL

A. Water - Free from oils, acids, alkalis, salts, or other deleterious materials.

B. Cotton Mats - Filling material of cotton "bat" (min. 12 oz. per sq. yd.) with unsized cloth covering (min. 6 oz. per sq. yd.)

C. Curing Agents

1. Sonneborn “Kure-N-Seal,” or approved equal, may be used at exterior applications where floor finishes are not scheduled. Products which discolor when exposed to sunlight are prohibited. Follow manufacturer’s requirements.

2.5 FLOOR HARDENER

A. Use two coats Lapidolith as manufactured by Sonneborn Building Products; apply as follows: Clean floors of all concrete, plaster, stains, etc. use steel wool or sandpaper as required. New concrete shall thoroughly cure and dry for a full 28 days prior to application of Lapidolith solution.

First Coat – 1 part Lapidolith, 3 parts water. Flush on floor and distribute with long handled brush. Mop up excess solution. Allow floor to dry before second application.

Second Coat – 2 parts Lapidolith to one part water applied as for the first coat.
Installed as soon as concrete finish is dry enough to receive Lapidolith. Do not wait until equipment is installed in the rooms or until grease is on the floors. Follow manufacturer’s instructions in all cases and conditions.
Use in interior locations where in the Room Finish Schedule” is Sealed Concrete (SC) Finish.

Do not delay application of floor hardener.

2.6 FORM LUMBER

A. Seasoned, of good quality, and free from loose or unsound knots, knot holes, twists, shakes or decay.

2.7 GROUT

A. Grout - One part Portland Cement to two parts sand.

B. Non-Shrinking Grout - Pre-mixed grout which is non-metallic, non-corrosive, and non-staining; containing specially selected silica sands, cement, shrinkage compensating agents, plasticizing and water reducing agents.

1. Conform to requirements of Corps of Engineers CRD-C588. Test method CRD-C589.
2. Yield of 0.9 cubic foot to 1.0 cubic foot per 100 pounds.
3. Mixing water per 100 pounds: - Stiff - 2 gallons
   - Plastic - 2.25 gallons
   - Flowable - 2.5 gallons
4. Minimum 28-day compressive strength of 8,000 psi.
5. Maintain grout temperature during placement between 50ºF and 90ºF.

2.8 PERMANENT MOISTURE BARRIER

A. Moisture barrier shall be per Section 07190.

2.9 CONCRETE BONDING AGENT

A. "Daraweld-C" as manufactured by W.R. Grace and Company, or "Bond Crete-S" as manufactured by Burke Concrete Accessories, Inc.

PART 3 - EXECUTION

3.1 FORMS

A. Lumber - Mortar tight; smooth surface; true to line and grade, and adequately braced.

B. Provide plywood or masonite surfaces for concrete faces to be rub finished.

C. Remove dirt, sawdust, nails, and other foreign material from formed spaces.

3.2 BUILT-IN ITEMS

A. Install pipe, sleeves, bolts, anchors, and other cast-in-place items securely. Use templates to set built-in items accurately.

3.3 JOINTS

A. No horizontal joints will be permitted in concrete work except as shown on the drawings. Make stops in concrete placing with vertical bulkheads at locations approved by the Engineer prior to placement.

3.4 REINFORCING STEEL

A. Bend, clean, place and tie in accordance with ACI Standards. Support slab steel on chairs as approved by Engineer.

B. Splice bars with calculated stress in accordance with ACI Standards, Class C, unless noted.

C. Lap welded wire fabric by one full pattern width in each direction.

3.5 OBSERVATION

A. Do not place concrete until forming, reinforcement, and built-in items have been field observed and approved by the Engineer.

3.6 SUBGRADE

A. Dampen subgrades not covered with membrane by sprinkling immediately before placing concrete. Omit when subgrade is already damp.

B. Dry out soggy subgrade before placing slabs unless wetting is uniform and placing can be done without damage to subgrade.

C. Place slab screeds to precise elevations.

D. Obtain the Engineer's approval of subgrade and screeds prior to concrete placement.

3.7 MIXING CONCRETE

A. Mix and deliver in accordance with ASTM C94.

B. Clean and maintain equipment for good operation.

C. Job mix concrete in approved type mixer for minimum of one and one-half minutes for one cubic yard batch. Add 15 seconds for each half yard increase over one yard batch.

3.8 PLACING CONCRETE

A. General Requirements

1. Give notice before placement.
2. Place in daylight hours.
3. Discharge within one hour after start of mixing.

B. Handling and Transporting

1. Use method to prevent segregation.
2. Use buckets, chutes, buggies, pipes, troughs, or pumping.

3. Protect against sun and wind, to prevent loss of slump and workability.
4. Use of aluminum equipment not permitted.

C. Depositing

1. Continuous horizontal layers twelve inches thick in structures and foundations.
2. Concrete shall not be placed when the temperature is below 40° F and falling, or when the temperature is above 95° F and rising. Concrete may be placed when the temperature is between 40° F and 95° F. Excavations and reinforcing shall be free of all frost.
3. Slabs and Flatwork:
   a. Drop concrete in position; do not draw or rake concrete laterally to position.
   b. Place concrete continuously in any one part of the work. If a whole part of the work cannot be placed monolithically, place to construction joints indicated on drawings, or as approved. Retighten forms, clean hardened surfaces, and cover with bonding compound before placing against hardened concrete.
   c. Place sloped concrete from bottom up.
   d. Use temporary screeds to maintain levels and slopes as required. Provide adequate support for screeds to maintain accurate elevations.
4. Limit free fall to five feet.
5. Use tremies for free fall over five feet.
6. Maintain temperature above 40°F.
7. Use retarding agent for air temperatures above 85°F.
8. Provide thermometer for temperature verification.
9. In forms over 8" deep, vibrate concrete after placement. DO NOT USE VIBRATOR TO CAUSE CONCRETE TO FLOW. Extend wand full depth of pour, allowing wand to vibrate a maximum of 5 seconds per extension. Vibrate placement every 12 to 18 inches, depending on depth and width of form.

3.9 CURING CONCRETE

A. Cure for six consecutive curing days.

B. Cure high-early-strength concrete for three consecutive curing days.

C. "Curing Day" is a calendar day whose temperature is above 50°F for at least 19 hours.

3.10 FORM REMOVAL

A. Remove forms under slabs, beams, or girders after seven days.

B. Remove all other forms after two days.

3.11 PATCHING CONCRETE

A. Patch honeycomb and tie holes.

3.12 DEFECTIVE WORK

A. Repair or replace immediately after form removal at contractor's expense.

3.13 SLAB FINISH

A. Slope – Confirm lack of slope before proceeding, when the plans show walks, drives, paving or gutters without slope.

1. Walk cross slope not to be greater than 1.5%, or less than 1.0%.
2. Landing shall not be greater than 1.5%.

B. Edging – 3/8" radius edging shall be provided at walk and paving edges, expansion joints and other places where needed to form neat appearance.

C. Jointing for Walks and Paving

1. Expansion Joint Width – ¾-inch thick with wrapped, smooth dowels to maintain alignment.
2. Control Joint Depth – 1/5 of the slab thickness unless shown otherwise. Control joints in concrete slabs to be saw cut within 6 to 10 hours of concrete placement.
3. Tool joints in sidewalks for good appearance and then saw if necessary to achieve 1/5 of slab thickness to control cracking.

D. Finishes

1. Floor Slabs
   a. Steel trowel finish, class BX
   b. Depression in floor between high spots shall not be greater than 1/8-inch below a 3 foot straight edge. Level slabs shall not vary more than ½-inch in 30 feet.
   c. Slope floor at 1/8" per linear foot toward floor drain.
2. Walks, Curbs, Steps – Steel trowel with soft broom finish.
3. Paving Ramps and Drives
   a. Stiff broom finish.
   b. Score ramps as shown on the drawings.
4. Foundations – Wood Float finish.

3.14 RUB-FINISHED SURFACES

A. Rub-finished exposed vertical and battered surface from six inches below final ground line or low water to top.

B. Provide two (2) rubbings.

1. First with No.16 carborundum stone.
2. Second with No.30 carborundum stone.

C. Finish to provide clean, smooth, uniform surface.

3.15 CLEAN-UP

A. Clean area from time to time during construction and clean area completely after completion of concrete work.

END OF SECTION

SECTION 04 05 00

MORTAR AND ACCESSORIES

PART 4 - GENERAL

4.1 QUALITY CONTROL

A. Brands and source of supply of cementitious materials, admixtures, and aggregates shall be same throughout work, and shall not be changed without written approval of the Architect.

4.2 SUBMITTALS

A. Samples – Provide one sample of each accessory proposed for use.

B. Product Data – Manufacturer's technical data and installation instructions for each type of masonry accessory proposed.

4.3 DELIVERY AND STORAGE

A. Handle cementitious materials, admixtures, and aggregates so as to prevent deterioration or intrusion of foreign materials.

B. Dispose of unsuitable materials off site.

PART 5 - PRODUCTS

5.1 MORTAR

A. Mortar Mixes:

1. Exterior above grade Load Bearing Wall – Type N
2. Exterior above grade Non-Load Bearing Wall – Type N
3. Exterior below grade Retaining Wall, Foundation, Manholes, Sewer, Pavement, Walks – Type S (1,800 psi)
4. Interior above grade Load Bearing Wall – Type N
5. Interior above grade Non-Load Bearing Wall – Type N
6. Bond Beams, Lintels – 3,000 psi concrete
7. Grout – Type M (2,500 psi)

B. Materials:

1. Type S Hydrated Lime ASTM C207
2. Portland Cement – ASTM C150, Type I
3. Water – Cool, clean and potable
4. Damp, loose sand – ASTM C144
5. Color – Integral color to match masonry
6. Waterproofing admixture – RE: 04221 Concrete Masonry

C. Mix Design: (Proportions by volume)

1. Type N 750 psi – 1 part Portland Cement – ¾ part Type S Hydrated Lime – 4 ½ parts Sand
2. Type S 1800 psi – 1 part Portland Cement – ½ part Type S Hydrated Lime – 3 ½ parts Sand
3. Type M 2500 psi – 1 part Portland Cement – ¼ part Type S Hydrated Lime – 3 ¼ parts Sand
4. Water shall be adjusted to provide optimum workability
5. Mixing – Thoroughly machine mix for at least three to five minutes after all material is in mixer
6. Accelerator – Calcium chloride not permitted
7. Air entraining agents not permitted
8. Colorant shall not exceed 9 lbs. per bag of Portland Cement

5.2 TIES AND REINFORCING

A. Cavity Wall Ties at brick veneer with CMU back-up

1. Type – Adjustable Eye Wire per H&B Truss Type 170 or equal
2. Length – Sufficient to span cavity and embed at least 1 inch into each Wythe
3. Material – 3/16 inch diameter steel, hot dipped galvanized after forming
4. Spacing – 16 inch vertically and 24 inch horizontally
5. Use extra ties within 8’0” from corners – 16” V x 16” H

B. Cavity Wall Ties at brick veneer with studs and sheathing

1. Type – X-Seal Anchor thickness per H&B or equal
2. Length – Leg length to match sheathing thickness
3. Material – 3/16 inch diameter steel, hot dipped galvanized after forming
4. Spacing – 24 inch vertically and 16 inch horizontally
5. Use extra ties within 8’0” from corners – 16” V x 16” H

C. Horizontal Reinforcement at CMU

1. Type – Truss Mesh per H&B #120 or equal
2. Galvanizing – ASTM A641, Class 3
3. Main Wires – 9 gage, deformed
4. Cross Wires – 9 gage smooth, maximum 16 inches on center
5. Pattern – Truss or ladder type
6. Width – 2 inches less than the nominal wall thickness
7. Spacing – Maximum 16 inches on center, vertically

D. Approved Manufacturers

1. Hohmann & Barnard Inc., Hauppauge, NY 11787, 516-234-0600
2. Dur-O-Wal, Inc., Northbook, IL 60062, 312-498-9010
3. Heckmann Building Products, Inc., Chicago, IL 60624, 800-621-4140

5.3 ACCESSORIES

A. Masonry Drainage Systems

1. Brick Veneer - Cavity Walls Systems – Provide “Mortar Net” dripping collection system, thickness as required to fill cavity width, Per Mortar Net 800/664-6638
2. CMU - at exterior Single Wythe CMU Walls – Provide “Block Net” drainage system Per Mortar Net 800/664-6638, at all locations without a block ledge, at conditions where moisture could enter the building from the block cavity, or as noted on the drawings.

B. Flashing

1. Thru-Wall-Flashing - Cavity Wall Systems – Per W.R. Meadows “Air Shield”, 40 mil.

PART 6 - EXECUTION

6.1 INSTALLATION

A. Time Limits – Place mortar in final position when air temperature is:

1. Less than 80°F: Within 3 hours after mixing
2. 80°F or Higher: Within 2 hours after mixing

B. Re-tempering – Mortars that have stiffened within time limits because of evaporation may be re-tempered to restore workability.

C. Brick Expansion Joints – Place expansion joints where shown. If none are shown, place joints on masonry module line at 4’ 0” min. from each corner and at 25 feet max. spacing and as recommended by good practice and the Brick Institute of Texas.

D. CMU Expansion Joints – Place expansion joints where shown. If none are shown, place joints on module line at 30 feet max. spacing and as recommended by good practice. Where brick veneer is used in conjunction with CMU, expansion joints shall align.

E. Application – Apply a full bed of mortar to masonry units before laying them into place. Remove excess mortar before tooling joints. Keep cavities and ties completely free of mortar droppings. Install Mortar Net to prevent mortar dripping from filling the cavity space.

END OF SECTION

SECTION 041000
MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.1. SECTION INCLUDES

A. Mortar and grout for masonry.

1.2. RELATED SECTIONS

A. Section 042000 –Masonry.

1.3. REFERENCES

A. ACI 530 – Building Code Requirements for Masonry Structures.

B. ACI 530.1 – Specifications for Masonry Structures.

C. ASTM C5 – Quicklime for Structure Purpose.

D. ASTM C94 – Ready-Mixed Concrete.

E. ASTM C144 – Aggregate for Masonry Mortar.

F. ASTM C150 – Portland Cement.

G. ASTM C207 – Hydrated Lime for Masonry Purposes.

H. ASTM C270 – Mortar for Unit Masonry.

I. ASTM C387 – Packaged, Dry, Combined Materials, for Mortar and Concrete.

J. ASTM C404 – Aggregates for Masonry Grout.

K. ASTM C476 – Grout for Masonry.

L. ASTM C595 – Blended Hydraulic Cement.

M. ASTM C780 – Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.

N. ASTM C1019 – Method of Sampling and Testing Grout.

O. IMIAC (International Masonry Industry All-Weather Council) – Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

P. IMIAC (International Masonry Industry All-Weather Council) – Recommended Practices and Guide Specifications for Hot Weather Masonry Construction.

1.4. SUBMITTALS

A. Include design mix; indicate whether the Proportion or Property specification of ASTM C270 is to be used, required environmental conditions, and admixture limitations.

B. Reports: Submit reports on mortar indicating conformance of mortar to property requirements of ASTM C270 component mortar materials to requirements of ASTM C270 and test and evaluation reports to ASTM C780.

C. Reports: Submit reports on grout indicating conformance of component grout materials to requirements of ASTM C476 and test and evaluation reports to ASTM C1019.

1.5. QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 and ACI 530.1.

1.6. DELIVERY, STORAGE, AND HANDLING

A. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.7. ENVIRONMENTAL REQUIREMENTS

A. Maintain materials and surrounding air temperature to minimum 40, 50 degrees F (5, 10 degrees C) prior to, during, and 48 hours after completion of masonry work.

B. Cold Weather Requirements: IMIAC – Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

C. Maintain materials and surrounding air temperature to maximum 90 degrees F (32 degrees C) prior to, during, and 48 hours after completion of masonry work.

D. Hot Weather Requirements: IMIAC – Recommended Practices and Guide specifications for Hot Weather Masonry Construction.

PART 2 PRODUCTS

2.1. MATERIALS

A. Premix Mortar: ASTM C387, Type M, using gray color cement.

B. Hydrated Lime: ASTM C207, Type S, SA, N, NA.

C. Grout Course Aggregate: Maximum 3/8 inch (10 mm) size.

D. Grout Fine Aggregate: sand.

E. Water: Clean and potable.

2.2. MORTAR MIXES

A. Mortar For Load Bearing Walls and Partitions: ASTMC270, Type M or S using the Property specification.

2.3. MORTAR MIXING

A. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.

B. Maintain sand uniformly damp immediately before the mixing process.

C. Do not use anti-freeze compounds to lower the freezing point of mortar.

D. If water is lost by evaporation, re-temper only within two hours of mixing.

E. Use mortar within two hours after mixing at temperatures of 90 degrees F (32 degrees C), or two-and-one-half hours at temperatures under 40 degrees F (5 degrees C).

2.4. GROUT MIXES

A. Bond Beams, Lintels and Wall Fill: 2,500 psi (21 MPa) strength at 28 days; 8-10 inches (200-250 mm) slump; mixed in accordance with ASTM C476 Course grout.

2.5. GROUT MIXING

A. Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C476 Course grout.

B. Add admixtures in accordance with manufacturer's instructions; mix uniformly.

C. Do not use anti-freeze compounds to lower the freezing point of grout.

2.6. IX TESTS

A. Testing of Mortar Mix: In accordance with ASTM C270.

B. Testing of Grout Mix: In accordance with ASTM C1019 for compressive strength, and slump.

PART 3 EXECUTION

3.1. INSTALLATION

A. Install mortar and grout in accordance with manufacturer's instructions.

B. Work grout into masonry cores and cavities to eliminate voids.

C. Do not install grout in lifts greater than 48 inches (400 mm) without consolidating grout by rodding. CM shall verify proper grout fill and consolidation is provided prior to mason making the next lift required. This procedure must continue until the grout fill is complete.

D. Do not displace reinforcement while placing grout.

E. Remove excess mortar from grout spaces.

END OF SECTION

SECTION 042000
MASONRY

PART 1 GENERAL

1.1. DESCRIPTION

A. Work: Furnish and erect all concrete masonry unit (CMU) walls, as indicated on the drawings, including the following:
   1. Special shapes such as bond beams, lintels, and sills shall be provided.
   2. Installation of Owner provided items including access doors and other devices.

1.2. RELATED SECTIONS

A. Section 041000 Mortar and Masonry Grout.

1.3. QUALITY ASSURANCE

A. Field inspection
   1. The erection of CMU walls shall be subject to inspection at the site of the work by the Owner and Architect.

1.4. SUBMITTALS

A. Submit certification to the Architect that concrete masonry units, mortar, and grout materials conform to contract requirements.

PART 2 PRODUCTS

2.1. MATERIALS

A. Concrete Masonry Units:

   1. Load bearing and non-load bearing walls
      a. All concrete masonry units shall conform to the strength, weight, grade, and type indicated on the drawings or in these specifications.
      b. Special shapes such as bond beams, lintels, and horizontal banding shall be provided.
      c. Hollow Load Bearing and Non-Load Bearing Block Units (CMU): ASTM C90, Type I - Moisture Controlled lightweight. Nominal sizes 6×8×16 and 8×8×16.
      d. Special Shapes: Provide where required for bond beams, lintels, corners, jambs, sash, control joints, headers, horizontal banding, and other special conditions. All outside corners, door and window jambs, windowsills (except exterior windowsills), and exposed edges shall be a bull nose shaped unit.

B. Mortar and Grout Materials:
   1. Portland Cement: ASTM C150, Type I.
   2. Lime: ASTM C207, Type "S".
   3. Sand: ASTM C144, clean, sharp, uniformly graded.
   4. Coarse aggregate: ASTM C404, clean, uncoated.
   5. Water: Potable.
   6. Waterproofing Admixture: FS C-181B
   7. Masonry cements or pre-mixed mortars will positively not be allowed.

C. Accessories:
   1. Horizontal Joint Reinforcement: Dur-O-Wal or equal, wire reinforcing with No. 9 gauge side and cross rods, spaced at 16" o.c. unless otherwise required by the structural drawings.
   2. Vertical Reinforcing: ASTM A615, Grade 60.
   3. Cleaning Compound: "Sure Kleen" manufactured by Prosoco, Inc. or equal.

2.2. STORAGE AND HANDLING

A. Deliver, store, handle, and install concrete masonry units and accessories so as not to damage. Store off ground.

2.3. FABRICATION

No additional requirements.

PART 3 EXECUTION

3.1. GENERAL

A. All recommendations of the National Concrete Masonry Association shall be followed in regards to workmanship, cold weather procedures, flashing, level and plumb tolerances, etc.

B. All material such as nailers, bolts, ties, plates, anchors, or flashing shall be coordinated and scheduled with other trades.

C. Exposed surfaces shall be free of cracks, chips, surface damage, or broken units.

D. Provide vertical joints as noted on architectural and structural drawings, and at all door, window, and wall opening heads. If not shown on the drawings, wall joints shall be spaced no greater than 20'-0" o.c. Confirm requirements and locations of all vertical control joints prior to start of masonry work.

3.2. MORTAR AND MASONRY GROUT

A. Refer to Section 041000 Mortar and Masonry Grout.

3.3. BLOCK

A. Lay level, true to line and plumb, with uniform ⅜" joints. Pattern shall be running bond.

B. Horizontal joint reinforcing shall be placed continuous in every other course, at topmost course, and in first 2 courses above and below openings.

C. Tool exposed joints to slightly concave surface, smooth and dense.

D. Provide clean-outs at the bottom of each cell for each lift of grout for every cell to be grouted. Lifts shall not exceed 4'-0" in height unless approved by Architect.

E. Grouted cells must be filled solid with no voids. It is the responsibility of the masonry contractor to verify that there are no voids prior to continuing the work. Due to the nature of this project, voids are unacceptable. If voids are discovered, masonry contractor must rectify the situation immediately to the satisfaction of the General Contractor, Owner and the Architect without delaying the project.

3.4. CLEANING

A. Clean mortar droppings from grade beams, floor slab, walls, sills, etc., prior to hardening.

B. Brush or scrape exposed surfaces free of dirt, excess mortar and other foreign material.

C. Clean with specified cleaner used in accordance with manufacturer's directions.

3.5. CLEAN UP

A. Clean up all debris caused by the work of this section, keeping the premises clean and neat at all times.

3.6. FIELD QUALITY CONTROL

A. General: Construction will be inspected throughout the various stages of the work by the Architect. Mason shall not install chipped, cracked or damaged masonry units. If chipped, cracked or damaged masonry units are installed, mason will remove the units noted and replace.

B. Notify the Architect and the Owner's testing agency at least 72 hours in advance, excluding Saturday and Sunday, before laying block.

C. Independent Testing: Field inspection and testing shall be conducted by an Independent Testing Laboratory selected by the Owner. Owner will pay cost of tests showing satisfactory results. The Independent Testing Laboratory shall perform the following:
   1. Design stresses have been adjusted to permit non-continuous inspection.
   2. Continuous inspection is required.
   3. Mortar and grout compressive strength in accordance with ASTM C270, C476 & C91. One set of three 2-inch test cubes each shall be taken from the mortar and grout placed in any day or for each 5000 square feet of wall area placed. Reports of compressive strength tests shall contain the project name, identification number, date of sampling, name of contractor, name of testing laboratory, whether mortar or grout, location of batch in structure, design compressive strength at 28 days, compressive breaking strength for 7-day and 28-day tests.

4. At the time that testing laboratory takes the test cubes, the testing laboratory shall randomly inspect the following:
   a. Placement of vertical reinforcement.
   b. Grout space immediately prior to closing of clean-outs.
   c. Grouting operation.

3.7. WARRANTY/GUARANTEE

A. Contractor shall be responsible for additional work as may be required to correct work, which does not conform to specified requirements, including strength, tolerances, and finishes.

END OF SECTION

SECTION 04 22 00

CONCRETE MASONRY

PART 1— GENERAL

1.1 JOB CONDITIONS

A. Lay no masonry when there is danger of freezing in the next 48 hours.

B. Erect no masonry walls when there is danger of high winds in the next 48 hours.

1.2 DELIVERY AND STORAGE

A. Deliver, store, and handle masonry units to avoid breakage and staining.

B. Keep units dry until installation.

1.3 WARRANTY

A. Warrant the Work specified herein for one year against becoming unserviceable or causing an objectionable appearance resulting from either defective or nonconforming materials or workmanship.

B. Defects shall include, but not be limited to the following: cracked or broken units and efflorescence.

1.4 SUBMITTALS

A. Samples:

1. Loose CMU blocks of each color and texture required.
2. Ladder reinforcing.

B. Sample Panels: Where integrally colored block is used, prepare several sample panels about 4' x 4'. **Do not order CMU or proceed with the Work until a final sample has been approved that shows color, texture, bond, joint size, joint color, joint tooling, workmanship, and cleanup.** Retain approved sample until removal is instructed. Mock-up shall indicate full range of block color acceptable on the job. Mortar color shall match block color. Where Type 2 Block is used, it shall be installed for the smooth face side. Even if specific colors are called out in the specifications or on the Drawings; do not order brick without approved mock-up sample.

PART 2—PRODUCTS

2.1 CONCRETE MASONRY UNITS

A. Concrete Weight: Units measured according to ASTM C 140 for concrete masonry units.

1. Light Weight: Less than 105 pounds per cubic foot.
2. Medium Weight: 105 to 125 pounds per cubic foot.
3. Normal Weight or Dense Block: 125 or more pounds per cubic foot.

B. Variety:

1. Hollow load bearing concrete masonry, ASTM C 90, Type 1, Grade N-1, and ACI-531.
2. Hollow non-load bearing concrete masonry ASTM C 129 Medium Weight, Type I.

C. Curing: Age 10 days minimum before delivery.

D. Types:

1. (CMU Type 1) Standard Block
   a. Size: 16 inch face dimension, modular depths, width as indicated on Drawings.
   b. Type: Lightweight units.
2. (CMU Type 2) Split Face Block integrally colored
   a. Size: 16 inch face dimension, modular depths, width as indicated on Drawings.
3. (CMU Type 3) Smooth Face integrally colored
   a. Size: 16 inch face dimension, modular depths, width as indicated on Drawings.

E. Concrete Fill: Refer to Division 3. Provide maximum aggregate size of 1/2-inch.

F. Fire Rating: Provide shell thicknesses to comply with fire ratings indicated on the Drawings.

G. Workmanship tolerances shall comply with those recognized by the Masonry Institute as good workmanship.

H. Concrete masonry shall have a prism strength (F'm) = 1500 psi.

2.2 INSULATION

See SECTION 07220, BUILDING INSULATION.

2.3 WATERPROOFING/SEALER

A. At all exterior locations where integrally colored block is to be used, provide integral waterproofing admixture in the block per “W. R. Grace Dry-Block”, “RainBloc-acm Chemistries” or approved equal compatible with sealer. Submit certificate of compliance with each batch of block made.

B. At completion of the installation, at all exterior locations where integrally colored block is used, apply a surface water repellent sealer per OKON Plugger, OK950, www.okoninc.com.

PART 3—EXECUTION

3.1 GENERAL

A. Layout work in advance. Finish at corners with not less than a half brick.

B. Do not install cracked, broken or chipped brick.

C. Stop off horizontal run by racking back in each course; toothing is not permitted.

D. Provide foam fill insulation in exterior masonry unit cavities.

E. Provide all temporary shoring and bracing needed for stability until masonry is complete.

3.2 INSTALLATION

A. Metal Door Frames: Fill frames solid with mortar. Build in anchors.

B. Lintels:

1. Provide reinforced CMU lintel beams. Use minimum 8 inch bearing at each end of lintels with additional 1 inch per foot over 8 feet.
2. Provide CMU lintel beams over all openings for doors, windows, cased openings, equipment, etc. (Refer to Details)

C. Bond: Provide regular running bond with units centered over joint below at all walls, unless shown otherwise on the Drawings.

D. Horizontal Reinforcement:

1. Locate reinforcement in first two courses and then in alternating courses. Stop reinforcing at control joints.
2. Horizontal Reinforcement shall be galvanized factory-fabricated, truss type, 9GA. Or heavier wire conforming to ASTM A-82. Place reinforcement continuously (except at expansion or control joints) at a maximum vertical spacing of 16” O.C. (Every other course).

E. Corners and Soaps: Connect special units with 9 gauge galvanized wire or corrugated ties in alternating courses, using one tie for each 4 inch nominal wall thickness. Fill corner cells with concrete and No. 4 reinforcing bar.

F. Interior Corners: Within the interior of the building all “outside 90 degree corners” shall have radiused edges.

G. Bond Beam:
1. Install reinforcing and concrete fill as shown on Drawings. Lap bars 32 diameters at joints and bend around corners. Extend bars 12 inches with sleeved end across control joints.
2. Provide continuous bond beam around top of all CMU walls with two #5 bars. Provide ½” diameter X 18”L smooth dowels (one end sleeved) at bond beam expansion or control joints.

3. Bond Beam shall be constructed with Portland cement concrete, with a minimum compressive strength of 3000 PSI at 28 days, and a maximum aggregate size of ½".

H. Built-In-Items: Build into place accessories supplied by other trades for their use. Include placing such things as electrical boxes, bolts, anchors, grounds, reglets, and corner guards. Build around other items and provide openings for other Work.

I. Partition Tops: Allow space at top of horizontal spanning walls for compressible joint backup and sealant per SECTION 07920, SEALANTS AND CAULKING. Build vertical spanning walls and fire-rated walls to structure.

J. Reinforcing:

1. All cells containing reinforcing bars, bolts or other metal anchors shall be grouted solid. Any cells at or below finished grade shall be grouted solid, whether reinforced or not.
2. For interior walls, provide one #5 vertical reinforcing bar at 48-inch U.N.O. centered in fully grouted cells (refer to drawings). Drill 5 inches into foundation (do not drill through slab) and epoxy grout #5 bars into foundation, or set #5 dowels w/12-inch embedment in foundation. Lap #5 Bars 32 inches minimum.
3. For exterior walls provide a minimum of one #5 reinforcing bar at 48" U.N.O. centered in fully grouted cells. Set #5 dowels in foundation at placement of concrete. Drilled and grouted bars are not allowed. Refer to drawings for additional details.
4. Provide #5 vertical reinforcing adjacent to all wall openings, on each side of expansion joints and at the end of projecting walls. Fully grout cells and extend reinforcing 16-inches above top and bottom of rough opening.
5. Wire tie vertical reinforcing bars with lap of 45 bar diameters (32" minimum for #5 bars) tie to steel in center of CMU cell U.N.O.

3.3 MORTAR AND JOINTS

A. Lay CMU with full mortar coverage on horizontal and vertical joints in all courses. Do not furrow bed joints.

B. Provide sufficient mortar on ends of block to fill head joints.

C. Where adjustment to corners or jambs must be made after mortar has started to set, remove mortar and replace with fresh mortar.

D. Joints shall be 3/8", concave and tooled with 5/8" diameter steel tool as soon as mortar has set U.N.O.

E. Tooling:

1. Strike joints flush where concealed from view, and where membrane coating is scheduled.
2. Tool joints concave, where exposed to view, unless noted otherwise.

F. Mortar Color: Where integrally colored block is indicated, provide mortar color to match block. At exterior locations add waterproofing to mixture per “W. R. Grace Dry-Block”. Submit manufacturer's recommendation for additive quantities.

3.4 CONTROL JOINTS

Spacing: Place control joints where shown. If none are shown, place joints on module lines at 20 feet maximum spacing, but not greater than twice the height of the wall, or greater than the column spacing when related to columns. Locate joints within 16 feet of corners and at intersections. Place foam backer rod on both sides of joints and seal joint no deeper than 3/8 inch at mid-point, or as recommended by sealant manufacturer. Wall reinforcing shall not be continuous through vertical control joints or expansion joints.

3.5 CHASES

Leave necessary openings for passage of pipes, drains, ducts, wires and utility lines. Protect all work within chase from mortar droppings. Do not proceed until extent and location of openings and chases required by other trades has been determined. At completion of work of other trades, return and solidly close openings. Before closing up pipe, duct or similar inaccessible spaces or shafts, remove rubbish and sweep out area.

3.6 POINTING AND CLEANING

A. Remove excess mortar and mortar smears as work progresses.

B. Cut out any defective joints and holes in exposed masonry and repoint with mortar. Replace defective mortar. Match adjacent work.

C. Dry brush masonry surface or clean with dry burlap after mortar has set at end of each day’s work and after final pointing.

D. Clean exposed unglazed masonry with stiff brush and clear water. Clean soiled surfaces with cleaning solution.

E. If cleaning by water does not produce satisfactory results, apply approved Prosoco cleaning agent to small area, following manufacturer’s recommendations. Use non-metallic tools in cleaning operations.

F. Protect sash, metal lintels, and other materials which may corrode when masonry is cleaned with acid solution.

G. Leave work area and surrounding surfaces clean and free of mortar spots, droppings and broken masonry.

END OF SECTION

SECTION 05 12 00

STEEL STRUCTURES

PART 1—GENERAL

1.1 DESCRIPTION

A. Extent of Work - This Section governs fabrication and erection of structural steel including attachments of structural members and anchor devices for attachment to concrete.

1.2 RESPONSIBILITY FOR PERFORMANCE

A. Coordinate the requirements of the Structural Drawings with the requirements of this Section. Notations on the Structural Drawings take precedence.

B. No trademarks or manufacturer's names shall appear on exposed members.

1.3 MINIMUM COMPLIANCE STANDARDS

A. Applicable Codes and Specifications

1. AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition.
2. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings" and including the "Commentary of the AISC Specification", latest edition.
3. AWS D1.1 2010, "Structural Welding Code". (or latest edition)
4. ASTM A6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use".
5. International Building Code, latest edition.
6. OSHA, "Occupational Safety and Health Standards".

B. Test

1. Inspection tests for each production lot of A325 bolts.
2. Mill tests to verify materials meet applicable ASTM A36, A501, or A992 specifications.
3. Field tests and inspection for conformance with "Applicable Codes and Specifications" listed herein.

1.4 WELDER QUALIFICATION

A. Each welder performing Work on the Project shall be qualified in accordance with American Welding Society Structural Welding Code, AWS D1.1 not more than six months prior to commencement of welding on this Project.

B. Copies of each Welder's qualification records shall be available to the Engineer.

1.5 SUBMITTALS

A. Shop Drawings

1. Structural steel, connections, base plates, and splices.
2. Camber and erection diagrams.
3. Erection drawings showing sequence of erection, location of falsework, and location of ground and air splices.

B. Anchor Bolt Drawings - Prepare setting Drawings, indicating locations of structural bolts, and fastening holes for other Work.

1.6 PROTECTION

A. Handle material so as to prevent its injury or damage.

B. Store material on skids above ground and keep clean, properly drained, and protected from elements causing corrosion.

C. Store beams upright and prevent excessive deflection.

PART 2—PRODUCTS

2.1 MATERIALS

A. Rolled Steel Shapes - ASTM A992.

B. Steel Plates - ASTM A36 or ASTM A992 to tolerances of ASTM A6.

C. Structural Tubing

1. Steel Pipe Columns – ASTM A501, ASTM A53, Types E or S, Grade B
2. Structural Tubing Columns – ASTM A500, Grade B

D. Bolts

1. Standard bolts - ASTM A307-76b.
2. High-strength bolts - ASTM A325-76b.

E. Welding - AWS E70 Series Welding Electrodes.

F. Bearing Pads - As shown on plans, provide reinforced fluorocarbon TFE bearing pads fabricated from materials conforming to ASTM D1457, as manufactured by the Fluorocarbon Company, Pine Brook, NH 07058.

G. Shrinkage-Resistant Grout

1. Type - Premixed, non-shrink, non-metallic grout.
2. Applicable Standards - Corps of Engineers CRD-C 621-82B.
3. Brands and Manufacturers
   a. Master Builder's "Masterflow 713".
   b. Gifford-Hill "Supreme".
   c. Sauereisen "Sauereisen F-100".

2.2 FABRICATION

A. Connections – Shall be designed by a well experienced Structural Engineer in Structural Steel design, and shop drawings shall be sealed with a State of Texas seal indicating license and name.
   1. Shop – Welded
   2. Field – High Strength ASTM A325 bolts

B. Connections - Bolted

   1. 3/4-inch diameter high strength bolts for bolted connections in main structural steel.
   2. 3/4-inch diameter standard bolts for bolted connections in secondary steel; i.e., stair treads, handrail posts, and ladders.
   3. Bolted connections to meet requirements of AISC and beam connection shall be designed for ½ of total allowable uniform load listed in AISC Beam Tables x(1/2 W). Use 3/8" thick (minimum) angles for connections. Where beams support concentrated loads, design connections to support maximum allowable web shear load (V). Use 3/8" thick (minimum) steel angles for connections. Use AISC Manual for framed beam connections tables.
   4. Two bolts per connection, minimum.
   5. Gusset plates 3/8-inch minimum thickness unless noted otherwise.
   6. Design high-strength bolted connections as bearing-type with threads included in shear plane.

C. Connections - Welded

   1. Welded connections to meet requirements of AISC and AWS and shall be designed for ½ of total allowable uniform load listed in AISC Beam Tables x(1/2 W). Use 3/8" thick (minimum) angles for connections. Where beams support concentrated loads, design connections to support maximum allowable web shear load (V). Use 3/8" thick (minimum) steel angles for connections. Use AISC Manual for framed beam connections tables.
   2. Welded connections to be seal welded for exterior exposure.
   3. Assemble and weld using balanced methods to avoid warpage.
   4. Grind exposed fillet and flush welds smooth, dress, and fill with body solder as required, where exposed to view on exterior or within finished interior spaces.

D. Galvanizing (where shown on plans)

   1. Structural steel shapes, plates, bars, tubing to meet requirements of ASTM A123.
   2. High-strength and standard bolts, nuts, and washers to meet requirements of ASTM A153.
   3. Assembled products to meet requirements of ASTM A384, A385, & A386.
   4. Preparation for Galvanizing
      a. Complete fabrication and assembly.
      b. Remove rough spots and burrs.
      c. Remove welding flux.
      d. Clean steel of oil, grease, and paint.

e. Remove rust, mill scale, and other deposits.

2.3 SHOP PRIMER

A. Preparation - Remove loose mill scale, loose rust, and other foreign materials to the SSPC Standards.

B. Acceptable Primers - Any primer that meets Federal SSPC specifications for use over the specified preparation. Three such primers are F.S. TT-P-86, Type I or II, SSPC-Paint 4-64T or F.S. TT-P636D iron oxide zinc chromate alkyd primer. Do not prime pieces required to be fire proofed.

C. Proprietary Primers - Use is permissible when performance properties equal those mentioned above.

D. Thickness - 2.0 mils minimum dry film, except for minor deficiencies.

E. Physical Damage - Touch up erection damages.

2.4 MARKING

A. Clearly mark each piece for erection identification.

B. Location of marks on each piece to correspond to location shown on erection drawings.

C. Ship bolts, nuts, and washers in containers clearly tagged or marked as to size.

PART 3—EXECUTION

3.1 RECEIPT OF PRODUCT

A. Inspect products for damage concurrent with unloading.

B. Products to be segregated at unloading to facilitate identification in erection.

3.2 ERECTION

A. General

1. Steel work to be plumb and level.
2. Maintain structural stability during erection.
3. Erection bolts shall be replaced with permanent bolts and connections and completed as soon as possible after structure is plumb and level.
4. Clean bearing surfaces and other surfaces before assembly which will be in permanent contact.
5. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
6. Install grout under base plates and where shown per Manufacturer's specification.

B. Field Bolting

1. Bolted connections to meet requirements of fabrication drawings.
2. Tighten bolts to meet requirements of "Specification for Structural Joints using ASTM A325 or A490 Bolts" as endorsed by AISC.
3. Drifting required for assembly shall not distort the steel or enlarge holes. Holes reamed to larger size to have larger bolts installed.

C. Field Welding

1. Meet requirements of AISC and AWS.
2. Seal weld welded connections with exterior exposure.
3. Exposed Welded Construction - Remove erection bolts, fill holes with plug welds, and grind smooth at exposed surfaces.

D. Field Painting and Touch-Up

1. Field Painting - Where shown on plans, conform to Specification "Painting".
2. Repair damaged galvanized surfaces with zinc rich paint per manufacturing requirements. Color to match galvanized finish.
3. Touch up primed or painted steel as required.

3.3 ADJUSTMENT AND CLEANING

A. Do not use gas cutting torches for correcting fabrication errors in structural framing, except on secondary members.

B. Finish gas-cut sections equal to a sheared appearance.

C. Remove excess material, falsework, and debris after completion of work.

END OF SECTION

SECTION 079200
JOINT SEALANTS
(By Owner)

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes joint sealants for the following locations:
   1. Interior joints in vertical surfaces and horizontal non-traffic surfaces as indicated below:
      a. Vertical control joints on exposed surfaces of interior unit masonry walls and partitions.
      b. Perimeter joints between interior wall surfaces and frames of interior doors, windows, casework, and countertops.
      c. Perimeter joints of plumbing fixtures.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

B. Provide joint sealants for interior applications that have been produced and installed to establish and maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

B. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

C. Preconstruction Compatibility and Adhesion Testing: Submit to joint sealant manufacturer(s) samples of materials that will contact or affect joint sealants for compatibility and adhesion testing.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instruction for multi-component materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40ºF.
   2. When joint substrates are wet.

B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

PART 2 – PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide color of exposed joint sealants to comply with the following:
   1. Provide selections made by Architect from manufacturer's full range of colors for products of type indicated.

2.2 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920 and other requirements indicated on each Elastomeric Joint Sealant Data Sheet at end of this Section, including those requirements referencing ASTM C 920 classifications for Type, Grade, Class, and Uses.
   1. Additional Movement Capability: Where additional movement capability is specified in Elastomeric Joint Sealant Data Sheet, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at time of installation and remain in compliance with other requirements of ASTM C 920 for Uses indicated.

B. Products: Subject to compliance with requirements, provide one of the products specified in each Elastomeric Joint Sealant Data Sheet.

2.3 LATEX JOINT SEALANTS

A. General: Provide manufacturer's standard one-part, non-sag, mildew-resistant, paintable latex sealant of formulation indicated that is recommended for exposed applications on interior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.

B. Acrylic-Emulsion Sealant: Provide product complying with ASTM C 834 that accommodates joint movement of not more than 5 percent in both extension and compression for a total of 10 percent.

C. Silicone Emulsion Sealant: Provide product complying with ASTM C 834 and, except for weight loss measured per ASTM C 792, with ASTM C 920 that accommodates joint movement of not more than 25 percent in both extension and compression for a total of 50 percent.

D. Multi-Part Non-sag Orethane Sealant for Use NT: Type M, Grade NS, Class 25, and complying with the following requirements for Uses:

E. Products: Subject to compliance with requirements, provide one of the following:
   1. Acrylic-Emulsion Sealant:
      a. "AC-20", Pecora Corp.
      b. "Sonolac", Sonneborn Building Products Div., ChemRex, Inc.
      c. "Tremco Acrylic Latex 834", Tremco, Inc.
   2. Silicone-Emulsion Sealant:
      a. "Trade Mate Paintable Glazing Sealant", Dow Corning Corp.
   3. Multi-Part Nonsag Urethane Sealant for Use NT:
      a. "Chem-Caulk 500", Bostik Construction Products Division
      b. "Vulkem 227", Mameco International, Inc.
      c. "Vulkem 922", Mameco International, Inc.
      d. "Dualthane", W.R. Meadows
      e. "Duynatrol II", Pecora Corporation
      f. "Permapol RC-2", Products Research and Chemical Corporation
      g. "SikaFlex-2c NC", Sonneborn Building Products Division, Rexnord Chemical Products, Inc.
      h. "Dymeric", Tremco, Inc.

2.4 JOINT SEALANT BACKING

A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Plastic Foam Joint Fillers: Performed, compressible, resilient, non-staining, non-waxing, non-extruding strips of flexible plastic foam of material indicated below and of size, shape,

and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

1. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, non-outgassing in un-ruptured state.
2. Proprietary, reticulated, closed-cell polymeric foam, non-outgassing, with a density of 2.5 pcf (40 kg/cu.m.) and tensile strength of 35 psi (240 kPa) per ASTM D 1623, and with water absorption less than 0.02 g/cc per ASTM C 1083.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing material, free of oily residues or other substances capable of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

2.6 DETENTION SECURITY SEALANT

A. One or two part, tamper resistant polyurethane sealant to be used for all sealant and caulk locations inside the security perimeter except inside plumbing chases, staff areas and other areas inaccessible to inmates to include floor, wall, and ceiling control joints, concrete plank ceiling joints and jointing around dissimilar materials. Do not install Detention Security Sealant in expansion joints.

1. Pecora "Dynapoxy EP-1200" inside all cells.
2. Pecora "Dynaflex SC" at all other locations inside the security perimeter.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's printed installation instruction applicable to products and applications indicated, except where more stringent requirements apply.

B. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
   1. Install join fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
      a. Do not leave gaps between ends of joint fillers.
      b. Do not stretch, twist, puncture, or tear joint fillers.
      c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
   2. Install bond breaker tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.

C. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

D. Tooling of Non-sag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
   1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
      a. Use masking tape to protect adjacent surfaces of recessed tolled joints.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

3.6 JOINT SEALANT SCHEDULE

Joint Sealers	Location Where Sealant is Applied
One-Part Neutral Cure Silicone Sealant	Interior joints in vertical and horizontal surfaces of concrete and masonry;
Acrylic-Emulsion Sealant	Interior joints in field-painted vertical surfaces at perimeter of hollow metal door frames; in concrete masonry; and all other interior joints not indicated otherwise.
Detention Security Sealant	At all locations requiring caulking or sealant within the security perimeter of the facility except inside plumbing chases, and other areas inaccessible to inmates. Do not install detention security sealant in expansion joints.

END OF SECTION

SECTION 081113
STANDARD HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1. DESCRIPTION

A. Work included: Provide hollow metal doors, and metal door and window frames, which are not specifically described in other sections of these Specifications, where shown on the Drawings, as specified herein, and as needed for a complete and proper installation. Fully welded hollow metal frames shall be utilized for all standard doors.

1.2. QUALITY CONTROL

A. Galvaneal materials shall conform to ASTM A653 / A653M-95 and ASTM A924 / A924M-95.

PART 2 PRODUCTS

2.1. METAL DOORS

A. Type and design: Provide full-flush design, in dimensions and types shown on the Drawings, labeled or non-labeled as indicated on the Door Schedule, in 18 gage metal unless scheduled otherwise, properly reinforced for the finish hardware described in Division 8 of these Specifications.

B. Finish: Pre-clean and shop prime each door for finish painting which will be performed at the job site under Division 9 of these Specifications.

C. Exterior Doors: Form exterior doors and components from galvaneal steel.

D. Acceptable products: Standard products of the Steelcraft manufacturing Company, Amweld Division of American Welding and Manufacturing Company, Ceco Corporation.

2.2. METAL FRAMES

A. Type and design: Provide door and window frames of the types and dimensions shown on the Drawings, labeled or non-labeled as indicated on the Door/Window Schedule, in 16 gage metal unless scheduled otherwise, properly reinforced for the finish hardware described in Division 8 of these Specifications.
   1. Schedule and size frames according to wall type conditions.

B. Finish: Pre-clean and shop prime each frame for finish painting which will be performed at the job site under Division 9 of these Specifications.

C. Exterior Frames: Form exterior frames and components from galvaneal steel.

2.3. FINISH HARDWARE

A. Secure templates from the finish hardware supplier, and accurately install, or make provision for, all finish hardware at the factory.

PART 3 EXECUTION

3.1. SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

B. Materials of galvaneal shall receive one coat of primer appropriate for galvaneal materials prior to shipment.

3.2. INSTALLATION

A. Assist the Owner in Placing frames:
   1. Where practical, place frames prior to construction of enclosing walls and ceiling.
   2. Set frames accurately into position, plumbed, aligned, and braced securely until permanent anchors are set.
   3. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
   4. At in-place construction, set frames and secure to adjacent construction with machine screws and suitable anchorage devices. Provide "z" fillers at each screw location.
   5. When installed in prepared openings in concrete or masonry construction, provide sealant between frame and concrete or masonry in accordance with provisions of Division 7 of these Specifications.

3.3. ADJUST AND CLEAN

A. Final adjustments:
   1. Check and readjust operating finish hardware items in hollow metal work just prior to final inspection.
   2. Leave work in complete and proper operating condition.
   3. Remove defective work and replace with work complying with the specified requirements.

B. Immediately after erection, sand smooth all rusted and damaged areas of prime coat, and apply touchup of compatible air-drying primer.

END OF SECTION

SECTION 083113
ACCESS DOORS
(By Owner)

PART 1 GENERAL

1.1. SUMMARY

A. This Section includes access doors for installation in the following types of construction:
   1. Masonry

B. Owner will provide painted steel access door where indicated or otherwise required for access to plumbing valves or other devices. Mason shall install access doors as directed.

1.2. QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain access doors for entire project from one source from a single manufacturer.

B. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units, which may vary slightly from sizes indicated.

C. Coordination: Furnish insets and anchoring devices that must be built into other work for installation of access doors. Coordinate delivery with other work to avoid delay.

1.3. PROJECT CONDITIONS

A. Verification: Obtain specific locations and sizes for required access doors from trades requiring access to concealed equipment, and indicate on submittal schedule.

B. Special-Size Access Doors: Use where required, requested or indicated on plan or in schedule.

C. Rated Doors: Provide rated doors where located in walls and ceilings of rated assemblies.

PART 2 PRODUCTS

2.1. MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering access doors that may be incorporated in the work are:
   1. Bar-Co., Inc.
   2. Cesco Products
   3. J.L. Industries
   4. Karp Associates, Inc.
   5. Milcor, Inc.
   6. Nystrom, Inc.
   7. The Williams Brothers Corp.

2.2. MATERIALS AND FABRICATION

A. General: Furnish each access door assembly manufactured as an integral unit, complete with all parts and ready for installation.

B. Steel Access Doors and Frames: Fabricate units of continuous welded steel construction unless otherwise indicated. Grind welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of support shown. Provide minimum size of 24"×24" or as otherwise shown on the drawings. Field verify rough openings before fabrication. Provide shop drawing for each wall access door.

C. Frames: Fabricate from 16-gage steel.
   1. Fabricate frame with exposed flange nominal 1-inch wide around perimeter of frame for units installed in the following construction:
      a. Exposed masonry.
   2. For installation in masonry construction, furnish frames with adjustable metal masonry anchors.

D. Flush Panel Doors: Fabricate from not less than 14-gage sheet steel, with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees. Finish with manufacturer's factory-applied prime paint. Final painting by Owner.

E. Hardware Set, Locking Devices:
   1. Provide one cylinder lock per access door. Furnish 2 keys per lock. Key all locks alike, unless otherwise scheduled.
   2. Additionally, provide tamper-resistant fasteners for units located inside the jail security perimeter. Provide 2 fasteners each side of panel door except at hinge side.

PART 3 EXECUTION

3.1. INSTALLATION

A. Comply with manufacturer's instructions for installation of access doors.

B. Coordinate installation with work of other trades.

C. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.

3.2. ADJUST AND CLEAN

A. Adjust hardware and panels after installation for proper operation.

B. Remove and replace panels or frames that are warped, bowed, or otherwise damaged.

3.3. ACCESS DOOR SCHEDULE

A. Provide and install access doors in masonry as required for access to plumbing valve chases or any other plumbing fixtures requiring maintenance or access where a standard size door is not provided and for electrical devices requiring access. Refer to mechanical and electrical drawings and specifications for related plumbing and electrical work and locations of such work. Provide doors as required for complete access.

B. Provide and install access doors in masonry and drywall at plumbing chases. Set bottom of doors minimum of 2'-0" A.F.F. if not shown on drawings or not in conflict with another item.

END OF SECTION

SECTION 083463
DETENTION DOORS AND FRAMES

PART 1 - GENERAL

1.1 SCOPE OF WORK:

A. All labor, material, equipment, and incidentals required to manufacture detention hollow metal as indicated in the contract drawings.

1.2 SUBMITTALS

A. Shop Drawings: Manufacturer shall provide shop drawings for review and approval, which include at least the following:
   1. Door and frame elevations and sections
   2. Schedule of openings including dimensions, gauges, anchors and label requirements.
   3. Manufacturers standard instructions for frame installation and for material handling and storage.
   4. Location and detail of openings in frames or doors.
   5. Glazing types and stops
   6. When a fire resistance classification is shown or scheduled for steel doors or frames provide fire rated doors with recognized testing laboratory labels affixed. During the submittal process, identify openings that may not receive labels due to hardware, dimensional or other limitations. For such openings, provide certification that the door and frame components have been constructed in accordance with the requirements of the testing laboratory.

B. Testing and performance: Doors and frames shall meet the following minimum test standards. Compliance with test requirements shall be certified by reports of independent testing agencies. Test reports shall indicate the construction of the samples tested with sufficient particularity that construction can be verified.
   1. Static Load Test: This test is intended to verify the integrity of the door construction system employed by the manufacturer. With a 36" by 84" door panel supported by both ends, and load applied equally one fourth of the distance from each end, the test panel shall deflect not more than 0.58" at the center and shall rebound to not more than 0.10" when load is removed.

Door Gauge	12	14
Test Load	14,000#	11,000#

   2. Rack Load Test: This test simulates a prying attack on a corner of the door. A 36" by 84" test panel is rigidly restrained at one end. A third corner is simply supported. Loads are applied and deflections measured at the fourth corner. Under the following loads, deflection shall not exceed the amounts shown.

Door Gauge	12	14
Test Load	7,500#	5,500#

   3. Door Impact Test: This test simulates a battering attack on a door and frame assembly, using impact of 200 foot pounds applied to the stop side of the door by

a steel pendulum having a 4 square inch hitting surface. 12 and 14 gauge doors shall be secured with a Airteq 9080 lock installed in a door pocket. 16 gauge doors shall be secured with a Folger Adam 2" narrow jamb lock mounted in the frame jamb. Door shall remain closed during testing and shall be fully operable following the test.

Door Gauge	12	14
Hits (6" from bolt)	600	200
Hits (6" each hinge)	200	75

4. Removable Glass Stop Testing: Prepare a 12 gauge test window frame of 28" by 33" glass opening, and glaze it with a 3/8" steel plate. Security screws used and screw spacing shall be the manufacturer's standards. Subject the test frame to 400 impacts of 200 foot pounds each on the steel glazing panel within 6" of a single corner. Stops must remain in place, and not more than one screw may be broken upon completion.

1.3 QUALITY ASSURANCE

A. Materials covered by this section shall be supplied only by manufacturers having at least five (10) years of experience supplying detention grade hollow metal.

B. The following suppliers are approved:
1. Trussbilt
2. Clayborn Manufacturing Co.
3. American Steel Products
4. Titan Security

C. Others seeking approval as a Hollow Metal Supplier are to make substitution requests in accordance with the requirements of the Contract, and which include the following:
1. Submit evidence that firm has a minimum of ten (10) years of experience in successfully completing projects of equal scope and magnitude with products as specified herein.
   Such evidence shall consist of a list of not less than five (5) projects which have been in actual and satisfactory use for not less than five (5) years. Provide a list of contacts at each facility, addresses and phone numbers
2. Provide a list of all projects in the past five (5) years in which the proposed firm has been involved in litigation with a city, county, state or federal government agency and the status thereof.
3. Furnish frame corners sections of door and window frame for review. Provide 2-12" corner, sample frames.
4. Submit copies of welder's certification for all personnel who will perform services on this project.
5. Submit a full size corner sample of each type door and frame showing door construction, face stiffening, insulation, and top hinge reinforcements; details of each type of door and frame, performance data in accordance with performance tests specified below.

6. Submit a statement letter from the Surety Company stating that a 100% Payment and Performance Bond will be supplied if selected as the successful Hollow Metal Assembly Supplier
7. Submit an independent testing laboratory report certifying all doors, door frames and window frames meet minimum ASTM Grade 1 performance.

D. Requests for approval by other manufacturers shall be considered only from competent and reputable firms who specialize in this particular branch of work and who can demonstrate to the satisfaction of the Architect, General Contractor and Owner that they are fully capable of completing detention hollow metal work in accordance with requirements. Architect reserves the right to consider each request on its own merits and to reject any or all requests which are not in the Owner's best interests. The Architect's decision shall be final and incontestable. Any supplier accepted under this provision will be notified prior to bid. Bids received from others not named or so accepted will be unresponsive and will not be accepted.

1.4 WARRANTY

A. Products supplied under this section shall be warranted by the manufacturer to be free of defects in material or workmanship for a period of one year from substantial completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Doors and frames shall be constructed using new, commercial quality hot or cold rolled steel, or stainless steel as identified in the architectural drawings. Steel used shall be in conformity with current ASTM standards.

2.2 GLASS MOLDINGS

A. Where specified or indicated on drawings, doors and frames shall be supplied with removable glass moldings. These shall be formed steel angles of 10 gauge minimum. Where dimensional restrictions preclude use of an angle, offset surface mounted stops may be used. All stops shall have tightly fitted butted or mitered corners and shall be secured with 1/4" - 20 torx head security screws no more than 8" on center.

2.3 DOOR CONSTRUCTION

A. General: All door face sheets shall be 12 gauge unless specified differently. Manufacturer's door reinforcements and fabrication techniques shall be consistent with, or more substantial than, the construction employed in doors tested to demonstrate compliance with the performance requirements herein.

B. Specific Additional Reinforcement: The following reinforcement requirements shall also be met:

1. Doors shall be internally reinforced with one of the following systems:
   a. Continuous steel truss design core material, 28 gauge minimum, having truncated triangular sections extending continuously from one door face to the other, spotwelded to each face 2-3/4" oc horizontally and 3" oc vertically. Core material to extend full height and width of door.
   b. Rolled or formed 1/8" steel channels extending from top to bottom of door and continuous from one door face to the other, spaced not more than 4" oc and spotwelded to door faces not more than 3" oc vertically.
   c. Continuous vertical hat sections, one such hat section welded to each face of the door, 16 gauge minimum, with vertical webs no more than 4" apart, spotwelded to faces no more than 3" oc vertically. Hat sections shall be welded to each other at least every 6" oc both sides in order to prevent door separation. The vertical edges shall be reinforced by a continuous steel channel, not less than 10 gauge thickness extending the full height of the door. Channel which is notched or broken at the hinge mortises shall not be acceptable.
2. Door face sheet shall be joined at their vertical edges by a continuous weld extending the full height of the door. Intermittent welds with filler will not be acceptable.
3. Top and bottom of the door shall be closed with a 14 gauge formed channel. Top and bottom closing channels shall be welded to the edge reinforcing. Top and bottom of doors shall be finished flush with inverted channels of not less than 14 gauge.
4. Hinge reinforcements shall be minimum 3/16" thick of the size and shape utilized in testing. They shall be projection welded to the door edge, and after installation additionally electrically spot welded to the door edge. In addition, a backup channel stiffener of not less than 14 gauge shall be welded to each hinge reinforcing and to each door face, to prevent rocking failure of the hinge reinforcing.
5. Swing door edges shall be beveled 1/8 in 2". Sliding doors shall have square edges.
6. Hardware Preparation - Doors shall be reinforced, drilled, tapped and prepared for templated mortised hardware only, in accordance with a final approved hardware schedule and templates provided by the hardware supplier. Where surface hardware is to be applied, doors shall be reinforced only. Reinforcing dimension shall be as follows:
   a. Surface Mounted Hinges - Minimum 3/8" reinforcing
   b. Mortised Hinges and Pivots - 3/16"
   c. Internal Reinforcing for Other Hardware - 12 ga
7. Speakers - Speaking devices shall consist of a rectangular pattern of round holes, not exceeding 1/4" in diameter in both face sheets. The hole pattern shall be at least 4" by 5". The space between the hole patterns shall be baffled with steel sections of not less than 18 gauge so that objects cannot be passed through the door.
8. Food Pass Openings
   a. The food pass opening shall be a flush opening fabricated using 10 gauge interior channels securely welded to the inside of both face sheets. Reinforcing for food pass hinges shall be 10 gauge channel. The clear

opening shall be 4-1/2" x 15" minimum. The four corner seams shall be continuously arc welded. The finished opening shall be of such construction that it cannot be dismantled or otherwise affected by tampering or scraping.

b. The food pass shutter shall be constructed from two 10 gauge steel plates. The overall shutter size shall overlap the opening by 1/2" minimum on all sides. Food pass shutter hinges shall be as specified in Section 087163 Detention Door Hardware. PIANO HINGES ARE NOT ACCEPTABLE.

c. The shutters shall be chemically treated for maximum paint adhesion and primed.

9. Shutter – For observation panel and/or speaking device shall be equal to Southern Steel Company #265 constructed of 10 gauge steel, hung on two (2) heavy-duty 2" hinges. Provide steel knob pull and four-way catch. PIANO HINGES ARE NOT ACCEPTABLE.

10. Observation Panels – Shall be glazed as scheduled.

11. Recessed door pulls shall be integral with the door and provided by the door manufacturer.

C. Doors shall have the Architect's mark number permanently stamped on the center hinge reinforcement for swing doors and on the top for sliding doors.

D. Field Examination: If directed by the architect, the erector shall destroy a randomly selected security hollow metal door by sawing it in half. When examination discloses door construction at variance with the details shown in performance test reports, the door manufacturer shall replace all non-conforming doors shipped to the project with doors constructed in conformance with specification requirements. Under conditions of non-conformity, the door manufacturer shall pay for the destroyed door and related labor. When examination proves that the door construction is consistent with specification requirements, the owner will pay to replace the destroyed door and related labor.

E. All exterior doors to be galvaneal coated.

2.4 FRAME CONSTRUCTION

A. General: All frames shall be 12 gauge for applications with detention doors. All frames shall be formed of hot or cold rolled steel produced in accordance with ASTM standards. Frames scheduled as galvanized shall be in accordance with ASTM standards. Frames shall be straight, neat in appearance, and free of warpage and buckling. All frame joints shall be welded, except where overall size of frame precludes shipment, in which case appropriate splices shall be provided for field erection by others. Following fabrication, welded areas of galvanized frames shall be re-sprayed with a cold galvanizing product complying with ASTM Standards.

B. Frame Details

1. Jamb, head and sill profiles shall be as scheduled or shown in architectural drawings. Stop height for frames shall be 1-¼" for glass openings and 3/4" for door openings.

2. Corner joints shall have all contact edges closed tight with faces mitered and stops butted or mitered. Corner joints shall be continuously welded and the use of gussets or splice plates is unacceptable.
3. Frames for multiple openings shall have mullion members which are closed tubular shapes conforming to profiles shown on drawings and which have no visible seams or joints. All joints between faces of abutted members shall be continuously welded and finished smooth.
4. Frames shall have the architect's door number permanently stamped in the center hinge reinforcement. Where frames do not receive hinge preparation, number shall be stamped in a prominent location, where it will not be visible after installation.
5. Frames shall be mortised, reinforced, drilled and tapped for all templated mortised hardware only, in accordance with the final approved hardware schedule and templates provided by the hardware manufacturer. Where surface mounted hardware is to be applied, frames shall be drilled and tapped for all security hardware, unless otherwise noted herein.
6. Mortised hinge and pivot reinforcement shall be a minimum of 3/16" thick, 1-½" wide and 9" long. Reinforcements shall be projection welded to the frame and shall be MIG welded to the frame at top and bottom of each reinforcing. The top hinge shall be additionally reinforced with a 3/16" thick formed angle welded both to the hinge reinforcing and frame face.
7. Drilling and tapping of frames for surface mounted hinges shall be by field erector, after door is fitted plumb and true into frame.
8. Other Reinforcements: The following applications shall be reinforced as indicated:

Lock Bolt Opening Backup	12 gauge minimum
Surface Mount Closers	12 gauge minimum
Concealed Closers	3/16" minimum
Strike Mounting Clips	3/16" minimum

9. Floor clips shall be provided of gauge at least as great as the frame gauge and shall be welded in place at the bottom of each jamb. They shall have two holes for anchoring to floor. If so scheduled, adjustable floor clips shall be provided.
10. Frames shall be caulked in order to limit leakage of grout into frame openings.
11. Removable glass stops minimum 10 gauge x 1" for frames.
12. Glass stop screws 1/4-20 button head torx with grout protection on inside throat of frame and mullion section.

C. Jamb Anchors
1. Anticipate prefinished Masonry Openings – Provide factory punched and countersunk holes for 3/8" diameter expansion bolt anchors, not more than 6' from top and bottom of jamb and 24" on center. Weld in 12 gauge minimum reinforcing chairs to prevent frame deformation while tightening anchor bolts. Concrete anchors and bolts shall be provided under the general contract.

D. Mortar Guards of not less than 24 gauge steel shall be welded in place at all hardware mortises on frames to be set in masonry or concrete. Guards for closers shall be 18 gauge minimum.

E. All frames shall be provided with two temporary steel spreaders welded to the feet of the jambs to serve as bracing during shipping and handling only. These shall be removed prior to installation and are not to be used for setting of proper frame tolerances.

F. All exterior frames to be galvaneal coated.

2.5 FABRICATION AND WORKMANSHIP

A. All material shall be smooth and free of surface blemishes. Gauge of frame members and door face sheets shall be as indicated in the architectural drawings. Doors and frames shall be neat in appearance and free from warpage or buckle. Edge bends shall be true and straight.

2.6 PRIME PAINTING

A. Clean, treat and paint exposed surfaces of fabricated hollow metal units, including galvanized surfaces.

B. Clean steel surfaces of mill scale, rust, oil, grease, dirt and other foreign materials before the application of the shop coat of paint.

C. Apply pretreatment to cleaned metal surfaces, using cold phosphate solution (SSPC-PT2), hot phosphate solution (SSPC-PT4) or basic zinc chromate-vinyl butyral solution (SSPC-PT3).

D. Apply shop coat of prime paint within time limits recommended by pretreatment manufacturer. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 2.0 mils.

PART 3 - EXECUTION

3.1 HANDLING AND STORAGE OF MATERIALS

A. Frame erector shall receive material at jobsite, unload it, note any damage and file any required freight claims, and store the material, all in accordance with Manufacturer's instructions. Any scratches or paint damage that has occurred during shipment shall be cleaned and touched up with primer.

3.2 INSTALLATION

A. Prior to installation, frame erector shall check frames for size, swing, squareness, alignment, twist, and plumbness. Conduit connections shall be checked to assure that they have not loosened during shipment. Screw protection, if provided, shall be checked to assure that it has not been removed or tampered with.

B. Install frames as set forth in Manufacturer's instructions with jambs parallel, frame faces in the same plane and parallel with wall surfaces, frames set squarely in openings.

Maximum deviation shall be 1/6" in any such dimension as described in Manufacturer's installation instructions.

END OF SECTION

SECTION 087100
STANDARD DOOR FINISH HARDWARE

PART 1 GENERAL

1.1. DESCRIPTION

A. Work included:
   1. Propose and furnish finish hardware required to complete the work as shown on the drawings as specified herein, and/or as required for a complete and functional installation.
   2. Furnish trim attachments and fastenings, specified or otherwise required, for proper and complete installation.
   3. Deliver to the job site those items of finish hardware scheduled to be installed at the job site, and deliver to other points of installation those items of finish hardware scheduled to be factory installed.
   4. Owner will install hardware.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Installation of finish hardware is described in other Sections of these Specifications.
   3. The following hardware is listed elsewhere in these specifications and shall not be a requirement of this division.
      a. Cabinet Hardware
      b. Locker Hardware
      c. Toilet Partitions
      d. All Rough Hardware
      e. Transformers, Junction Boxes, Wire and Hook-up of Electrical Detectors
      f. Shelf Hardware

1.2. QUALITY ASSURANCE

A. Hardware has been specified herein by manufacturer's name, brand, and catalog numbers for the purpose of establishing a basis of quality, finish, design, and operational function. Finish of all hardware shall be uniform in color/appearance.

B. To insure a uniform basis of acceptable materials, it is the intention that only manufacturer's items specified as "Acceptable and Approved" be furnished for use on this project.

C. Items specified "NO SUBSTITUTION" shall be provided exactly as listed in this specification and/or in the door/window schedule.

D. Deviation from or modification of items will be permitted only for special instances caused by reason of construction characteristics and for the purpose of providing proper operational function.

E. Substitutions: Products equal to those specified may be substituted.

F. Supplier: A recognized builder's hardware supplier who has been furnishing hardware not less than two (2) years, and who is, or has in employment, an Architectural Hardware Consultant (AHC) in good standing as certified by the Society of Architectural Hardware Consultants Council.

1.3. REFERENCES

A. Listed Hardware: Hardware, which is to be installed in or on fire, labeled doors and frames, Class A or lesser, single or pairs, shall be tested and listed by Underwriters Laboratories (UL). Exit devices which are to be used as panic hardware shall be tested and listed in Underwriters Laboratories "Accident Equipment List - Panic Hardware."

B. All listed hardware shall be in compliance with the following:
   1. NFPA 80 – Standards for Fire Doors and Windows
   2. NFPA 101 – Life Safety Code
   3. Local authorities having jurisdiction.
   4. Texas Accessibility Standards

1.4. SUBMITTALS

A. Comply with pertinent provisions of Division 1.

B. The finish hardware supplier shall, after award of a formal contract, submit to the Architect complete typewritten copies of the proposed finish hardware schedule with manufacturer's cut sheets for approval. This schedule shall be prepared using the "Sequence and Format for the Hardware Schedule" as approved and recommended by the Door and Hardware Institute (DHI). After approval of the schedule, the hardware supplier shall provide copies of this approved schedule to the Architect for file and distribution purposes. Hardware will not be ordered by the hardware supplier until an approved schedule has been received. The cost for this service shall be included with the cost of materials at the time of bidding.

C. Samples: As part of this contract, provide to the Architect if requested, one sample of each item of finish hardware that is to be furnished for this project. These samples will be held by the Architect until completion of the project.

1.5. PRODUCT HANDLING

A. Comply with pertinent provisions of Division 1.

B. Individually package each unit of finish hardware, complete with proper fastenings and appurtenances, clearly marked on the outside to indicate contents and specific locations in the work.

C. All items of hardware to be delivered to the job site shall be completely packaged with all necessary screws, bolts, miscellaneous parts, instructions and where necessary installation templates for manufacturer's suggested installation. They are to be clearly labeled so as to conveniently identify them and their intended location in the building.

D. A representative of the Contractor shall receive the hardware delivered at the job site. A dry locked storage place complete with shelving, shall be set aside for the purpose of unpacking, sorting out, checking and storage.

E. Finish hardware shall be delivered to the Contractor by the hardware supplier. Direct factory shipments to the job site are not acceptable.

F. The hardware shall be jointly inventoried by representatives of the Contractor, the hardware supplier and the Owner.

G. All hardware shall be handled in a manner to minimize marring, scratching, or damage.

H. Items damaged in shipment shall be replaced promptly and with proper material without additional cost to the Owner.

I. Hardware supplier will coordinate with access control systems supplier and detention hardware supplier to provide adequate keying and electrically compatible devices.

1.6. WARRANTY

A. The finish hardware shall carry a limited warranty against defects in workmanship and operation for a period of one year from date of substantial completion. No liability is to be assumed where damage of faulty operation is due to abuse, improper usage, improper installation, or failure to exercise normal maintenance.

PART 2 PRODUCTS

2.1. MATERIALS

A. Hinges: Ball bearing, full mortise hinges as specified. Approved manufacturers are Ives, Hager, Stanley, or McKinney. Provide 3 hinges per door leaf for doors up to 36" in width, provide 4 hinges per door leaf for doors over 36" in width.

B. Continuous Hinges: Provide continuous aluminum geared type hinges of the type and function specified in the hardware sets. Hinges shall be machined for bearings prior to anodizing.

C. Cylindrical Locksets: Single lock chassis shall accommodate 1¾" to 2¼" thick doors and be non-handed. Lockset shall have separate anti-rotation through bolts, and shall have no exposed mounting screws. When the outside lever is locked, it shall rotate freely and it shall return to its horizontal position when released. All cylindrical locksets shall heavy duty grade one (1). Remodel projects lock/latches shall match existing locks/latches and keying.

1. Acceptable Manufacturers: Typical Functions (Other functions available)
   a. Entrance Lockset
      1) Best 93KAB 15D LM
      2) Schlage ND92 RHO
      3) Sargent FW-10G05 L
2. Privacy Lockset
      1) Best 93K L 15D
      2) Schlage ND40S RHO
      3) Sargent 10U15 L 15D
3. Storeroom Lockset
      1) Best 93KD 15D LM
      2) Schlage ND96 RHO
      3) Sargent FW-10G04 L 15D

4. Passage Latchset

1)	Best	93KN 15D
2)	Schlage	ND10S RHO
3)	Sargent	10U65 L 15D

D. Exit Devices: Provide push-pad type exit device with stainless steel overlapping "T" style touchpad to prevent pinching of fingers. For safety, touch pad shall not extend full length of device. Provide heavy duty forged steel escutcheon and solid forged lever or pull trim at exterior locations. As specified in hardware sets. Provide style and functions as specified in hardware sets. Lever trim to match locksets and latchsets at interior locations. When the outside lever is locked, it shall rotate freely and it shall return to its horizontal position when released.

1. Acceptable Manufacturers:

a.	Stanley phi	2000 series x 630 Stainless Steel
b.	Von Duprin	98 series x 630 Stainless Steel
c.	Sargent	80 series x 630 Stainless Steel

2. Electric Exit Devices required shall be of the same manufacturer as all exit devices.
   a. Provide Power Transfer and Power Supply as required for hardware sets.

E. Closers: Provide non-handed, non-sized cast iron or aluminum body door closers with steel piston and O-ring compatible. Regular and parallel arm mounting or top jamb where indicated in hardware sets. Furnish all required brackets, spacers, and plates. Mount closers out of line of site (nonpublic side). Rack and pinion construction with compression spring, fully hydraulic. Closing and latching controlled by independently operated valves. Pressure relief valves not allowed. Adjustable spring power allowing adjustment up to 50 percent in field to suit individual door conditions. Adjustable back-check for interior and exterior units. Provide standard hold open on non-rated doors. Labeled closers required at all rated openings. Closers exposed to inmates shall be concealed.

1. Acceptable Manufacturers: Concealed Closer

a.	LCN	2011	Finish to match other hardware.
b.	Norton	7900	Finish to match other hardware.

2. Acceptable Manufacturers: Surface Closer

a.	LCN	4040	Finish to match other hardware.
b.	Norton	7700	Finish to match other hardware.
c.	Stanley Comm.	QDC100	Finish to match other hardware.

3. Acceptable Manufacturers: Concealed Surface Security Closer at all doors inside security perimeter where closer is exposed to inmates.

a.	LCN	2030 Series
b.	Norton	7900 Series

F. Push Pull Bars: Provide ANSI J504, .1” Dia. Pull and push bar. Provide proper fasteners for door construction.

1. Acceptable Manufactures
   a. Trimco
   b. Ives
   c. Hager

G. Protection Plates: Provide kick, push and armor plates of 0.050-inch thick stainless steel with flat countersunk , tamper resistant screws. Coordinate plates with exit devices and sound seals. Provide where noted on door schedule. Install on push side.
   1. Acceptable Manufacturers:
      a. Ives
      b. Trimco (Triangle Brass)
      c. Hager
   2. Armor plates shall be 48" high x door width at locations inside the jail secure perimeter.
   3. Kick plates shall be 8" high x door width at locations outside the jail secure perimeter.

H. Stops: Provide wall stops of stainless steel. Provide fasteners of the type required for each particular wall construction. Provide stainless steel overhead stops at all locations where wall stops cannot be used. Do not use floor stops.
   1. Acceptable Manufacturers: Wall Stops
      a. Ives WS407 x 630
      b. Trimco 1270 x 630
      c. Hager 234W x 630
   2. Acceptable Manufacturers: Overhead Stops (where wall stops are not feasible)
      a. Concealed:
      b. Rixson Firemark No. 1 Series x 630
      c. ABH 1000 Series x 630
      d. Glynn Johnson 100 Series x 630
   3. Acceptable Manufacturers: Overhead Stops (where concealed overhead stops are not feasible)
      Surface:
      a. Rixson Firemark No. 9 Series x 630
      b. ABH 9000 Series x 630
      c. Glynn Johnson 90 Series x 630

I. Electronic Access: Bored locks, mortise locks, and exit device trim. Device to have the ability to be Network adaptable without removing device from door. Device to have ability to change credential reader technologies without being removed from door. Furnish devices with field configurable functions classroom/storeroom 70, apartment 60, office 50, privacy 40 without being removed from door. (None this project)
      a. Schlage Electronics AD Series
      b. Best Access systems WIQ 93K Series

J. Electric Strikes
   1. Provide electric strikes as required.
      a. For Exit Devices – HES 9500 or 9600 as required
      b. Trine equivalent
      c. For Locksets – HES Type as required.
      d. Trine Equivalent

K. Thresholds: Provide type, style, profile, and thickness of thresholds as specified in hardware sets or as required for labeled openings or smoke enclosures. Thresholds shall be manufactured by National Guard Products, or Zero.

L. Sound Seals: Provide exact units as specified in hardware sets and as manufactured by Zero or National Guard Products depending on each individual hardware set.

M. Provide all wiring diagrams for all electric operated hardware supplied under this section. Coordinate electric hardware with other trades involved with installation.

N. Security Fasteners: Provide center pin, tork head fasteners for all exposed connections located within the secure perimeter of this facility.

2.2. KEYING

A. Keying: Key system shall be per Owner's instructions. Provide bitting list direct to Owner's representative from manufacturer, no exceptions.

B. Keying Schedule: Submit separate detailed schedule for owners review after hardware schedule has been approved by Architect.

C. Consult with owner and key all locks and cylinders as instructed. Furnish visual key control and stamp all keys as instructed.

D. Provide all locksets and cylinders construction keyed for this project with change out of cylinders for Owner's use at substantial completion.

E. All keys to be of nickel silver material in following Quantities:
   1. Construction Master Key: Five (5)
   2. Grand Master Keys / Master Keys: Three (3)
   3. Change Keys per Lock:
      a. Two (2)
      b. One additional key for each lock type to be placed in control room key cabinet.

2.3. FINISH

A. Finish Hardware shall be as follows: Unless noted otherwise in hardware sets.

1.	Hinges: Exterior	US32D (630)	Interior	US26D (626)
2.	Locksets:	US26D (626)		
3.	Exit Devices:	US32D (630)		
4.	Door closers:	Spray Painted to match other hardware: (689)		
5.	Protection Plates:	US32D (630)		
6.	Over Head Stops:	US32D (630)		
7.	Misc. Flatgoods:	US32D (630) or US26D (626)		

PART 3 EXECUTION

3.1. EXAMINATION

A. Verify that doors and frames are ready to receive work and dimensions are as instructed by the manufacturer.

B. Verify that electric power is available to power operated devices and is of the correct characteristics.

3.2. INSTALLATION

A. Install hardware in accordance with manufacturer's instructions.

B. Use templates provided by hardware item manufacturer.

C. Mounting heights for hardware from finished floor to center line of hardware item refer to:
   1. DH WDMS.3.
   2. DHI A115 Series.
   3. Texas Accessibility Standards.

3.3. FIELD QUALITY CONTROL

A. Architectural hardware supplier will inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

B. Change out construction cylinders for owner occupancy at substantial completion of project.

3.4. ADJUSTING

A. Adjust hardware for smooth operation.

3.5. PROTECTION OF FINISHED WORK

A. Do not permit adjacent work to damage hardware or finish.

3.6. FINISH HARDWARE SCHEDULE

A. Furnish each door leaf with hardware items similar to scheduled sets below. Provide size, type, and quality as specified in Part 2. Furnish specific function or component as scheduled below or as required to function with all specific door details. Additionally, supplier shall provide any other hardware or accessories necessary for the door to perform as intended.

SH-1 Offices (**Not Used)**
- Office Lock Set
- Butts
- Silencers
- Closer @ Labeled openings
- Stop
- Electric Strike / Access Control where noted on drawings
- Kick plate where scheduled

SH-2 Janitor, Mechanical, Electrical, Store Room, Secure Rooms/Areas - Single
- Store Room Lock Set
- Butts
- Silencers
- Closer at Labeled Openings
- Stop
- Electric Strike / Access Control where noted on drawings
- Door position switch where noted on Security Electronics drawings
- Kick plate where scheduled

END OF SECTION

SECTION 087163
DETENTION DOOR HARDWARE

PART 1 GENERAL

1.1. SCOPE OF WORK

A. Furnish and install detention hardware as specified herein.

B. Related Work:
1. Section 083463 “Detention Doors and Frames”
2. Section 088853 “Security Glazing”
3. Section 323113 “Fencing and Gates”

1.2. REFERENCES

A. ASTM F1577-95 Test Methods for Detention Locks for Swing Doors

B. ASTM F1643-95 Test Methods for Detention Sliding Door Locking Device Assembly

C. National Electrical Code, latest edition, for internal electrical requirements for hardware

1.3. SUBMITTALS:

A. Make submittals in accordance with the requirements of Division 1 Section 013300.

B. Submit specifications, installation instructions and general recommendations for products as required, including locks, hinges, lock mount covers, bolt keepers, wall bumpers, weather-stripping, thresholds, escutcheons, etc.

C. If requested by Architect or Owner, submit one sample of each hardware product, finished as required and tagged with full description for coordination with hardware schedule. Samples will be used as extra stock, if approved. Rejected samples will be returned.

D. Hardware and Keying Schedules:
1. Submit one reproducible and one copy of each schedule type; indicate all products by name and number or each separate opening. Include all other pertinent hardware information.
2. Make promptly, any corrections or changes necessary in schedules to comply with requirements; resubmit one reproducible and one copy of revised schedules.

E. Templates for Fabrication:
1. Forward templates for each type of detention equipment hardware required to fabricators of work in Sections noted above in 1.1.B following final review of hardware and keying schedules.
2. Submit wiring diagrams for all electrical devices provided herein.

F. Locking Device Shop Drawings:

1. Indicate layout plans of each opening at ½”=1’-0” minimum scale, show anchorage and accessory items, dimensions and finishes. Note: Complete housing module plans can be drawn at ¼”=1’-0” minimum, with typical enlarged plans.
2. Indicate complete details of internal components of door locking and monitoring mechanisms located in transoms and jambs.
3. Indicate permissible tolerances for each type.

G. Closeout Submittals - Furnish three copies of Operating/Maintenance Manuals including parts lists for security locks and locking devices.

1.4. QUALITY ASSURANCE

A. Throughout the specifications and drawings, types of materials may be specified by the manufacturer’s name and catalog number in order to establish standards of quality and performance. If the bidder elects to substitute any other products, he must request the Architect’s approval in writing no later than ten (10) days prior to the bid date, and he must receive written approval by addendum. The following are requirements for approval for each type of product listed.
1. Manufacturers Qualifications: Provide security equipment products from manufacturers who have been actively engaged in the production of security equipment for a minimum of ten (10) years in successfully completing projects of equal scope and magnitude with products as herein specified. This evidence shall consist of a list of ten (10) projects that have been complete and operational for a minimum of five (5) years. The manufacturer shall now be actively engaged in the design and manufacture of security locks, locking devices, furnishings and miscellaneous security hardware and products. All locks, locking devices and related security hardware shall be provided by the same manufacturer.
    a. For each facility, list name and location of installation, date of occupancy by Owner, Owner’s representative to contact and telephone number, Contractor, and Architect.
2. Two (2) copies of manufacturer’s product specifications and catalog cut sheets and detail and performance data for each type product listed in this section.
3. Provide data substantiating that products being proposed for this project comply with the requirements stated herein.
4. List of projects under construction
5. List of completed projects
6. List of major suppliers
7. Security lock manufacture must have spare parts, locks and hardware available in a warehouse located within a two-hour drive to the facility.

B. Approved Detention Hardware Suppliers:
1. Southern/Folger, San Antonio, TX
2. Airteq Systems, Montgomery, AL
3. Others as approved by Architect.

1.5. PRODUCT HANDLING

A. Comply with requirements of other Sections of these Specifications.

B. For products delivered to door manufacturer and for products delivered to project site, package each item of hardware separately in containers, complete with necessary fasteners, installation instructions, and installation templates. Mark each container with item numbers, location of installation in accord with corresponding information shown on final hardware schedule.

C. Store products at site to prevent damage or loss until installation is made.

D. Control handling and installation of hardware products which are not immediately replaceable, so that the completion of work will not be delayed by hardware losses, both before and after installation.

E. Deliver keys by secure carrier (hand carrier or registered mail) from manufacturer directly to authorized representative of the Contractor, as directed by the Architect. Include transmittal and forward copy of same to the Architect.

1.6. WARRANTY

A. Comply with requirements of other Sections of these Specifications.

1.7. MAINTENANCE

A. Fasteners and Accessories:
   1. Furnish five (5) percent extra fasteners and other miscellaneous accessories for installation.

B. Furnish for institution use only:
   1. Special tools required for locking device and hardware maintenance (four complete sets).
   2. One lock repair kit
   3. Provide two (2) alignment tools for security locks.
   4. Three complete sets of key

PART 2 PRODUCTS

2.1. MANUFACTURER:

A. Catalog numbers of the first manufacturers listed have been used to establish the quality required. The only other manufacturers approved are listed. Other manufacturers seeking approval shall do so in writing per General Requirements and shall list exact catalog numbers and description of the items proposed to furnish.

ITEM	1	2	3
Hinges	Airteq Systems	Hager	
Closers	LCN	Norton	Yale
Stops	Portland	H.B. Ives	
Holders, Surface Bolts	Glynn-Johnson	Checkmate	Yale
Push/Pull	Hager	Hiawatha	
Thresholds	Pemko	Reese	Zero
Weatherstrip	Pemko	Reese	Zero
Detention Hardware	Airteq Systems		
Kick Plates/ Armor Plates	Quality		

B. DESIGNATIONS: Following abbreviations identify listed manufacturers:

Checkmate	Rixon, Inc.; Franklin Park, IL
Glynn-Johnson	Glynn-Johnson Corp.; Chicago, IL
Hager	Hager Hinge Co.; St. Louis, MO
Hiawatha	Metalcraft, Inc.; Minneapolis, MN
Ives	H.B. Ives Div.; New Haven, CT
LCN	LCN Closers; Princeton, IL
Norton	Norton Closer Div; Charlotte, NC
Pemko	Pemko Mfg. Co.; Emeryville, CA
Reese	Reese Enterprises; Rosemount, MN
Airteq (AT)	Airteq Systems.; Montgomery, AL
Zero	Zero Weatherstripping; Bronx, NY

2.2. SCREWS, FASTENERS, AND TOOLS

A. Furnish exposed fasteners to match item fastened. Make fastener of the same metal as item fastened, except use plated brass or stainless steel for all aluminum items. Provide twenty (20) spares of each type of fastener used for anchoring hardware.

B. Provide torx-head (star design with center pin) security fasteners for exposed fasteners on all security hardware, regardless of manufacturer. Furnish six (6) tool holders and six (6) bits for each different size screw. Holders and bits shall be left at project after installation and become property of the user.

C. Provide two (2) alignment tools for medium security locks.

2.3. HINGES

A. Heavy Duty 4-1/2 FM Stainless Steel
   1. Series/Manufacturer:
      a. 204FMSS/Southern Steel
      b. 604FMCS/Airteq
   2. Description:
      a. 4-1/2 x 4-1/2, 3/16 thick leaves minimum with 15/32" diameter x 2" long integral cast security studs
      b. Cast 304 stainless steel leaves, non-removable steel pin, two concealed bearings, three knuckle with HT hospital tips

3. Hinges shall be finished US32, US32D or USP - primed, as called for in the hardware schedule
4. Provide quantities as follows:
    a. Doors less than 5 ft high - 1 pair
    b. Doors over 5 ft to 7 ft 6 in - 1-1/2 pair
    c. Doors over 7 ft 6 in to 10 ft - 2 pair
    d. Doors over 3 ft 8 in wide - 2 pair

B. Full Surface Hinge
1. Series/Manufacturer
    a. 5/Southern Steel
    b. 603/Airteq
2. Description
    a. 3" x 2-3/4" x 1/4" thick steel leaves
    b. Cold rolled, case hardened steel hinge pin

C. Food Pass and Observation Panel/Speaking Device Shutter Hinge
1. Series/Manufacturer
    a. 203FP/Southern Steel
    b. 603FP/Airteq
    c. Continuous Piano Hinge Not Acceptable
2. Description
    a. 3" x 2-3/4" x 1/4" thick steel leaves
    b. Cold rolled, case hardened steel hinge pin
    c. Integral cast angle limits swing to 90 degrees

D. Power Transfer Hinge
1. Series/ Manufacturer
    a. 204E/Southern Steel
    b. 604FMC-CE/Airteq
    c. Investment cast brass with US26D finish

2.4. SECURITY LOCKS

A. Maximum Security - Electric Swinging Door Operators:
1. Series/Manufacturer:
    a. 10120AM/Southern Steel
    b. 9724P x RLB/Airteq
2. Frame mounted, 24 VDC motor operated.
3. Internal switches monitor bolt status to show deadlocked and unlocked conditions.
4. Bolt retracted manually by paracentric key.
5. Six-lever tumbler keyed one side or both sides.
6. Bolt remains retracted until door is opened.
7. Lock operates in a fail secure mode.
8. Bolt throw 1” flush when retracted.
9. Galvanized case and cover
10. U.L. listed for use on 3 hour fire door.

11. Standard Functions:
    a. Remote switch activates a motor which retracts the latchbolt. Latchbolt remains retracted until door is opened approximately 2", then it releases, automatically latches and deadlocks when the door is closed.
    b. Mechanical - Latchbolt is retracted by a mogul key at the door and remains retracted until door is opened approximately 2", then it releases, automatically latches and deadlocks when the door is closed. Automatic deadlatch feature is suspended when mogul key is rotated to mechanical key hold-back position. Normal function is resumed when key is returned to deadlocked position.

B. Medium Security - Mechanical Operation (Food Pass):
1. Series/Manufacturer:
    a. 1010A/Southern Steel
    b. 5010/Airteq
2. Bolt retracted manually by paracentric key
3. Six Lever tumblers keyed one or two way
4. Reverse bolt bevel at food pass locations.
5. Automatic snaplatch
6. Galvanized case and cover

C. Medium Security - Mechanical Operation
1. Series/Manufacturer:
    a. 1080A/Southern Steel
    b. 5080/Airteq
2. Door mounted, dead bolt
3. Bolt retracted manually by mogul key
4. Six Lever tumblers keyed one or two way
5. Supply with hollow metal lock mounting, escutcheon and security screws
6. Provide keeper as scheduled
7. Galvanized case and cover

D. Electro-Mechanical Gate Lock
1. Series/Manufacturer:
    a. 1050D/Southern Steel
2. Specify 1050SD for Swinging Gate or 1050RD for Sliding Gate Application
3. 115VAC power to Continuous Duty Solenoid with Deadlock indication switch
4. Bolt retracted manually by paracentric key
5. Six-tumbler paracentric lock, keyed one or two way
6. Galvanized case and cover.
7. Stainless Steel Deadbolt
8. Mounting hardware for 2" or 4" O.D posts
9. Cold-Rolled Steel Locking Lug to mount to gate

2.5. DOOR POSITION SWITCH/CLOSER

A. Door Position Indicator Switches
1. Series/Manufacturer

a. 2215DPS Closer/LCN

2.6. PULLS

A. Raised Pull
   1. Series/Manufacturer:
      a. 212C/Southern Steel
      b. 612/Airteq
   2. Investment Cast, stainless steel
   3. 8-3/4" Long x 1-3/4" Wide x 2-3/16" Projection
   4. Fasteners shall be stainless steel security screws

B. Recessed Pull

   1. Series/Manufacturer
      a. Provided by the door manufacturer.

2.7. DOOR STOPS

A. Series/Manufacturer
   1. 450/Southern Steel
   2. 650/Airteq

B. Stop shall be a tamper resistant device that is embedded into the wall or floor with an epoxy resin adhesive. Bumper shall be 2" diameter x 3-1/2" long and made from a non-hazardous silicone elastomer, 80 durometer. The threaded and grooved steel mounting shank shall be embedded into the bumper at least half the length of the bumper. Mounting shank shall extend 2-1/2" beyond the bumper bottom for embedding into the wall. Stops shall be placed to maintain a minimum of 6" between the leading edge of the door and the wall. Mount to wall 6' – 10" A.F.F. unless approved otherwise by the Architect.

2.8. THRESHOLDS

A. Series/Manufacturer
   1. 2005AV/PEMKO

B. Thresholds (Pemko #2005AV) shall be supplied at all exterior, smoke and fire labeled door openings and installed with flat head torx screws.

C. Pass-Resistant Thresholds.

2.9. WEATHERSTRIP AND SMOKE SEALS

A. Rigid Door Westherstrip

   1. Series/Manufacturer
      a. #297AV/Pemko
   2. Fasteners shall be flat head security torx screws.

3. Weatherstrip shall be a self-adhesive and pressure sensitive door gasketing material that may be compressed sufficiently to seal 1/16" toleranced door and will not lose its form. The product shall be non-toxic, self-extinguishing, and impervious to fungus and mildew. Once installed razor cut to approximately 12" increments.

B. Smoke Seal

1. Series/Manufacturer:

a. S88D/Pemko

2. Self-adhesive and pressure sensitive door Gasketing material that may be compressed sufficiently to seal 1/16" tolerance door and will not lose its form. The product shall be non-toxic, self-extinguishing and impervious to fungus and mildew. Once installed razor cut to approximately 12" increments.

3. Shall be supplied at all exterior, smoke and fire rated labeled door openings.

C. Apply to head and jamb sides.

2.10. DOOR SILENCERS

A. Series/Manufacturer
1. #SR64/Ives

B. Silencers shall be standard resilient type and removable for replacement.

2.11. SHUTTER

A. Construction
1. Shutter for observation panel and speaking device shall be constructed of 10 gauge steel, hung on two (2) heavy-duty 2" hinges. Provide steel knob pull and four-way catch. Piano hinges and Z type pulls are not allowed. Shutters shall swing in opposite direction of door swing.

2.12. PROTECTION PLATES

A. Refer to Section 087100 for protection plate requirements.

2.13. FINISHES

	U/S Symbol	ANSI Symbol	Description
Hinges	US32D	630	Satin Stainless Steel
Locks & Pulls	US26D	626	Satin Chrome
Closers	AL	689	Aluminum Painted
Push,/Kick Plates	US32D	630	Satin Stainless Steel

2.14. CYLINDERS, KEYS AND KEYING:

A. The security locks will incorporate three (3) separate keying systems; one for lever tumbler (Paracentric), one for pin tumbler (mogul cylinder) and one for commercial cylinder locks. Each keying system's keys shall be dye stamped for identification, corresponding to the hardware supplier's final schematic keying chart (See Paragraph D).

B. Lever tumbler locks shall be keyed alike or different as directed. Provide cut keys as required.

C. Mogul cylinder locks shall be master keyed as directed. Provide cut change keys, and master keys as required.

D. A complete, detailed schematic chart of the keying system will be required. The hardware supplier will also be required to enter the key symbols for all doors on additional floor plans, which will be supplied by the Architect. Two (2) copies of the schematic keying chart and architectural floor plans shall be turned over to the user at the completion of the project. The cost for this service shall be included with the cost of materials at the time of bidding.

E. Keys shall not leave the manufacturer's custody without prior arrangement for delivery and authorization from the Owner

2.15. DETENTION SPARE LOCKS AND LOCK PARTS:

A. Shall be provided for the Owner's stock as follows:
   1. Locks - two of each type used (of both right or left handed operation, i.e. 2-right, 2-left).
   2. Door Position Switch (DPS) - two each type used
   3. Closer - Two of each type used (of both right or left handed operation, i.e. 2-right, 2-left)
   4. One complete set of security screwdrivers for all sizes of security screws used on this project.
   5. One repair parts list and assembly drawings bound in a manual for all detention products supplied in this division.

PART 3 EXECUTION

3.1. GENERAL

A. Comply with requirements of other Sections of these Specifications.

3.2. INSTALLATION

A. Comply with requirements of other Sections of these Specifications.

B. All shipping of detention equipment hardware and coordination with other detention equipment shall be the responsibility of the DSC.

3.3. FIELD QUALITY CONTROL

A. Comply with requirements of other Sections of these Specifications.

3.4. ADJUSTMENT AND REPAIRING

A. Comply with requirements of other Sections of these Specifications.

3.5. PROTECTION AND CLEANING

A. Comply with requirements of other Sections of these Specifications.

PART 4 HARDWARE SETS

The following hardware sets refer to hardware manufactured by Sourthern/Folger, San Antonio, Texas, unless noted otherwise. The products specified by the Manufacturer's number sets are the minimum acceptable standard of quality. Similar products of other manufactures that provide the same function have similar construction characteristics and design appearance may be acceptable but must be approved in writing by the Architects. Provide thresholds at all exterior doors.

DETENTION HARDWARE SET DH-1

3 EA.	HINGE	SSCO #204FMSS x 4-1/2" x 4-1/2" FM x US32D x SECURITY STUDS x 1/4-20 TORX MS
1 EA.	LOCK	SSCO #10120AMD-2 x RLHB x K2 x KEYED BOTH SIDES x 24 VDC x MOTOR OPERATED x DEADLOCK INDICATION SWITCH x MECHANICAL LATCHBACK x FAIL SECURE x HALF CYCLE HOLDBACK x LESS FACE PLATE x (2) US26D MOGUL CYLINDERS x PC x GALV x TORX MS
2 EA.	RAISED PULL	SSCO #212 x US32D x TORX MS
1 EA.	CLOSER/DPS	LCN #2215 DPS x CONCEALED x AL x TORX MS
3 EA.	SILENCER	IVES #SR64 x GREY RUBBER SILENCER
1 EA.	WALL STOP	PORTLAND #PH760 x PRISON WALL STOP

DETENTION HARDWARE SET DH-2

3 EA.	HINGE	SSCO #204FMSS x 4-1/2" x 4-1/2" FM x US32D x SECURITY STUDS x 1/4-20 TORX MS
1 EA.	LOCK	SSCO #10120AMD-2 x RLHB x K2 x KEYED BOTH SIDES x 24 VDC x MOTOR OPERATED x DEADLOCK INDICATION SWITCH x MECHANICAL LATCHBACK x FAIL SECURE x HALF CYCLE HOLDBACK x LESS FACE PLATE x (2) US26D MOGUL CYLINDERS x PC x GALV x TORX MS

2 EA.	RAISED PULL	SSCO #212C x US32D x TORX MS
1 EA.	CLOSER/DPS	LCN #2215 DPS x CONCEALED x AL x TORX MS
3 EA.	SILENCER	IVES #SR64 x GREY RUBBER SILENCER
1 EA.	WALL STOP	PORTLAND #PH760 x PRISON WALL STOP
1 EA.	RAIN DRIP	PEMKO #346C
1 EA.	THRESHOLD	PEMKO #2005AT 36" L x 5" W x 1/4" H x ALUM x THERMO SEAL x TORX MS
1 EA.	DOOR BOTTOM	PEMKO #315CR
1 EA.	WEATHER STRIP	PEMKO #315CN
1 EA.	ARMOR PLATE	48” HIGH x DOOR WIDTH STAINLESS STEEL ON PUSH SIDE (WHERE SCHEDULED)

DETENTION HARDWARE SET DH-3 (Not used)

3 EA.	HINGE	SSCO #204FMSS x 4-1/2" x 4-1/2" FM x US32D x SECURITY STUDS x 1/4-20 TORX MS
1 EA.	LOCK	SSCO #10120AMD-1 x RLHB x K1 x KEYED ONE SIDE x 24 VDC x MOTOR OPERATED x DEADLOCK INDICATION SWITCH x MECHANICAL LATCHBACK x FAIL SECURE x HALF CYCLE HOLDBACK x LESS FACE PLATE x (1) US26D MOGUL CYLINDER x PC x GALV x TORX MS
1 EA.	RAISED PULL	SSCO #212C x US32D x TORX MS
1 EA.	INTEGRAL FLUSH PULL	BY DOOR MANUFACTURER
1 EA.	CLOSER/DPS	LCN #2215 DPS x CONCEALED x AL x TORX MS
3 EA.	SILENCER	IVES #SR64 x GREY RUBBER SILENCER
1 EA.	WALL STOP	PORTLAND #PH760 x PRISON WALL STOP

SHUTTER HINGE WERE APPLICABLE.

DETENTION HARDWARE SET DH-4 (Not used)

3 EA.	HINGE	SSCO #204FMSS x 4-1/2" x 4-1/2" FM x US32D x SECURITY STUDS x 1/4-20 TORX MS
1 EA.	LOCK	SSCO #10120AMD-2 x RLHB x K2 x KEYED BOTH SIDES x 24 VDC x MOTOR OPERATED x DEADLOCK INDICATION SWITCH x MECHANICAL LATCHBACK x FAIL SECURE x HALF CYCLE HOLDBACK x LESS

		FACE PLATE x (2) US26D MOGUL CYLINDERS x PC x GALV x TORX MS
2 EA.	RAISED PULL	SSCO #212C x US32D x TORX MS
1 EA.	CLOSER/DPS	LCN #2215 DPS x CONCEALED x AL x TORX MS
3 EA.	SILENCER	IVES #SR64 x GREY RUBBER SILENCER
1 EA.	WALL STOP	PORTLAND #PH760 x PRISON WALL STOP
1 EA.	ARMOR PLATE	48” HIGH x DOOR WIDTH STAINLESS STEEL ON PUSH SIDE (WHERE SCHEDULED)

DETENTION HARDWARE SET DH-5

3 EA.	HINGE	SSCO #204FMSS x 4-1/2" x 4-1/2" FM x US32D x SECURITY STUDS x 1/4-20 TORX MS
1 EA.	LOCK	SSCO #10120AMD-1 x RLHB x K1 x KEYED ONE SIDE x 24 VDC x MOTOR OPERATED x DEADLOCK INDICATION SWITCH x MECHANICAL LATCHBACK x FAIL SECURE x HALF CYCLE HOLDBACK x LESS FACE PLATE x (1) US26D MOGUL CYLINDER x PC x GALV x TORX MS
1 EA.	RAISED PULL	SSCO #212C x US32D x TORX MS
1 EA.	INTEGRAL FLUSH PULL	BY DOOR MANUFACTURER
1 EA.	FP LOCK	SSCO #1017A-1 x KEYED ONE SIDE x PARACENTRIC CYLINDER x 6 TUMBLER x GALV x TORX MS
1 EA.	CLOSER/DPS	LCN #2215 DPS x CONCEALED x AL x TORX MS
3 EA.	SILENCER	IVES #SR64 x GREY RUBBER SILENCER
1 EA.	WALL STOP	PORTLAND #PH760 x PRISON WALL STOP

FOOD PASS & SHUTTER HINGE WHERE APPLICABLE.

DETENTION HARDWARE SET DH-6 (Not used)

3 EA.	HINGE	SSCO #204FMSS x 4-1/2" x 4-1/2" FM x US32D x SECURITY STUDS x 1/4-20 TORX MS
1 EA.	LOCK	SSCO #10120AMD-2 x RLHB x K2 x KEYED BOTH SIDES x 24 VDC x MOTOR OPERATED x DEADLOCK INDICATION SWITCH x MECHANICAL LATCHBACK x FAIL SECURE x HALF CYCLE HOLDBACK x LESS FACE PLATE x (2) US26D MOGUL CYLINDERS x PC x GALV x TORX MS

2 EA.	RAISED PULL	SSCO #212C x US32D x TORX MS
1 EA.	CLOSER/DPS	LCN #2215 DPS x CONCEALED x AL x TORX MS
3 EA.	SILENCER	IVES #SR64 x GREY RUBBER SILENCER
1 EA.	WALL STOP	PORTLAND #PH760 x PRISON WALL STOP
1 EA.	THRESHOLD	PEMKO #2005AT 36"L x 5"W x 1/4"H x ALUM x THERMO SEAL x TORX MS
1 EA.	DOOR BOTTOM	PEMKO #315CR
1 EA.	WEATHER STRIP	PEMKO #315CN
1 EA.	ARMOR PLATE	48” HIGH x DOOR WIDTH STAINLESS STEEL ON PUSH SIDE (WHERE SCHEDULED)

DETENTION HARDWARE SET DH-7 GATE 2-WAY

1 EA.	LOCK	SOUTHERN STEEL 1050SD-2 SWINGING ELECTRO-MECHANICAL GATE LOCK
1 EA.	LATCH LUG	SOUTHERN STEEL 1050D GATE LATCH LUG FOR 2-WAY KEYING

ALL OTHER HARDWARE BY FENCING / GATE CONTRACTOR

END OF SECTION

SECTION 088853
SECURITY GLAZING

PART 1 GENERAL

1.1. SCOPE OF WORK

A. Security glazing shall include but is not necessarily limited to:
   1. Glass and glazing for security hollow metal windows.
   2. Glass and glazing for security hollow metal doors.

B. Provide security glazing manufactured by a single firm specializing in the production of this type of work.

1.2. REFERENCES

A. Glass Clad Polycarbonate sheet, meeting ANSI A97.1-1984 Safety Glazing Materials for Buildings; ASTM C1036 Standard Specification for Flat Glass; ASTM C 1048 Specification for Heat Treated Glass; ultraviolet stabilized; scratch resistant surface on surfaces indicated; thicknesses as indicated; tints as indicated; as manufactured by one of the following:
   1. Global Security Glazing
   2. Approved equal

PART 2 PRODUCTS

2.1. MATERIALS

A. SG-1 (non-rated locations) $^{9}/_{16}$" Clear Secur-Tem+Poly

2.2. GLAZING ACCESSORIES

A. Setting Blocks - Polycarbonate: Silicone, 70-90 shore "A" durometer hardness, compatible with polycarbonate.

B. Spacers - Polycarbonate: Silicone, 40-50 shore "A" durometer hardness, compatible with sealants and polycarbonate.

C. Glazing Sealant - Polycarbonate: Silicone sealant.
   1. Dow Corning No. 790
   2. Dow Corning No. 795
   3. Silpruf SCS 2000 by GE
   4. 864 by Pecora
   5. Spectrum 1 or 2 by Tremco

D. Glazing Tape: Polymerized butyl, pre-shimmed rubber tape, collect on release paper.
   1. 440 Tape by Tremco
   2. Extru-Seal by Pecora
   3. PTI 303 Glazing Tape by Protective Treatments, Inc.

PART 3 EXECUTION

3.1. SURFACE CONDITIONS

A. Examine premises before start of work and ascertain conditions as they actually exist.

B. Verify that other related work has been completed.

C. Examine glazing surfaces to ascertain that surfaces are dry, free of oils, waxes and foreign substances that will prevent quality application of glass.

D. Verify that glazing channels and glass are free of imperfections or damage that would prevent quality installation of glass.

E. Carefully field measure glass openings and provide minimum required tolerances and clearances.

F. Clean metal and glass surfaces free of foreign matter and coatings.

3.2. GLAZING

A. Do not install glass with edge damage.

B. Install glazing material and related glazing accessories in strict accordance with respective manufacturer's instructions, applicable procedures recommended in FGMA Glazing Manual and reviewed Shop Drawings. Provide watertight and airtight installation where exposed to weather. Provide airtight installation elsewhere for interior locations.

C. Verify size required prior to cutting or fabrication of glazing material.

D. Set and block glass to provide equal margins at perimeter, with glass not in contact with frames, and without springing. Install plumb, straight, square and level and in proper alignment with related work. Install securely to prevent rattling, breakage or displacement and yet allow for expansion and contraction. Maintain required clearance and support of glazing units in accordance with Shop Drawings and manufacturer's instruction.

E. Wet glaze metal frames and door lights with glazing tape or sealant.

F. Use sealing and glazing accessories in strict accordance with recommendations and instruction of manufacturer for condition applicable to this project. Select sealants and tapes of proven compatibility with other glazing materials.

3.3. ADJUSTING AND CLEANING

A. Check installed glazing material for looseness and weathertightness. Correct deficiencies.

B. Clean glazing material not more than 7 days prior to acceptance in accordance with applicable manufacturer's instructions and recommendations.
   1. Remove excess glazing sealants from installed glass.
   2. Remove labels from glass.
   3. Thoroughly wash and polish both faces of glass. Abrasive cleaners prohibited.

C. Remove debris from site

3.4. PROTECTION

A. Attach bright color crossed streamers away from glass face.

B. Replace broken, scratched, chipped or otherwise damaged glass

END OF SECTION

SECTION 125500
SECURITY FURNISHINGS
(By Owner)

PART 1 GENERAL

1.1. SCOPE OF WORK:

A. Owner shall:
   1. Furnish and install Security Furnishings indicated on drawings and in schedules.
   2. Furnish to the mason for installation, all embedded anchors for Security Furnishings.
   3. Coordinate installation of embedded items with the mason.

1.2. RELATED WORK: Specified Elsewhere:

A. 042000 - Masonry

B. 079200 - Joint Sealants

1.3. QUALITY ASSURANCE

A. Manufacturer's Qualifications: Manufacturers of security equipment shall be a nationally recognized firm specializing in the design and manufacture of the equipment as listed herein for a period of not less than ten (10) years.

1.4. SUBMITTALS

A. Make submittals in accordance with the requirements of Division 1 Section 013300.

B. An authorized representative of the contracting firm shall sign all submittals and shop drawings indicating conformance with plans and specifications before submitting to the Owner.

C. All submittals shall include adequate descriptive literature, catalog cuts, shop drawings and other data necessary for the Architect to ascertain that the proposed equipment and materials comply with the specification requirements. Catalog cuts shall be legible and shall clearly identify the equipment being submitted.

1.5. PRODUCT HANDLING

A. Comply with requirements of Division 1, Section 166000.

PART 2 PRODUCTS

2.1. SECURITY EQUIPMENT SCHEDULE

A. Acceptable Manufacturer of Security Furnishings:
   1. Claborne Manufacturing Co. –Hartselle, AL

2. Viking Products – Orange, CA
3. Bob Barker Company, Inc.
4. Creative Industries
5. C.R. Lawrence Co.
6. Tiffin Metal Products
7. Norix Furniture
8. Spacesaver
9. Majestic Solutions, Inc. – Madison, AL

B. Products by manufacturers other than those specified are acceptable provided they are equal in construction and dimensional requirements established by the product specified.

2.2. SECURITY FURNISHINGS

A. Detention Mirror
1. Construction:
   a. Mirror frame shall be 12½" wide × 16½" tall × ¼" deep
   b. One piece construction from 20-gauge Type 304 stainless steel (Lexan mirror optional)
   c. Mirror Finish #8
   d. Eight countersunk mounting holes for ¼" fasteners
   e. Provide where shown on plan. Where (2) is designated, install one above and one below to comply with Texas Accessibility Standards height requirements.

B. Floor Mounted Single Bunks
1. Construction:
   a. 10-gauge sheet bottom with front flanged down 2" and back flanged up 2" with minimum 1" hem. The ends of the bunks shall have a 2"×2"×$^{3}/_{16}$" steel angle turned up to form a part of the bunk legs.
   b. Bunk bottom shall have six (6) 1" diameter holes.
   c. Provided with four (4) 2"×2"×$^{3}/_{16}$" steel angle legs welded securely to bunk bottom pan.
   d. Angle legs to be provided with $^{3}/_{16}$" thick mounting pad at bottom of each leg for floor mounting.
   e. Size: 27" wide × 75" long × 18" tall
   f. Front edge of bunk to have from ⅜" to ¾" radius
   g. Provide Storage Shelf below bunk without rear closure.
2. Assembly of all steel parts of bunk shall be painted with one (1) shop coat of zinc chromate.

C. Detention Desk
1. Construction:
   a. Size of desk unit to be 1'-6" wide × 1'-6" deep with height of top 30".
   b. Desk top to be 12-gauge stainless steel flanged 1½" at front, back and sides. All edges and corners to be free of sharp edges. Top and seat to be smooth, true and level.

c. Provide 12" diameter detention stool at each desk. Refer to plan for swivel or fixed type.
d. One-piece, welded assembly; all welds neatly finished.

2. All steel components to be provided with one (1) shop coat of zinc chromate primer.

D. Detention Grab Bars
1. Construction
a. Constructed of 1½" diameter 18-gauge Stainless Steel.
b. ⅛" thick Stainless \Steel mounting plates with (3) $^{5}/_{16}$" holes for wall anchor/concealed mounting.
c. Provide 10 ga. closure plate at bottom gap between wall and grab bar with ¼" diameter holes for drainage.
d. Standard sizes include 24", 32", 36", 42", and 48".

E. Detention Stool – Wall Mounted
1. Construction
a. Stool seat shall be 12" diameter with 1½" flange, fabricated of 14-gauge stainless steel.
b. Provide ⅜"×4" steel bar arm seat support. Seat support shall be constructed of 2⅜" diameter iron pipe welded to a steel plate for seat reinforcement.
c. Provide anchor devices and security fasteners as detailed.
2. All steel components to be provided with one (1) shop coat of zinc chromate primer.

F. TV Enclosures
1. Approved manufacturer: ProEnc, LLC (862.234.5981)
2. Products:
a. CNL36 at Dayrooms.

2.3. SECURITY/DETENTION EQUIPMENT ACCESSORIES

A. Provide accessories, anchorage inserts, steel embeds and security fasteners for a complete tamperproof installation.

B. Exposed Security Fasteners:
1. Provide torx-head (star with center pin) security fasteners for anchoring work in exposed areas. Spanner or other types are not acceptable.
2. Provide tools for fastening devices.

PART 3 EXECUTION

3.3. GENERAL

A. Comply with requirements of other Divisions of theses Specifications.

3.4. INSTALLATION

A. Installation shall be by Owner.

3.5. FIELD QUALITY CONTROL

A. Comply with requirements of other Divisions of these Specifications.

3.6. ADJUSTMENT AND REPAIRING

A. Comply with requirements of other Divisions of these Specifications.

3.7. PROTECTION AND CLEANING

A. Comply with requirements of other Divisions of these Specifications.

END OF SECTION

SECTION 22 11 16

DOMESTIC WATER PIPING - PEX-A TUBING

PART 1 GENERAL

1.01 Summary

Section Includes: ASTM F876/F877 SDR9 crosslinked polyethylene (PEX-A) piping and ASTM F1960 cold-expansion fittings for use in potable water distribution and water service systems for buildings of any type construction allowed under the applicable code.

1.02 References

A. ASTM International
   1. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
   2. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials
   3. ASTM E814 Standard Test Method for Fire Tests of Through-Penetration Fire Stops
   4. ASTM F876 Standard Specification for Cross-linked Polyethylene (PEX) Tubing
   5. ASTM F877 Standard Specification for Cross-linked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems
   6. ASTM F1960 Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Crosslinked Polyethylene (PEX) Tubing
   7. ASTM D2765 Test Methods for Determination of Gel Content and Swell Ratio of Cross-linked Ethylene Plastics
   8. ASTM D6394 Specification for Sulfone Plastics (SP)

B. American Water Works Association - AWWA C904 Standard for Cross-linked Polyethylene (PEX) Pressure Pipe, ½ in. Through 3 in., for Water Service

C. American National Standards Institute (ANSI)/National Sanitation Foundation (NSF)
   1. ANSI/NSF Standard 14 Plastics Piping System Components and Related Materials
   2. ANSI/NSF Standard 61 Drinking Water System Components - Health Effects

D. American National Standards Institute (ANSI)/Underwriters Laboratories, Inc. (UL) - ANSI/UL 263 Standard for Safety for Fire Tests of Building Construction and Materials

E. Canadian Standards Association (CSA) - CAN/CSA B137.5 Cross-linked Polyethylene (PEX) Tubing Systems for Pressure Applications

F. International Code Council (ICC) - International Plumbing Code (IPC)

G. International Association of Plumbing Officials (IAPMO) - Uniform Plumbing Code (UPC)

H. National Association of Plumbing, Heating and Cooling Contractors (NAPHCC) - National Standard Plumbing Code (NSPC)

I. Plastics Pipe Institute (PPI) - PPI Technical Report TR-4/06

J. PEX Manufacturer
   1. Applicable Installation Guide
   2. Applicable Plumbing Design Manual

1.03 System Description

A. Design Requirements
   Standard grade hydrostatic pressure ratings from Plastics Pipe Institute (PPI) in accordance with TR-3 as listed in TR-4. The following three standard-grade hydrostatic ratings are required.
   1. 200°F (93°C) at 80 psi (551 kPa)
   2. 180°F (82°C) at 100 psi (689 kPa)
   3. 73.4°F (23°C) at 160 psi (1,102 kPa)

B. Performance Requirements: To provide a PEX-a potable water distribution and/or water service system, which is manufactured, fabricated and installed to comply with regulatory agencies and to maintain performance criteria stated by the PEX-a piping manufacturer without defects, damage or failure.
   1. Comply with ANSI/NSF Standard 14.
   2. Comply with ANSI/NSF Standard 61.
   3. Show compliance with ASTM F877.
   4. Show compliance with ASTM F876.
   5. Show compliance with ASTM E119 and ANSI/UL 263 through certification listings with Underwriters Laboratories, Inc. (UL).
   6. Show compliance with ASTM E84.
   7. Show compliance with ASTM E814.

1.04 Submittals

Product Data: Submit manufacturer's product submittal data and installation instructions.

1.05 Quality Assurance
Installer Qualifications: Use an installer possessing documentation proving successful completion of PEX plumbing installation training by the PEX piping manufacturer.

1.06 Delivery, Storage and Handling

A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged packaging with identification labels intact, or alternative, secure packaging provided by distributor.

B. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
   1. Store PEX piping in original packaging or under cover to avoid dirt or foreign material from being introduced into the piping.
   2. Do not expose PEX piping to direct sunlight for more than 30 days. If construction delays are encountered, provide cover to portions of piping exposed to direct sunlight.

1.07 Warranty

A. Piping system warranty shall apply to potable water distribution and water service systems constructed of pipe and fitting products sourced from the same manufacturer.

B. Manufacturer system warranty shall cover pipe and fittings for duration of 25 years.

PART 2 PRODUCTS

2.01 PEX-A Potable Water Distribution and Water Service Systems
Approved Manufacturer:

1. Uponor, Inc.
2. Or approved equivalent; subject to compliance with project and specification requirements.

2.02 Materials

A. Piping: ¼ inch through 3 inch nominal pipe size
1. SDR9 crosslinked polyethylene manufactured using the Engel method (PEX-a) Minimum degree of cross-linking shall be between 70-89% when tested in accordance with ASTM D2765, Method B.
2. Manufactured in accordance with ASTM F876 and ASTM F877 and tested for compliance by an independent, third-party agency.
Piping to have a minimum material designation of PEX 5106
3. Potable water piping shall comply with NSF 14 and NSF 61 and bear the “NSF-pw” marking
4. Temperature and pressure requirements in accordance with PPI TR-3: 73.4°F at 80psi, 180°F at 100psi and 200°F at 80psi.

B. Manufactured Joint: ⅜ inch through 3 inch nominal pipe size
1. ASTM F1960 cold-expansion fitting manufactured from the following material types
a. UNS No. C69300 Lead-free (LF) Brass
b. 20% glass-filled polysulfone as specified in ASTM D6394
c. Unreinforced polysulfone (group 01, class 1, grade 2) as specified in ASTM D6394
d. Polyphenylsulfone (group 03, class 1, grade 2) as specified in ASTM D6394
e. Blend of polyphenylsulfone (55-80%) and unreinforced polysulfone (rem.) as specified in ASTM D6394
2. Reinforcing cold-expansion rings shall be manufactured from the same source as PEX-a piping and marked “F1960”.
3. Potable water fittings shall comply with NSF 14 and NSF 61 and bear the “NSF-pw” marking.

C. Mechanical Joint: ¼ inch through 3 inch nominal pipe size
1. SDR9 compression-type fitting consisting of a nut, compression ring and insert.
2. Compression fitting shall comply with ASTM F877, NSF 14 and NSF 61.

D. Mechanical Joint: 1 inch through 3 inch nominal pipe size
1. SDR9 compression type fitting consisting of a double o-ring insert with a compression sleeve tightened around the pipe and insert.
2. Compression fitting shall comply with ASTM F877, NSF 14 and NSF 61.

2.03 Insulation

A. Insulate all hot and cold water piping above slab with closed-cell elastomeric insulation, 1" thick. Maximum thermal conductivity (K) to be 0.27 as tested by ASTM C-518.

B. Install insulation using factory pre-fabricated pipe fitting insulation of the same material and thickness at elbows, tees, and p-traps. All joints shall be glued, taped and sealed in strict accordance with Manufacturer's recommendation.

C. Insulate all exposed piping under all lavatories in the Restrooms with insulation designed for that purpose, such as by Truebro.

D. Where water lines must run below slab, all hot and cold water piping shall be insulated.

PART 3 EXECUTION

3.01 Manufacturer's Instructions

Comply with manufacturer's product data, including product technical bulletins, design drawings and installation manuals.

END OF SECTION

SECTION 22 11 17

DOMESTIC WATER PIPING - PEX-B TUBING

PART 1—GENERAL

1.1 DESCRIPTION

This section governs for hot and cold water PEX-B tubing, inside building, under foundation, in walls, and within 5 feet of building.

1.2 REFERENCES

1. ASTM F876 specification for Cross-linked Polyethylene (PEX) tubing
2. ASTM F877 specification for Cross-linked Polyethylene (PEX) plastic hot and cold water distribution systems.
3. ASTM F2023 test method for evaluating the oxidative resistance of Cross-linked (PEX) tubing and systems to hot chlorinated water.
4. ASTM F1807 specification for metal insert fittings utilizing a copper crimp ring for SDR9 Cross-linked Polyethylene (PEX) tubing
5. ASTM F2159 specification for plastic insert fittings utilizing a copper crimp ring for SDR9 Cross-linked Polyethylene (PEX) tubing
6. NSF 14 – plastic piping component and related materials
7. NSF 61 – drinking water system components – health effects
8. AWWA C651 standard for disinfecting water mains
9. ICC International Plumbing Code
10. ICC International Mechanical Code
11. NAPHCC National Standard Plumbing Code

PART 2—PRODUCTS

2.1 PEX TUBING

The PEX tubing system shall comply with the following.

1. The fittings and tubing shall all be from the same manufacturer. The tubing, fittings, and clamps shall all have been tested and certified as a system.
2. The tubing shall be manufactured to ASTM F876/877 standards and listed to ANSI/NSF Standards 14 and 61. All tubing shall be listed to the minimum chlorine resistance standard CL-TD and the CL-R listing. All tubing shall have CL-R listing stenciled onto the tubing.
3. In the event tubing is installed in a plenum, the tubing shall have the ASTM E84 listing, and this shall be stenciled directly on all tubing installed into the plenum.
4. All fittings shall have the water contact surface made bronze.
5. The installers shall all be trained by the manufacturer for the system being used and shall adhere strictly to the published guidelines of that manufacturer.

2.2 FITTINGS

1. PEX Press fittings shall be manufactured from UNS C83600, C87700, or C87710 Bronze and shall meet the requirements of ASTM F877 tested as a system with the tubing. The PEX press sleeve shall be manufactured out of a 304 grade or better stainless steel.

2. Copper press fittings 1/2" to 2" shall have press surface on each side of the seal (no outboard seals allowed). Fittings 2-1/2" – 4" shall have a SS grip ring to maximize the mechanical strength of the connection.
3. Copper press fittings for potable water shall have "NSF 61" stamped onto the fittings to confirm compliance.
4. Fittings from various manufacturers shall not be mixed. The fittings shall all be from the same manufacturer, and the fitting tool used shall be recommended by the fitting manufacturer.
5. The installation instructions of the manufacturer shall be strictly adhered to, and the installers shall be specifically trained on the fitting system being used.

2.3 UNIONS

Provide wherever necessary for removal of equipment, valves, etc. Ground joint brass construction.

2.4 FLANGES

Where required, companion flanges with brass nuts and bolts.

2.5 AIR CHAMBERS/SHOCK ABSORBERS

Provide 18-inch long air chambers at each water connection to fixtures, or approved shock absorbers with access. Install per PDI recommendations.

2.6 INSULATION

1. Insulate all hot and cold water piping above slab with closed-cell elastomeric insulation, 1" thick. Maximum thermal conductivity (K) to be 0.27 as tested by ASTM C-518.
2. Install insulation using factory pre-fabricated pipe fitting insulation of the same material and thickness at elbows, tees, and p-traps. All joints shall be glued, taped and sealed in strict accordance with Manufacturer's recommendation.
3. Insulate all exposed piping under all lavatories in the Restrooms with insulation designed for that purpose, such as by Truebro.
4. Where water lines must run below slab, all hot and cold water piping shall be insulated.

PART 3—EXECUTION

3.1 Cross-linked Polyethylene tubing shall be cut with a PEX tubing cutter. The tubing shall be cut squarely and neatly to permit a proper connection between the tubing and fitting.

3.2 Pressure Rating: Install components having a pressure rating equal to or greater than the system operating pressure.

3.3 Install PEX tubing that is free of blemishes, cuts, gouges, kinks or noticeable fading of color.

3.4 Changes in Direction: PEX tubing shall not exceed an eight times the tubing outside diameter (OD) free bend radius or a five times the tubing OD supported bend radius, with use of a manufacturer approved bend support. Install fittings for changes in direction where any minimum bend radius is exceeded and branch connections.

3.5 PEX Connections: Bronze PEX Press fittings shall be made in accordance with the manufacturer's installation instructions.

3.6 Threaded Joints: Threaded joints shall have a potable water listed joint sealant tape applied to the male threads only. Tighten joint with a wrench and backup wrench as required.

3.7 PEX Tubing Protection: Protect PEX tubing from exposure to direct and indirect sunlight exposure. PEX tubing shall be stored under cover, shielded from direct and indirect sunlight when material is stored for any length of time.

3.8 Penetration Protection: Provide allowance for thermal expansion and contraction of PEX tubing passing through a wall, floor, ceiling or partition by wrapping with pipe insulation, or by installing through an appropriately sized sleeve. Penetrations of fire resistance rated assemblies shall maintain the rating of the assembly.

3.9 Horizontal Support: PEX tubing must be supported every 32" horizontally with approved suspension clips or plastic insulators.

3.10 Vertical Support: PEX tubing must be supported at each floor or ceiling penetration and every four feet in between.

3.11 Field Quality Control

1. Water Testing: The PEX tubing system shall be pressure tested in accordance with local code after installation or to at least minimum system working pressure, no less than 40 psi, and for a period of no less than 15 minutes. Water used for this testing shall come from a potable water source. Test should not exceed pressure rating of PEX tubing and shall have no leaks.
2. Air Testing: In lieu of a water test, the PEX tubing system shall be air tested in accordance with local code after installation, or at least system working pressure, no less than 40 psi and no greater than 100 psi. The test shall be conducted for a period of no less than 15 minutes and shall have no leaks.

3.12 Cleaning Disinfection: The PEX hot and cold water distribution system require system disinfection. Follow the time limitations and exposure levels listed below:

1. Flush the system with potable water until discolored water does not appear at any of the outlets.
2. Fill the system with a water chlorine solution containing at least 50 parts per million of chlorine. The system shall be valved in the closed position and to stand for 24 hours. Alternatively, the system shall be filled with water chlorine solution containing at least 200 parts per million of chlorine. The System shall be valved in the closed position and allowed to stand for 3 hours.
3. Following the standing time, the system shall be flushed with water until the chlorine is purged from the system.

3.13 Each of the tubing systems shall be concealed in chases and above ceilings and in walls in all finished areas and shall be run exposed only as specifically specified or as shown on the Drawings in machinery spaces or unfinished areas.

3.14 Exposed tubing shall be held close to the walls and ceilings and necessary fittings shall be provided and installed to allow for offsets to hold the tubing close to wall and ceilings. Where these lines run exposed a clearance shall be obtained from the Architect in writing before making the installation.

3.15 All valves shall be so located as to make the removal of their bonnets possible. All flanged valves shown in the horizontal positions shall be mounted with valve stem inclined one bolt hole above the

horizontal lines shall be “made-up” with valve stem inclined at an angle of thirty (30) degrees above the horizontal position. All valve stems must be true and straight at the time the system is tested for final appearance.

3.16 Tubing shall be cut accurately to measurements established at the site and worked into place without springing or forcing.

3.17 Provide clearance for installation of insulation and for access to valves, air vents, drain, and unions.

3.18 Locate and suspend tubing in such a manner so as to minimize transmission of vibration and noise. Follow manufacturer’s recommendations.

3.19 All tubing penetrations through fire rated ceilings, walls, or floors shall be fire stopped using approved materials to maintain the fire rating of the ceiling, wall, or floor structure.

3.20 All tubing connections to equipment and fixtures shall contain flanges or unions to allow easy removal whether or not shown on plans.

3.21 To the greatest extent possible run all water tubing above the slab.

3.22 Pitch all water tubing to a drainable location; make all tubing drainable.

3.23 Buried water tubing and piping shall be a minimum of 24” deep, bedded in sand. Follow the manufacturer’s instructions as regard buried tubing.

END OF SECTION

SECTION 22 11 18

DOMESTIC WATER PIPING - COPPER TUBING

PART 1—GENERAL

1.1 DESCRIPTION

This section governs for hot and cold water piping, inside building, under foundation, in walls, and within 5 feet of building.

PART 2—PRODUCTS

2.1 TUBING

Copper water tube with outside diameter 1/8-inch greater than nominal size. Type L hard copper above slab unless otherwise noted conforming to ASTM B88. Piping below slab shall be Type K soft copper to a point 12" A.F.F. – no joints in tubing below slab.

2.2 FITTINGS

A. Solder pattern, seamless wrought copper or cast bronze, furnished by the same manufacturer as tubing.

B. Joints and fittings not permitted under foundation or slab.

C. No solder containing lead shall be used.

D. Dielectric insulating couplings shall be provided between ferrous and copper piping systems.

E. Water piping connections to fixtures or equipment shall be made by use of brass pipe or nipples, chrome plated where exposed to view in finished areas, screwed into copper to IPS adaptor fittings. Ferrous piping connections shall not be used in copper piping systems.

F. For screwed connections, use adapter and Teflon tape on male threads.

2.3 UNIONS

Provide wherever necessary for removal of equipment, valves, etc. Ground joint brass.

2.4 FLANGES

Solder and companion flanges with brass nuts and bolts.

2.5 SOLDER

95% tin and 5% antimony solder, having a melting point of not less than 460° F. All flux shall conform to ANSI/NSF 61 for water distribution systems.

2.6 WATER HAMMER ARRESTORS

Provide water hammer arrestors conforming to the requirements of ASSE 1010 with access. Install per manufacturers instructions and PDI recommendations.

2.7 INSULATION

Insulate all hot and cold water piping above slab with 1" thick, molded fiberglass with a maximum thermal conductivity (K) of 0.27, as tested by ASTM C-518. Install insulation with mitered corners to fit the piping. This insulation material shall be furnished with a “universal” white vapor barrier jacket with flap. All jacket materials shall be factory applied. All joints shall be taped and sealed with all service jacket insulation facing tape UL listed meeting HHB-100B. Provide PVC covered fitting insulation at all fittings and valves. Insulate all exposed piping under all lavatories in the Restrooms with insulation designed for that purpose, such as by Truebro. Where water lines must run below slab, all hot and cold copper water piping shall be insulated with thermacel seam seal polyethylene foam insulation and taped at all joints with 20 mil butt joint tape.

PART 3—EXECUTION

3.1 Cut ends with tool cutter, remove burrs, and shall ream pipe ends.

3.2 Clean all ends and apply flux before soldering.

3.3 Thoroughly clean all soldered joints before the application of the solder. Cut pipe square with burrs removed, and shall ream pipe ends.

3.4 Each of the piping systems shall be installed to provide for expansion and contraction and the joints shall be soldered at such time that the system is not under strain.

3.5 Each of the piping systems shall be concealed in chases and above ceilings and in walls in all finished areas and shall be run exposed only as specifically specified or as shown on the Drawings in machinery spaces or unfinished areas.

3.6 Exposed piping shall be held close to the walls and ceilings and necessary fittings shall be provided and installed to allow for offsets to hold the piping close to wall and ceilings. Where these lines run exposed a clearance shall be obtained from the Architect in writing before making the installation.

3.7 All valves shall be so located as to make the removal of their bonnets possible. All flanged valves shown in the horizontal positions shall be mounted with valve stem inclined one bolt hole above the horizontal lines shall be “made-up” with valve stem inclined at an angle of thirty (30) degrees above the horizontal position. All valve stems must be true and straight at the time the system is tested for final appearance.

3.8 Pipe shall be cut accurately to measurements established at the site and worked into place without springing or forcing.

3.9 Provide clearance for installation of insulation and for access to valves, air vents, drain, and unions.

3.10 Locate and suspend piping in such a manner so as to minimize transmission of vibration and noise.

3.11 Isolate all bare copper pipe from ferrous supports or sleeves using non-metallic sheeting (1/16” minimum thickness) that wraps completely around pipe’s circumference and with a width of at least 2” wider than width of pipe support or pipe sleeve length. Tape is not an acceptable isolator.

Secure sheeting in place on piping w/multiple 40 lb. tensile force (min. rating) plastic cable ties.

3.12 All piping penetrations through fire rated ceilings, walls, or floors shall be fire stopped using approved materials to maintain the fire rating of the ceiling, wall, or floor structure.

3.13 All piping connections to equipment and fixtures shall contain flanges or unions to allow easy removal whether or not shown on plans.

3.14 To the greatest extent possible run all water piping above the slab.

3.15 Pitch all water piping to a drainable location; make all piping drainable.

3.16 Buried water piping shall be a minimum of 24” deep, bedded in sand.

END OF SECTION

SECTION 22 13 16

SANITARY WASTE AND VENT PIPING

PART 1—GENERAL

1.1 WORK INCLUDED

A. Furnish and install piping in buildings and underground lateral lines.

1.2 REFERENCES

A. ASTM B88 Seamless Copper Water Tube

B. AWS A5.8 Brazing Filler Metal

C. AWWA C601 Standard Methods for the Examination of Water and Waste Water.

1.3 REGULATORY REQUIREMENTS

A. Perform work in accordance with State and Local plumbing codes

B. TCEQ.

PART 2—PRODUCTS

2.1 DRAIN, WASTE, AND VENT PIPING

A. Drain, waste and vent piping below grade, below slab, and above slab shall be PVC Sch 40, Type I, DWV, ASTM D-2665, 1120, 160 psi at 73 degrees F pipe and fittings. Solvent cement shall meet ASTM No. D-2564 for PVC-DWV plastic pipe and pipe fittings.

B. Trap Primer/Trap Guard – At floor drains, hub drains and other locations where trap primers are required, “ProSet – Trap Guard” may be used in lieu of trap primers if allowed by the local jurisdiction.

C. Soil lines 5 ft. and more outside building shall be SDR 35 PVC pipe.

D. Drain piping from Student Laboratory tables shall be CPVC certified for Chemical Waste Drainage Systems (per IAPMO IGC 210 & ICC-ES PMG-1018) equal to that manufactured by Spears Manufacturing (LabWaste CPVC Corrosive Waste Drainage Systems).

E. Roof Jacks - Provide "Deck Tight" flashing at all round roof penetrations.

F. Air Admittance Valves – if allowed by the local jurisdiction provide Studor, Inc. TEC-VENT air admittance valves may be used; otherwise, vent through the roof.

PART 3 – EXECUTION

3.1 GRADE

A. Slope horizontal pipe grade of ¼" per foot where possible, but not less than latest edition of applicable Plumbing Code requirements, unless otherwise shown.

3.2 DRAIN PIPE AND FITTINGS

A. Offsets and fittings
1. Use reduction fittings to connect two pipes of different diameter
2. Change directions by appropriate use of 45 degree wyes, long-sweep quarter-bends and sixth, eights, and sixteenth bends. Sanitary tees can be used on vertical stacks. Use long sweeps at the base of risers.
3. Provide separate trap at each fixture, unless a trap is built into the fixture. Provide a deep seal trap at each floor drain and hub drain. Place traps so that the discharge from any fixture will pass through only one trap before reaching a building drain.

B. Hub Drains. Install hub drains where indicated, with the top of the hub ½" above the finished floor or plenum, unless otherwise indicated on the drawings.

C. Cleanouts.

1. Install cleanouts the same size as the soil waste lines in which the cleanouts are placed; however, no cleanout should be larger than 4" in diameter.
2. Where cleanouts occur in pipe chases, bring the cleanouts through the walls and install covers. Where cleanouts occur in floor slabs, set flush.
3. Provide cleanouts where soil lines change direction, every 50" on long runs, or as shown on the drawings, at the end of each continuous waste line, and at the base of each riser.

D. Floor Drains. Locate floor drains ½" below finish floor elevation unless otherwise shown.

3.3 VENT PIPING

A. Make vent connections to vent stacks with inverted wye fittings. Extend full-size vents through the roof to at least 8" above the roof. Offset penetrations to be in the **middle** of the roof panel, avoiding the standing seam.

B. Flashing shall comply with the roofing manufacturer's requirements.

C. Install air admittance valves (see Section 2.1F above) a minimum of 4 inches above the horizontal branch drain or fixture drain being vented. Install in an upright position. Extend a minimum of one vent to open atmosphere for each building drainage system. Connect valves to piping per Manufacturer's instructions.

3.4 TESTING

A. Below Floors
1. Test pipe below floors before backfilling and connecting to sewers.
2. Maintain not less than 10' of hydrostatic head for 30 minutes without a leak. Bleed off all air before testing.

END OF SECTION

SECTION 22 42 00

COMMERCIAL PLUMBING FIXTURES

PART 1—GENERAL

PART 2—PRODUCTS

2.1 FIXTURES

A. American Standard fixtures and figure numbers are scheduled on the project drawings, given as a guide. Similar fixtures by Elkay, Kohler, or Eljer, will be acceptable, subject to the approval of Architect/Engineer. Contractor shall submit brochures with cuts of proposed fixtures, etc., to Architect/Engineer for approval.

B. All fixtures shall be the best of their respective makes and shall be properly stored and handled, carefully uncrated, and set in place. On completion, fixtures shall be thoroughly cleaned with soap and water, adjusted and left in readiness for use. The Contractor shall assume all responsibility for the protection of all fixtures to insure that same shall be in good condition on job completion.

C. All fixtures shall be plainly marked with the manufacturer's name or trade mark for purposes of identification. All fixtures must bear a seal to show conformance to ANSI/NSF 61.

D. Exposed metal parts of all fittings, unless otherwise noted, shall be polished chrome finish on nickel plated brass.

2.2 FIXTURE SCHEDULE: REFER TO DRAWINGS

A. Water Closets: As Scheduled on drawings.

B. Lavatories: As Scheduled on drawings.

C. Urinals: As Scheduled on drawings.

D. Sinks: As scheduled on drawings.

E. Electric drinking Fountain: As scheduled on drawings.

F. Water Heaters: As scheduled on drawings.

G. Wall Hydrant: As scheduled on drawings.

2.3 CLEANOUTS

A. Cleanouts shall be furnished for various locations as noted below, similar and approved equal to Zurn catalog numbers.

B. Finished area: Walls - Z-1441 cleanout with cast iron frame and 5" cover secured with tamper-proof screws. Floors - ZN-1400 cleanout with nickel bronze frame and cover secured with tamper-proof screws.

C. Unfinished Area Z-1400 cleanout with non-slip vandal proof cover; cover to have anchoring lugs. Where not located in pavement, cleanouts shall be set in concrete pad 6" thick, flush with finished grade, 18" square and finished smooth on top.

D. Cleanouts that comply with the specification except for the lead seal as manufactured by Wade, J.R. Smith, Tyler, or Josam are acceptable. All cleanouts shall have brass plug.

2.4 FLOOR DRAINS

Furnish and install floor drains as shown on the drawings. Drains shall be provided with deep seal "P-traps". Floor drain shall be Zurn Model Z-415-N in unfinished areas and Model Z-415 in finished areas, with heel-proof grate and vandal proof screws or equal by Josam, J.R. Smith, or Wade.

2.5 HOSE BIBB

Hose Bibb shall be furnished where noted on drawings. Unless noted otherwise on plans, provide chrome plated, removable key, with integral vacuum breaker, 3/4-inch threaded outlet, flanged 3/4-inch I.P.S. female inlet; Chicago Faucet Company Model #952 or approved equal.

PART 3 – INSTALLATION

3.1 A. All rough-in pipe openings, for final connections with all supply waste soil and vent systems shall be closed with cops or plugs during early stages of construction and installation. Tape shall not be considered sufficient protection.

B. Plumbing fixtures shall be supported by a concealed chair carrier where required to properly support the fixture specified. Carrier shall have a cast iron block type foot support with pipe uprights. Wade, Zurn or Josam or approved equal will be acceptable. All carriers to be securely mounted, bolted, and checked prior to concealment.

C. Caulk around fixtures with best grade white caulking. Do not use grout.

D. All handles on supply and drainage fittings or other brass items shall be properly lined up and adjusted. Fittings shall not be left in any haphazard manner.

E. All fixtures shall have individual cut-off stops on supply lines. Where same are not specified as a part of the fixture trim, they shall be installed as close to fixtures as possible in the hot and cold water supply.

F. Water heater flues shall be ANSI, Type “B”, double wall pipe, sized in accordance with manufacturer’s recommendations and installed in accordance with local codes and/or the Standard Gas Code. Flue cap shall be by the same manufacturer as the flue pipe.

END OF SECTION

SECTION 23 00 00

HEATING, VENTILATION AND AIR CONDITIONING

PART 1—GENERAL

1.1 DESCRIPTION

This Section governs for furnishing and installing complete heating and air conditioning systems including ventilation.

1.2 RELATED SECTIONS

Requirements of this Section must also comply with the following sections:
01 73 19 - Installation – Mechanical
23 30 00 - HVAC Air Distribution

1.3 SCOPE

This contract includes furnishing of all necessary supervision, labor, material, tools and equipment required to install a complete heating and air conditioning system in accordance with the accompanying drawings. The systems include, but are not limited to:

A. Automatic temperature control systems for each unit.

B. Exhaust Fans and Exhaust and Intake Grilles & Louvers as shown.

C. Ductwork as shown, including vibration isolation, fire dampers, turning vanes, splitters, balancing dampers, access doors, grilles, registers and diffusers, and insulation.

D. All required refrigerant tubing, drain piping, insulation, conduit, wiring, transformers, cabinets, relays and contactors to provide complete and working systems.

NOTE: SEE ALSO SPECIFICATION "23 75 13 AIR HANDLERS FOR HYDRONIC SYSTEMS".

1.4 CODES, PERMITS AND ORDINANCES

Work to be executed in accordance with all local or state codes and regulations, applicable to the particular class of work. The Contractor shall hold a valid Texas Air Conditioning Contractor's License. The Contractor shall pay all applicable service charges, fees, permits, royalties, taxes and other similar costs. If the drawings or specifications are at variance with the above-mentioned codes and regulations, the Contractor shall promptly notify the Architect in writing. If the Contractor performs any work that is contrary to such codes and regulations, he shall bear all costs required to correct the work.

1.5 DRAWINGS AND COORDINATION

The drawings show the work intended, and reasonable care has been taken to prevent interference between the trades. However, the Contractor shall examine all drawings and coordinate his work with that of the other Contractors on the job so that there will be no delay in the proper installation and completion of the work. If, during the course of construction, any such discrepancies are noted, the Contractor shall promptly report them to the Architect.

1.6 SUBMITTALS

Provide 6 sets for approval of the following items:

A. Provide manufacturer's cut sheets of all schedules equipment and other major items as required by the specifications. Clearly mark each item by tag number if applicable and indicate sizes, capacities, etc., to allow verification of conformance to the project requirements. Failure to do so can be cause for rejection.

B. Shop drawings showing details of proposed installation with interface of ducts and other equipment, if different than shown on project drawings.

C. Complete Operating and Maintenance manuals for all equipment, including installation and startup information.

1.7 QUALITY CONTROL

The manufacturer and model numbers shown on equipment schedules on the project drawings are shown to establish a minimum quality standard. Any substitutions must be furnished with all items that are furnished as standard for the scheduled item.

1.8 GUARANTEE <S> <OM>

Unless otherwise noted above, all parts, equipments, and workmanship shall be guaranteed for a period of one year from the date of substantial completion. The compressors, condensing unit parts and air handling unit/furnace parts (including evaporator coil) shall carry an additional four (4) years PARTS ONLY manufacturer's warranty for a total parts only warranty of five (5) years from the substantial completion date. Furnaces shall carry manufacturer's standard extended (9-year) heat exchanger warranty.

1.9 WORKMANSHIP

All work shall be performed in a workmanlike manner and shall present a neat appearance when completed. All materials shall be of the same type, quality, and rating as prescribed in the specifications or on the plans. Where materials and equipment are indicated by manufacturer's name, type, model or catalog number, such items are descriptive and approved equal products will be acceptable.

1.10 CUTTING AND PATCHING

The Contractor shall perform all cutting and patching required for the introduction and placement of his work. To perform all patching work, he shall employ men who are skilled in the particular trade involved. The Contractor at his expense shall do cutting and patching required as a result of the omission of an opening in construction.

1.11 PROTECTION OF WORK

The Contractor shall protect his work at all times from damage by freezing, breakage, dirt, foreign materials, etc. and shall replace all work so damaged. The Contractor shall use every precaution to protect the work of others, and he will be held responsible for all damage to other work caused by his work or through the neglect of his workmen.

1.12 CLEAN UP

The Contractor shall at all times keep the premises free from accumulation of waster materials or rubbish caused by his employees at work. Upon completion of the work, the Contractor shall remove all surplus materials, tools, etc. and shall leave the premises “broom clean”.

PART 2—PRODUCTS

2.1 EQUIPMENT

A. To the maximum extent possible, provide equipment from a single manufacturer.

B. All heating and cooling equipment installed shall meet the minimum efficiency requirement of the latest edition of ASHRAE/IES 90.1 Energy Code for Commercial and High-Rise Residential Buildings.

2.2 EXHAUST FANS <S> <OM>

A. Furnish and install all exhaust fans as schedule on the project drawings. Provide all accessory items shown on the schedule.

B. Acceptable manufacturers are Dayton, Loren Cook, Penn Ventilator Co., Acme, Carnes, Greenheck, and Twin City. All fans shall meet or exceed the performance requirements listed, and shall be approved by the manufacturer for the type of service required. All fans shall be equipped with disconnects. Direct drive exhaust fans shall also be equipped with speed controllers, and backdraft dampers.

C. All units shall be U.L. listed and labeled, shall carry the AMCA seal, certified for air and sound (AMCA 211 and 311).

PART 3—EXECUTION

3.1 DUCTWORK & INSULATION

This work is covered under Section 15890 or Section 15891.

3.2 PIPING INSULATION

Insulate refrigerant suction lines with closed-cell insulation equal to Rubatex Insul-tube 180 or Armstrong “AP Armaflex.” Insulate refrigerant suction lines with closed-cell insulation equal to Rubatex Insul-tube 180 or Armstrong “AP Armaflex.” Lines less than 1” diameter shall be insulated with ½” thick insulation minimum. Lines 1” dia and larger shall be insulated with 1” thick insulation. Paint all closed-cell insulation exposed to sunlight with two coats of Armstrong type “WB” finish, or equal. All pipe insulation joints shall be sealed with Armstrong #520 adhesive, or equal. Taping of pipe insulation joints is not permitted.

3.3 PIPING SUPPORTS

A. Anchors and supports shall be installed in accordance with ASHRAE standards. All piping shall be anchored and supported in such a way that thermal expansion and contraction does not damage either the piping or the building. Anchors and supports shall be specifically compatible with the materials to which they are attached.

B. All piping 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 supports shall not be permitted. Spacing of pipe supports shall not exceed 8 ft. for pipes up to 1-1/4" and 10 ft. on all other piping. Hangers shall pass around the insulation and an 18 gauge steel protective band, 12" long, shall be inserted between the hangers and the insulation.

C. Support exterior refrigerant piping using galvanized "unistruts" with tie downs. Do not allow bare copper tubing to contact the galvanized support, but provide an aluminum shield or saddle under the piping. Do not "skip" the piping insulation at support tie-downs but provide continuous insulation under the tie down. Where straps or ties are used to bundle the piping, provide sheet metal shields to prevent the insulation from being crushed. The use of "duct" tape for any reason is prohibited.

3.4 CONDENSATE PIPING

Condensate drain piping shall be fabricated from schedule 40 PVC and supported in accordance with local codes. Insulate condensate drain lines with 3/8" wall closed cell insulation equal to Rubatex Insul-tube 180. Condensate from units shall discharge into a hub drain furnished by the plumbing contractor as shown on the PLUMBING PLANS and details. **No PVC piping shall be present in any return air plenum or platform.** Provide p-trap with vacuum breaker and clean-outs at all condensate drain connections. Provide float lockout switch in the pan to shut down the unit in the event of an overflow condition.

3.6 GRILLES, REGISTERS, DIFFUSERS, FIRE DAMPERS & RELIEF DAMPERS <S>

This work is covered under Section 23 30 00.

3.7 LOUVERS <S>

This work is covered under Section 23 30 00.

3.8 CONTROLS AND SAFETIES <S> <OM>

A. Furnish and install a complete, low voltage (24 VAC) control system for each unit. The HVAC Contractor is responsible for all control work, including all wiring and conduit, which must be installed in accordance with Section 16 of the specifications. Condensing unit control wiring shall be routed parallel to the associated refrigerant tubing. Tie-strap loose control wires to the refrigerant tubing.

B. Furnish and install a U.L. listed duct-mounted firestat with factory setting of 135F, for units delivering 2000 cfm or less, to shut down the blowers when fire is detected.

C. Furnish and install Wi-Fi 7-day programmable thermostats Honeywell Vision Pro Model TH8321WF1001 Wi-Fi thermostat.

D. Furnish and install Wi-Fi 7-day programmable thermostats Honeywell Vision Pro Model TH8321WF1001 Wi-Fi thermostats. Thermostats shall be configurable for 1-stage cooling/1-stage heating or 2-stage cooling/2-stage heating with auxiliary contact for the outside air damper, and with keypad lock-out feature. Note: If units have dehumidification capability provide Manufacturer's recommended 7-day programmable thermostat/humidistat with a dehumidification mode. **Note: If thermostat/humidistat does not have auxiliary contacts to control outside air damper actuator, provide and install control relays as required for outside air damper actuation.**

E. Thermostats shall be mounted where shown on the Mechanical Plans at 48" AFF. Thermostats in public areas shall have locking access panel or clear plastic locking cover, except in schools, where metal covers are required. All covers must be keyed the same.

F. Provide remote space sensor when shown on the plans. Tie the sensor to the thermostat to provide “average” temperature control of the heating/cooling unit.

G. Each motorized outside air 24V damper will be controlled by the thermostat to remain closed during the unoccupied periods, even if the fan cycles on for night-set back. During the occupied period, interlock the outside air damper to the supply air fan so the damper will open when the fan is running. When CO2 demand control ventilation is included, interlock the outside air damper with both the CO2 monitor and the thermostat such that during the occupied period the outside air damper opens only when both the unit is running and the CO2 monitor calls for fresh air. Where CO2 monitors are shown on plans, HVAC Contractor shall furnish & install a 24V CO2 monitor <S>, powered from equipment’s electrical system, and all required associated wiring and interconnections; refer to Plans for locations. **Note: For DOAS systems, equipment, as provided by the Mfgr, shall comply with the IECC Energy Code (i.e., outdoor air intake dampers shall be configured to close when the systems are not in use; no additional motorized dampers are required.**

H. Label thermostats with the number of the unit controlled. Labels shall be engraved plastic laminate tags glued to the equipment with letters on the tags at least 1/4" high.

I. The Contractor shall furnish and install all contactors, transformers and relays required to provide a complete and working system. All control wiring shall be color-coded using a minimum of 18-gage wire. All exposed control wiring shall be in conduit. All enclosures shall be suitable for the location where installed.

3.9 FILTERS

A. Provide 2 complete sets of filters for all furnaces and air handling units. After substantial building construction is complete and prior to final air balancing, replace the first set of filters with clean filters.

3.10 TESTING AND BALANCING <S>

A. Contractor will employ services of a qualified independent firm to perform testing, adjusting, and balancing. To be approved by Architect/Engineer. Work does not have to be performed by an individual certified by the AABC (American Air Balance Council).

B. Furnish complete documentation of start-up and checkout including refrigerant system temperature and pressure data, electrical data and air balance.

All work shall be performed by an individual experienced in equipment start-up and air balancing.

NOTE: REFRIGERANT SHALL BE HANDLED ONLY BY EPA CERTIFIED TECHNICIANS. THE CONTRACTOR SHALL FURNISH DOCUMENTATION OF THIS CERTIFICATION TO THE Architect/Engineer BEFORE STARTING WORK.

C. Reports will be submitted by the independent firm to the Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

D. Cooperate with independent firm, furnish assistance as requested.

E. Re-testing required because of non-compliance to specified requirements will be "charged to the Contractor".

F. All air volumes shall be adjusted to equal those shown on the drawings +/- 5%. A detailed report, showing the air volumes at each grille, register, diffuser, relief damper and exhaust fan, plus start-up values for all motor bearing equipment furnished under this section of the specifications, shall be submitted to the Architect/Engineer for review and approval.

3.12 OPERATION AND MAINTENANCE MANUALS

A. Submit two copies of the Operation and Maintenance (O & M) Manual to the Architect/Engineer. O & M Manuals shall include repair procedures, replacement parts information on each piece of equipment, start-up information and warranties.

END OF SECTION

SECTION 23 07 19
HVAC PIPING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Insulation Materials:
a. Flexible elastomeric.
b. Mineral fiber.
2. Insulating cements.
3. Adhesives.
4. Mastics.
5. Sealants.
6. Factory-applied jackets.
7. Field-applied fabric-reinforcing mesh.
8. Field-applied jackets.
9. Tapes.
10. Securements.
11. Corner angles.

B. Related Sections include the following:
1. Division 21 Section "Fire-Suppression Systems Insulation."
2. Division 23 Section "HVAC Insulation."

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings:
1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
2. Detail insulation application at pipe expansion joints for each type of insulation.
3. Detail insulation application at elbows, fittings, flanges, valves, and specialties for each type of insulation.
4. Detail removable insulation at piping specialties, equipment connections, and access panels.

C. Field quality-control reports.

1.3 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Insulation and related materials shall have fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing and inspecting agency.
1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Comply with requirements in Part 3 schedule articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

F. Flexible Elastomeric: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Grade 1, Type I for tubular materials and Type II for sheet materials.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Aeroflex USA Inc.; Aerocel.
      b. Armacell LLC; AP Armaflex.
      c. RBX Corporation; Insul-Sheet 1800 and Insul-Tube 180.

G. Mineral-Fiber, Preformed Pipe Insulation:
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Fibrex Insulations Inc.; Coreplus 1200.
      b. Johns Manville; Micro-Lok.
      c. Knauf Insulation; 1000 Pipe Insulation.
      d. Manson Insulation Inc.; Alley-K.
      e. Owens Corning; Fiberglas Pipe Insulation.
   2. Type I, 850 deg F Materials: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 547, Type I, Grade A, with factory-applied ASJ. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

H. Mineral-Fiber, Pipe and Tank Insulation: Mineral or glass fibers bonded with a thermosetting resin. Semirigid board material with factory-applied FSK jacket complying with ASTM C 1393, Type II or Type IIIA Category 2, or with properties similar to ASTM C 612, Type IB. Nominal density is 2.5 lb/cu. ft. or more. Thermal conductivity (k-value) at 100 deg F is 0.29 Btu x in./h x sq. ft. x deg F or less. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. CertainTeed Corp.; CrimpWrap.
      b. Johns Manville; MicroFlex.
      c. Knauf Insulation; Pipe and Tank Insulation.
      d. Manson Insulation Inc.; AK Flex.
      e. Owens Corning; Fiberglas Pipe and Tank Insulation.

2.2 INSULATING CEMENTS

A. Mineral-Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449/C 449M.
   1. Products: Subject to compliance with requirements, provide one of the following:

a. Insulco, Division of MFS, Inc.; SmoothKote.
b. P. K. Insulation Mfg. Co., Inc.; PK No. 127, and Quik-Cote.
c. Rock Wool Manufacturing Company; Delta One Shot.

2.3 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated, unless otherwise indicated.

B. Flexible Elastomeric Adhesive: Comply with MIL-A-24179A, Type II, Class I.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Aeroflex USA Inc.; Aeroseal.
b. Armacell LCC; 520 Adhesive.
c. Foster Products Corporation, H. B. Fuller Company; 85-75.
d. RBX Corporation; Rubatex Contact Adhesive.

C. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-82.
b. Foster Products Corporation, H. B. Fuller Company; 85-20.
c. ITW TACC, Division of Illinois Tool Works; S-90/80.
d. Marathon Industries, Inc.; 225.
e. Mon-Eco Industries, Inc.; 22-25.

D. ASJ Adhesive, and FSK and PVDC Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-82.
b. Foster Products Corporation, H. B. Fuller Company; 85-20.
c. ITW TACC, Division of Illinois Tool Works; S-90/80.
d. Marathon Industries, Inc.; 225.
e. Mon-Eco Industries, Inc.; 22-25.

E. PVC Jacket Adhesive: Compatible with PVC jacket.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Dow Chemical Company (The); 739, Dow Silicone.
b. Johns-Manville; Zeston Perma-Weld, CEEL-TITE Solvent Welding Adhesive.
c. P.I.C. Plastics, Inc.; Welding Adhesive.
d. Red Devil, Inc.; Celulon Ultra Clear.
e. Speedline Corporation; Speedline Vinyl Adhesive.

2.4 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-C-19565C, Type II.

B. Vapor-Barrier Mastic: Water based; suitable for indoor and outdoor use on below ambient services.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-35.
b. Foster Products Corporation, H. B. Fuller Company; 30-90.
c. ITW TACC, Division of Illinois Tool Works; CB-50.
d. Marathon Industries, Inc.; 590.
e. Mon-Eco Industries, Inc.; 55-40.

f. Vimasco Corporation; 749.
2. Water-Vapor Permeance: ASTM E 96, Procedure B, 0.013 perm at 43-mil dry film thickness.
3. Service Temperature Range: Minus 20 to plus 180 deg F.
4. Solids Content: ASTM D 1644, 59 percent by volume and 71 percent by weight.
5. Color: White.

C. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-10.
b. Foster Products Corporation, H. B. Fuller Company; 35-00.
c. ITW TACC, Division of Illinois Tool Works; CB-05/15.
d. Marathon Industries, Inc.; 550.
e. Mon-Eco Industries, Inc.; 55-50.
f. Vimasco Corporation; WC-1/WC-5.
2. Water-Vapor Permeance: ASTM F 1249, 3 perms at 0.0625-inch dry film thickness.
3. Service Temperature Range: Minus 20 to plus 200 deg F.
4. Solids Content: 63 percent by volume and 73 percent by weight.
5. Color: White.

2.5 SEALANTS

A. Joint Sealants:
1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Permanently flexible, elastomeric sealant.
3. Service Temperature Range: Minus 100 to plus 300 deg F.
4. Color: White or gray.

B. FSK and Metal Jacket Flashing Sealants:
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-76-8.
b. Foster Products Corporation, H. B. Fuller Company; 95-44.
c. Marathon Industries, Inc.; 405.
d. Mon-Eco Industries, Inc.; 44-05.
e. Vimasco Corporation; 750.
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: Aluminum.

C. ASJ Flashing Sealants, and Vinyl, PVDC, and PVC Jacket Flashing Sealants:
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products, Division of ITW; CP-76.
2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: White.

2.6 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.

2.7 FIELD-APPLIED FABRIC-REINFORCING MESH

A. Woven Polyester Fabric: Approximately 1 oz./sq. yd. with a thread count of 10 strands by 10 strands/sq. inch, in a Leno weave, for equipment and pipe.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Foster Products Corporation, H. B. Fuller Company; Mast-A-Fab.
      b. Vimasco Corporation; Elastafab 894.

2.8 FIELD-APPLIED JACKETS

A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.

B. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field-applied jacket schedules.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Johns Manville; Zeston.
      b. P.I.C. Plastics, Inc.; FG Series.
      c. Proto PVC Corporation; LoSmoke.
      d. Speedline Corporation; SmokeSafe.
   2. Adhesive: As recommended by jacket material manufacturer.
   3. Color: White.
   4. Factory-fabricated fitting covers to match jacket if available; otherwise, field fabricate.
      a. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.
   5. Factory-fabricated tank heads and tank side panels.

C. Aluminum Jacket: Comply with ASTM B 209, Alloy 3003, 3005, 3105 or 5005, Temper H-14.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Childers Products, Division of ITW; Metal Jacketing Systems.
      b. PABCO Metals Corporation; Surefit.
      c. RPR Products, Inc.; Insul-Mate.
   2. Sheet and roll stock ready for shop or field sizing.
   3. Finish and thickness are indicated in field-applied jacket schedules.
   4. Moisture Barrier for Indoor Applications: 1-mil- thick, heat-bonded
   5. Moisture Barrier for Outdoor Applications: 3-mil- thick, heat-bonded polyethylene and kraft paper.
   6. Factory-Fabricated Fitting Covers:
      a. Same material, finish, and thickness as jacket.
      b. Preformed 2-piece or gore, 45- and 90-degree, short- and long-radius elbows.
      c. Tee covers.
      d. Flange and union covers.
      e. End caps.

f. Beveled collars.
g. Valve covers.
h. Field fabricate fitting covers only if factory-fabricated fitting covers are not available.

2.9 TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0835.
b. Compac Corp.; 104 and 105.
c. Ideal Tape Co., Inc., an American Biltrite Company; 428 AWF ASJ.
d. Venture Tape; 1540 CW Plus, 1542 CW Plus, and 1542 CW Plus/SQ.
2. Width: 3 inches.
3. Thickness: 11.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0827.
b. Compac Corp.; 110 and 111.
c. Ideal Tape Co., Inc., an American Biltrite Company; 491 AWF FSK.
d. Venture Tape; 1525 CW, 1528 CW, and 1528 CW/SQ.
2. Width: 3 inches.
3. Thickness: 6.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

C. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive. Suitable for indoor and outdoor applications.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0555.
b. Compac Corp.; 130.
c. Ideal Tape Co., Inc., an American Biltrite Company; 370 White PVC tape.
d. Venture Tape; 1506 CW NS.
2. Width: 2 inches.
3. Thickness: 6 mils.
4. Adhesion: 64 ounces force/inch in width.
5. Elongation: 500 percent.
6. Tensile Strength: 18 lbf/inch in width.

D. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0800.
b. Compac Corp.; 120.
c. Ideal Tape Co., Inc., an American Biltrite Company; 488 AWF.
d. Venture Tape; 3520 CW.

2. Width: 2 inches.
3. Thickness: 3.7 mils.
4. Adhesion: 100 ounces force/inch in width.
5. Elongation: 5 percent.
6. Tensile Strength: 34 lbf/inch in width.

2.10 SECUREMENTS

A. Aluminum Bands: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 3/4 inch wide with closed seal.
1. Products: Subject to compliance with requirements, provide one of the following:
a. Childers Products; Bands.
b. PABCO Metals Corporation; Bands.
c. RPR Products, Inc.; Bands.

B. Insulation Pins and Hangers:
1. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:
a. Products: Subject to compliance with requirements, provide one of the following:
- AGM Industries, Inc.; Tactoo Insul-Hangers, Series T.
- GEMCO; Perforated Base.
- Midwest Fasteners, Inc.; Spindle.
b. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
c. Spindle: Stainless steel, fully annealed, 0.106-inch- diameter shank, length to suit depth of insulation indicated.
d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.
2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch-thick, stainless-steel sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.
a. Products: Subject to compliance with requirements, provide one of the following:
- AGM Industries, Inc.; RC-150.
- GEMCO; R-150.
- Midwest Fasteners, Inc.; WA-150.
- Nelson Stud Welding; Speed Clips.
b. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.

C. Staples: Outward-clinching insulation staples, nominal 3/4-inch- wide, stainless steel or Monel.

D. Wire: 0.062-inch soft-annealed, stainless steel.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. C & F Wire.
b. Childers Products.
c. PABCO Metals Corporation.

d. RPR Products, Inc.

2.11. CORNER ANGLES

A. PVC Corner Angles: 30 mils thick, minimum 1 by 1 inch, PVC according to ASTM D 1784, Class 16354-C. White or color-coded to match adjacent surface.

B. Aluminum Corner Angles: 0.040 inch thick, minimum 1 by 1 inch, aluminum according to ASTM B 209, Alloy 3003, 3005, 3105 or 5005; Temper H-14.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

B. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.

C. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of equipment and piping including fittings, valves, and specialties.

B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of equipment and pipe system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.

G. Keep insulation materials dry during application and finishing.

H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

I. Install insulation with least number of joints practical.

J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
1. Install insulation continuously through hangers and around anchor attachments.

2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.

K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

L. Install insulation with factory-applied jackets as follows:
1. Draw jacket tight and smooth.
2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.
   a. For below ambient services, apply vapor-barrier mastic over staples.
4. Cover joints and seams with tape as recommended by insulation material manufacturer to maintain vapor seal.
5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.

M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

P. For above ambient services, do not install insulation to the following:
1. Vibration-control devices.
2. Testing agency labels and stamps.
3. Nameplates and data plates.
4. Manholes.
5. Handholes.
6. Cleanouts.

3.3 PENETRATIONS

A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor

insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.

3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
4. Seal jacket to roof flashing with flashing sealant.

B. Insulation Installation at Underground Exterior Wall Penetrations: Terminate insulation flush with sleeve seal. Seal terminations with flashing sealant.

C. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.
1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
4. Seal jacket to wall flashing with flashing sealant.

D. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

E. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
1. Comply with requirements in Division 07 Section "Penetration Firestopping" and fire-resistive joint sealers.

F. Insulation Installation at Floor Penetrations:
1. Pipe: Install insulation continuously through floor penetrations.
2. Seal penetrations through fire-rated assemblies. Comply with requirements in Division 07 Section "Penetration Firestopping."

3.4 EQUIPMENT, TANK, AND VESSEL INSULATION INSTALLATION

A. Mineral Fiber, Pipe and Tank Insulation Installation for Tanks and Vessels: Secure insulation with adhesive and anchor pins and speed washers.
1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of tank and vessel surfaces.
2. Groove and score insulation materials to fit as closely as possible to equipment, including contours. Bevel insulation edges for cylindrical surfaces for tight joints. Stagger end joints.
3. Protect exposed corners with secured corner angles.
4. Install adhesively attached or self-sticking insulation hangers and speed washers on sides of tanks and vessels as follows:
    a. Do not weld anchor pins to ASME-labeled pressure vessels.
    b. Select insulation hangers and adhesive that are compatible with service temperature and with substrate.
    c. On tanks and vessels, maximum anchor-pin spacing is 3 inches from insulation end joints, and 16 inches o.c. in both directions.
    d. Do not overcompress insulation during installation.
    e. Cut and miter insulation segments to fit curved sides and domed heads of tanks and vessels.
    f. Impale insulation over anchor pins and attach speed washers.

g. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

5. Secure each layer of insulation with stainless-steel or aluminum bands. Select band material compatible with insulation materials.
6. Where insulation hangers on equipment and vessels are not permitted or practical and where insulation support rings are not provided, install a girdle network for securing insulation. Stretch prestressed aircraft cable around the diameter of vessel and make taut with clamps, turnbuckles, or breather springs. Place one circumferential girdle around equipment approximately 6 inches from each end. Install wire or cable between two circumferential girdles 12 inches o.c. Install a wire ring around each end and around outer periphery of center openings, and stretch prestressed aircraft cable radially from the wire ring to nearest circumferential girdle. Install additional circumferential girdles along the body of equipment or tank at a minimum spacing of 48 inches o.c. Use this network for securing insulation with tie wire or bands.
7. Stagger joints between insulation layers at least 3 inches.
8. Install insulation in removable segments on equipment access doors, manholes, handholes, and other elements that require frequent removal for service and inspection.
9. Bevel and seal insulation ends around manholes, handholes, ASME stamps, and nameplates.
10. For equipment with surface temperatures below ambient, apply mastic to open ends, joints, seams, breaks, and punctures in insulation.

B. Flexible Elastomeric Thermal Insulation Installation for Tanks and Vessels: Install insulation over entire surface of tanks and vessels.
1. Apply 100 percent coverage of adhesive to surface with manufacturer's recommended adhesive.
2. Seal longitudinal seams and end joints.

3.5 GENERAL PIPE INSULATION INSTALLATION

A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:
1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity, unless otherwise indicated.
2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to

and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.

5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below ambient services, provide a design that maintains vapor barrier.
6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below ambient services and a breather mastic for above ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
8. For services not specified to receive a field-applied jacket except for flexible elastomeric and polyolefin, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing using PVC tape.
9. Stencil or label the outside insulation jacket of each union with the word "UNION." Match size and color of pipe labels.

C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes, vessels, and equipment. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

D. Install removable insulation covers at locations indicated below. Installation shall conform to the following:
1. Make removable flange and union insulation from sectional pipe insulation of same thickness as that on adjoining pipe. Install same insulation jacket as adjoining pipe insulation.
2. When flange and union covers are made from sectional pipe insulation, extend insulation from flanges or union long at least two times the insulation thickness over adjacent pipe insulation on each side of flange or union. Secure flange cover in place with stainless-steel or aluminum bands. Select band material compatible with insulation and jacket.
3. Construct removable valve insulation covers in same manner as for flanges except divide the two-part section on the vertical center line of valve body.
4. When covers are made from block insulation, make two halves, each consisting of mitered blocks wired to stainless-steel fabric. Secure this wire frame, with its attached insulation, to flanges with tie wire. Extend insulation at least 2 inches over adjacent pipe insulation on each side of valve. Fill space between flange or union cover and pipe insulation with insulating cement. Finish cover assembly with insulating cement applied in two coats. After first coat is dry, apply and trowel second coat to a smooth finish.
5. Unless a PVC jacket is indicated in field-applied jacket schedules, finish exposed surfaces with a metal jacket.

3.6 FLEXIBLE ELASTOMERIC INSULATION INSTALLATION

A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

B. Insulation Installation on Pipe Flanges:
   1. Install pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
   4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

C. Insulation Installation on Pipe Fittings and Elbows:
   1. Install mitered sections of pipe insulation.
   2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

D. Insulation Installation on Valves and Pipe Specialties:
   1. Install preformed valve covers manufactured of same material as pipe insulation when available.
   2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
   3. Install insulation to flanges as specified for flange insulation application.
   4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.7 MINERAL-FIBER INSULATION INSTALLATION

A. Insulation Installation on Straight Pipes and Tubes:
   1. Secure each layer of preformed pipe insulation to pipe with wire or bands and tighten bands without deforming insulation materials.
   2. Where vapor barriers are indicated, seal longitudinal seams, end joints, and protrusions with vapor-barrier mastic and joint sealant.
   3. For insulation with factory-applied jackets on above ambient surfaces, secure laps with outward clinched staples at 6 inches o.c.
   4. For insulation with factory-applied jackets on below ambient surfaces, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by insulation material manufacturer and seal with vapor-barrier mastic and flashing sealant.

B. Insulation Installation on Pipe Flanges:
   1. Install preformed pipe insulation to outer diameter of pipe flange.
   2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
   3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.

4. Install jacket material with manufacturer's recommended adhesive, overlap seams at least 1 inch, and seal joints with flashing sealant.

C. Insulation Installation on Pipe Fittings and Elbows:
1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed insulation elbows and fittings are not available, install mitered sections of pipe insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire or bands.

D. Insulation Installation on Valves and Pipe Specialties:
1. Install preformed sections of same material as straight segments of pipe insulation when available.
2. When preformed sections are not available, install mitered sections of pipe insulation to valve body.
3. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
4. Install insulation to flanges as specified for flange insulation application.

3.8 FIELD-APPLIED JACKET INSTALLATION

A. Where FSK jackets are indicated, install as follows:
1. Draw jacket material smooth and tight.
2. Install lap or joint strips with same material as jacket.
3. Secure jacket to insulation with manufacturer's recommended adhesive.
4. Install jacket with 1-1/2-inch laps at longitudinal seams and 3-inch- wide joint strips at end joints.
5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

B. Where PVC jackets are indicated, install with 1-inch overlap at longitudinal seams and end joints; for horizontal applications, install with longitudinal seams along top and bottom of tanks and vessels. Seal with manufacturer's recommended adhesive.
1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.

C. Where metal jackets are indicated, install with 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches o.c. and at end joints.

3.9 FINISHES

A. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.

B. Do not field paint aluminum or stainless-steel jackets.

3.10 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1 Inspect field-insulated equipment, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each type of equipment defined in the "Equipment Insulation Schedule" Article. For large equipment, remove only a portion adequate to determine compliance.

C All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.11 EQUIPMENT INSULATION SCHEDULE

A Insulation materials and thicknesses are identified below. If more than one material is listed for a type of equipment, selection from materials listed is Contractor's option.

B Insulate indoor and outdoor equipment in paragraphs below that is not factory insulated.

C Domestic water, and domestic hot-water hydropneumatic tank insulation shall be the following:
1 Mineral-Fiber Pipe and Tank: 1 inch thick.

D Domestic Hot-Water Storage Tank Insulation: Mineral-Fiber Pipe and Tank: 4 inches thick.

3.12 PIPING INSULATION SCHEDULE, GENERAL

A Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

B Items Not Insulated: Unless otherwise indicated, do not install insulation on the following:
1 Drainage piping located in crawl spaces.
2 Underground piping.
3 Chrome-plated pipes and fittings unless there is a potential for personnel injury.

3.13 INDOOR PIPING INSULATION SCHEDULE

A Domestic Hot and Recirculated Hot Water: Insulation thickness shall be ½-inch for pipe sizes 1-inch and smaller; 1-inch insulation thickness for pipe sizes greater than 1-inch. Insulation shall be the following:
1 Mineral-Fiber, Preformed Pipe Insulation, Type I

B Domestic Chilled Water (Potable): Insulation thickness shall be 1-inch. Insulation shall be one of the following:
1 Flexible Elastomeric
2 Mineral-Fiber, Preformed Pipe Insulation, Type I

3.14 INDOOR, FIELD-APPLIED JACKET SCHEDULE

A Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B If more than one material is listed, selection from materials listed is Contractor's option.

C Equipment, Concealed:
1 PVC: 20 mils thick.

D Equipment, Exposed, up to 48 Inches in Diameter or with Flat Surfaces up to 72 Inches:
1 PVC: 20 mils thick.

E Piping, Concealed:
1 None.

F Piping, Exposed and including all mechanical/electrical equipment rooms:
1 PVC: 20 mils thick.

END OF SECTION

SECTION 23 21 13

HYDRONIC PIPING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Site and building pipe materials, fittings, valves, and accessories for heating water, chilled water, equipment drains, and overflow piping.

1.2 SUBMITTALS

A. Submit the following in accordance with Section 01 3300, Submittal Procedures:

1. Catalog data on pipe materials, fittings, valves, and accessories.

2. Installation instructions for valves and accessories.

3. Certifications of welders.

1.3 QUALITY ASSURANCE

A. Comply with ASME B31.9, Building Services Piping.

PART 2 PRODUCTS

2.1 PRODUCT OPTIONS AND SUBSTITUTIONS

A. Alternate products may be accepted; follow Section 01 2500, Substitution Procedures.

2.2 HEATING WATER PIPING, ABOVE GROUND (SERVICE UP TO 250 degrees F)

2.3 CHILLED WATER PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type L, hard drawn or annealed.

1. Fittings: ASME B16.22, wrought copper and copper alloy, solder joint.

2. Joints: Solder, ASTM B32, Grade 95TA.

B. Pipe: Black steel, ASTM A53, standard wall.

1. Fittings: Black steel, ASTM A234, butt welded type, standard wall or malleable threaded type, ASME B16.3.

2. Joints: Welded for pipe sizes 2 1/2 inches and above, threaded for pipe sizes up to 2 inches.

C. Pipe: Black steel, ASTM A53, standard wall, grooved for Victaulic fittings and couplings.

1. Fittings: Victaulic, ductile or malleable iron, service rating 35 degrees F to 230 degrees F at 300 psig working pressure. Use long radius elbows (1 1/2 D) and flexible couplings.

2.4 EQUIPMENT DRAINS AND OVERFLOWS

A. Pipe: galvanized cast iron, or ASTM A53, standard wall.

1. Fittings: Galvanized cast iron, or ASTM B16.3 malleable iron.

2. Joints: Threaded or grooved mechanical couplings.

B. Copper Tubing: ASTM B88, Type L, hard drawn.

1. Fittings: ASTM B16.22, wrought copper and copper alloy, solder joint.

2. Joints: Solder, ASTM B32, Grade 95TA.

2.5 UNIONS, FLANGES, AND COUPLINGS

A. Unions for pipe 2 inches and under.

1. Copper Tubing: ASME B16.22, Class 150, wrought copper, solder joint.

2. Ferrous Piping: ASME B16.39, Class 150, malleable iron treaded.

B. Flanges for pipe over 2 inches.

1. Copper Tubing: ASME B16.5, Class 150, bronze.

2. Ferrous Piping: Forged Steel, ASME B16.5, Class 150.

3. Gaskets: 1/16 inch thick preformed neoprene.

C. Mechanical Couplings.

1. Vitaulic, ductile or malleable, service rating 35 degrees F to 230 degrees F at 300 psig, flexible type.

D. Dielectric Connections.

1. Union with galvanized or plated steel threaded end, copper solder end, and water impervious isolation barrier.

2.6 Valves

A. Gates Valves up to 2 inches.

1. Manufacturer: Nibco, Series 111.

2. MSS SP-80, Class 125, bronze body, bronze trim, rising stem, hand wheel, inside screw, solid wedge disc, solder or threaded ends.

B. Gate Valves over 2 inches.

1. Manufacturer: Nibco, Series 617-0.

2. MSS SP-70, Class 125, iron body, bronze trim, outside screw and yoke, hand wheel solid wedge disc, flanged ends.

C. Globe Valves up to 2 inches.

1. Manufacturer: Nibco, Series 211.

2. MSS SP-80, Class 125 bronze body, bronze trim, hand wheel, bronze disc, solder or threaded ends.

D. Globe Valves over 2 inches.

1. Manufacturer: Nibco F-7188.

2. MSS SP-85, Class 125, iron body, bronze trim, hand wheel, outside screw and yoke, renewable bronze plug-type disc, renewable seat, flanged ends.

E. Ball Valves up to 2 inches.

1. Manufacturer: Nibco, Series 585-70.

2. MSS SP-110, 600 psi non-shock cold water, bronze, two piece body, chrome plated brass ball, full port, teflon seats and stuffing box ring, blowout proof stem, lever handle, solder or threaded ends.

F. Butterfly Valves over 2 inches.

1. Manufacturer: Nibco, Series LD 2000.

2. MSS SP-67, 200 psi non-shock cold water, ductile iron body, aluminum bronze disc, resilient replaceable EPDM seat, lug style, extended neck, lever handle, for use between Class 125/150 flanges.

G. Plug Valves.

1. Tapered plug valve, class 125, bronze or iron body, water service, square head or tee handle, with female NPT threaded or flanged ends to suit piping.

H. Grooved Valves.

1. Manufacturer: Victaulic.

2.7 SWING CHECK VALVES

A. Sizes up to 2 inches.

1. Manufacturer: Nibco 433 Series.

2. MSS SP-80, Class 150 bronze, horizontal swing, y-pattern, renewable seat and disc. Solder or threaded ends to suit piping.

B. Sizes over 2 inches.

1. Manufacturer: Nibco F-918.

2. MSS SP-80, Class 125 iron body, fluid to 450 degrees F, bolted bonnet, horizontal swing, renewable seat and disc, flanged.

2.8 SILENT CHECK VALVES

A. Sizes up to 2 inches.

1. Manufacturer: Nibco 480 Series.

2. Class 125bronze, in-line lift type, spring actuated, TFE seat and disc, solder or threaded ends to suit piping.

B. Sizes over 2 inches.

1. Manufacturer: Nibco F-910.

2. Class 125, iron body, fluid to 200 degrees F, renewable seats and disc, spring actuated, flanged.

2.9 BALANCING VALVES

A. Manufacturer: Bell and Gossett, Circuit Setter Model CB.

B. Bronze body, brass ball construction with differential read out ports and drain/purge ports, 300 psig rating at 250 degrees F, with memory stop features and calibrated nameplate.

2.10 PRESSURE GAUGES

A. Manufacturer: Ashcroft, Type 1279 or 1009 (Stainless Steel)

B. ASME B40.100, Grade 1A, maximum plus or minus 1 percent full scale accuracy, minimum 4 1/2 inches dial, glycerin filled, phosphor bronze bourdon tube, 1/4 inch NPT brass bottom connection, phenolic case. Furnish with ball valve.

1. Range: [ ] psi or [See Drawings].

2.11 THERMOMETER

A. Manufacturer: Reotemp, Model M.

B. ASME B40.100, Grade 1A, maximum plus or minus 1 percent full scale accuracy, bimetal thermometer, mercury free, minimum 4 inches dial, stainless steel case, all angle direct mount, with standard connection and stem length to suit piping.

1. Range: [ ] degrees F or [See Drawing].

2.12 STRAINERS

A. Sizes up to 2 inches.

1. Manufacturer: Watts Series 777.

2. Bronze body, Y-type, screwed ends, 20 mesh stainless steel screen, for water service-WOG (non-shock) 400 psi at 210 degrees F.

3. Provide line size (size of blow-off outlet in strainer body) full port ball valve with ¾ inch national standard hose thread outlet fitting and brass cap/chain. Secure chain to strainer/ball valve assembly.

a. Hose cap: Jones Stephens Corp., Part No. G20-056.

B. Sizes above 2 inches.

1. Manufacturer: Watts Series 77F-D.

2. Class 125, cast iron body, Y-type, B16.1, flanged ends, stainless steel standard screen, for water service-WOG (non-shock) 200 psi at 150 degrees F.

3. Provide line size (size of blow-off outlet in strainer body) full port ball valve with a brass plug.

2.13 TEST PLUGS (PETE'S PLUG)

A. 1/4 inch NPT, brass body, neoprene core, 1000 psig maximum rating at minus 20 to 140 degrees F, 500 psig maximum rating at 200 degrees F, complete with sealing cap and gasket, to receive 1/8 in. OD probe.

1. Provide extra long (XL) plug when pipe insulation exceeds 1 in. thickness.

2.14 RELIEF VALVE

A. Manufacturer: Kunkle, Model 912.

B. Bronze body, brass trim, ASME Section VIII (UV) rated for liquid service, maximum pressure and temperature rating 300 psig and 406 degree F.

2.15 AIR VENT

A. Manufacturer: Bell and Gossett, Model No. 87

B. Automatic float type with overflow connection, brass, rated for 150 psi and 240 degrees F.

2.16 PRESSURE REDUCING VALVE

A. Manufacturer: Bell and Gossett

B. Brass body, factory setting 12 psig, adjustable range 10-25 psig, removable strainer, low inlet pressure check valve.

2.17 SOLENOID VALVE (Open Cooling Tower Make-up Water)

A. Manufacturer: CLA-VAL, No. 136G-01A.

B. Brass body, globe valve, slow opening, rated for continuous flow of 125 gpm at 20 fps.

C. Electrical characteristics: 120V, single phase, 60 Hz.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not install underground piping when bedding is wet or frozen.

B. Verify that excavations are to required grade.

3.2 PREPARATION

A. Ream pipe and tube ends. Remove burrs.

3.3 INSTALLATION

A. Install heating water, chilled water, and condenser water in conformance with ASME B31.9.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals. Matching of bronze fittings with steel or copper pipe does not require dielectrics.

C. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.

D. Install piping to maintain headroom and neither interfere with use of space nor take more space than necessary.

E. Group piping whenever practical at common elevations.

F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

G. Provide access where valves and other equipment are not exposed.

H. Install valves with stems upright or horizontal, not inverted.

I. Sleeve and caulk pipes penetrating exterior walls or interior bearing walls. Provide waterproof installation for exterior walls. Provide UL/FM approved through-penetration firestop system when penetrating fire rated barriers (i.e., walls, floors, etc).

J. Pipe relief valves to nearest floor drain. Install a union in the piping after each relief valve.

K. Slope water piping and provide drain valves at low points.

L. Flush and chemically treat HVAC water piping systems in accordance with Section 23 2500, HVAC Water Treatment.

M. Pressure test piping system in accordance with Section 22 0813, Testing Piping Systems.

N. Label piping system in accordance with Section 22 0554, Identification for Plumbing, HVAC and Fire Piping and Equipment.

O. Insulate piping system in accordance with Section 22 0713, Piping and HVAC Insulation.

P. Support piping system in accordance with Section 22 0529, Hangers and Supports for Plumbing Piping and Equipment.

Q. Provide automatic air vents in hydronic closed piping systems at high point. Provide isolation ball valve at inlet connection.

R. Install chrome-plated steel escutcheons for insulated pipes at finished surfaces.

S. Above Grade Piping: Unless otherwise noted, provide ball valves in piping 2 inches and smaller, butterfly valves in piping 2 1/2 inches and larger, and gate valves with standard male capped hose connection, for equipment and drain valves. Provide globe valves for throttling applications.

T. Provide strainers with full port ball valves, etc. as noted in Part 2 strainer specifications.

U. Instrument taps shall be isolated from the main process by a root valve. Instrumentation gauges and instruments that are calibrated shall be provided with a calibration port, normally the same size as the instrument impulse line.

END OF SECTION

SECTION 23 30 00

HVAC AIR DISTRIBUTION

PART 1—GENERAL

1.1 GENERAL

A. Where any reference to "sheet metal work" or "ductwork" appears in this section of these specifications or on the drawings, it shall be construed to include exhaust ducts, relief ducts, plenums, casings for air handling units, duct taps, grille taps and diffuser connections and all other related pieces and parts of the air conveying systems.

B. Before starting shop drawings or fabrication of any ductwork, the Contractor must have an approved reflected ceiling plan with which he can coordinate location of air outlets, lights, tile patterns, etc.

1.2 SCOPE OF WORK

Furnish and install all labor, materials, equipment, tools and services and perform all operations required in connection with or properly incidental to the construction of complete Ductwork and Accessories System as indicated on the drawings, reasonably implied therefrom or as specified herein unless specifically excluded.

1.3 SHOP DRAWINGS

Shop drawings shall be submitted on all items of sheet metal work only as specified hereinafter.

1.4 REFERENCE STANDARDS

ASHRAE	-	Guide and Data Books.
SMACNA	-	HVAC Duct System Design, Latest Edition.
NFPA	-	90A, 90B, 91, 96, 204
SMACNA	-	HVAC Duct Construction Standards, Latest Edition.

1.5 RELATED SECTIONS

Requirements of this section must also comply with the following sections: 09900-Painting.

PART 2— PRODUCTS

2.1 MATERIAL

All sheet metal duct, plenum and casing construction, unless otherwise specified herein, shall be constructed of new, prime grade, continuous hot dip mill galvanized, lock forming quality steel sheets, per ASTM A 924 and shall have a galvanized coating of 0.90 ounces total for both sides of 1 sq. ft. of a sheet, in accordance with G90 per ASTM A653 and ASTM A 90. Construction shall be in strict accordance with the construction details and installation details in the referenced SMACNA and NFPA standards as specified.

2.2 LABELING AND GAUGE

Each sheet shall be stenciled with manufacturer's name and gauge. If coil steel is used, coils shall be stenciled throughout on ten foot (10') centers with manufacturer's name and gauge. Sheet metal must conform to the tolerances listed in SMACNA HVAC Duct Construction Standards, First Edition, 1985. All duct systems penetrating 1 hour fire walls shall be of minimum 24 Ga. construction.

2.3 LOW PRESSURE DUCTWORK CONSTRUCTION

A. Rectangular low pressure ducts shall be constructed and reinforced in accordance with table 1-5 2" W.G. "Rectangular Duct Reinforcement" of SMACNA HVAC Duct Construction Standards, Latest Edition, and NFPA 90A AND 90B.

B. <S> Low pressure flexible ducts shall be in accordance with SMACNA HVAC Duct Construction Standards, Latest Edition, NFPA 90A and 90B. Flexible duct shall be equal to Genflex Type IL-1, or ATCO Flex-Aire Series 30, UPC #36, with an R-value of 6.0 with couplings and end connections as required for proper installation and compatibility with ductwork system in which they are installed.

1. All flexible ducts shall have positive interior seal, permanently bounded to a zinc coated high carbon spring steel helix completely sheathed in a Class 1 vapor barrier factory sealed at both ends. The composite assembly including vapor barrier shall meet the Class 1 requirements of NFPA for use in a return air plenum, and be labeled by Underwriters Laboratories, Inc. 181 with a flame spread rating of 25 or less and a smoke developed rating of 50 or under.

2. Low pressure flexible duct shall be rated to 1-1/2" w.g. working pressure.

3. Flexible duct taps into low-pressure plenums or main ducts shall be made with “spin-in’ side take-offs with air diverter or “scoop”. Provide rigid round duct with damper, Young or equal bearings, Young or equal operators, and raised bead for tight, positive flex duct connection. Use insulation guard for internally lined ductwork.

2.4 JOINTS

A. All joints shall be sealed airtight with duct sealer equal to United duct sealer in a manner compatible with type joint being sealed as recommended in the SMACNA HVAC Duct Construction Standards, Latest Edition.

B. All sealed ducts shall be pressure tested at a developed and maintained system pressure. Leaks that whistle or are excessive shall be repaired and the test repeated. See Part 3 Execution.

C. As a Contractor option, transverse duct joints may be made with Ductmate System or approved equal with the following stipulation: "Ductmate or equal system may be employed only after Contractor personnel have been properly instructed by a manufacturer's representative in the application and installation of said system." Duct gauges shall be in strict accordance with Ductmate instructions.

2.5 DUCT SUPPORTS

A. All horizontal and vertical ducts shall be supported in accordance with SMACNA HVAC Duct Construction Standards, Latest Edition.

B. Flexible Ducts shall be free of sags and kinks and supported on minimum of 36" center with 3/4" wide flat banding material. Perforated strap will not be acceptable.

2.6 DUCT LINER

A. All supply and return air ductwork as noted on the plans or with dashed lines drawn inside the duct, and all exposed ductwork, including ductwork exposed in mechanical rooms, shall have integral lining in accordance with SMACNA HVAC Duct Construction Standards, Latest Edition, and NFPA 90A and 90B. Liner shall have a minimum density of 1-1/2 pound per cubic foot.

EXCEPTION: Outside ductwork for rooftop packaged units rated 20 tons and above shall have faced fiberglass or faced closed cell foam insulation board on the outside of the duct with a Polyguard Products Alumaguard (or approved equal) flexible weatherproofing jacket installed per manufacturer's recommendations.

B. R-Value

1. ASTM C177 or ASTM C518 Standards apply.
2. Liner installed in supply or return air ducts located inside the building shall have a min. R-value of 6.0.
3. Liner installed in supply or return air ducts located outside the building shall have a min. R-value of 8.0.

C. Where ducts are lined, exterior insulation will not be needed except as otherwise specified. Dimensions given on the drawings are inside the insulation.

D. Sheet metal sizes shall be increased to allow for the thickness of liner called for.

E. Refer to Section 15010 for Flame Spread Properties.

2.7 DUCTWRAP

A. All unexposed rigid ductwork, outside the conditioned air space shall be wrapped with 2" minimum thickness FSK foil backed insulation, with a minimum installed R-value of 6.0. Install in accordance with SMACNA standards and manufacturer's recommendations. Duct wrap joints shall be stapled and taped with SMACNA grade foil tape.

B. Wrap all exhaust ducts w/1" minimum thickness FSK foil backed insulation. Install in accordance with SMACNA standards and manufacturer's recommendations. Duct wrap joints shall be stapled and taped with SMACNA grade foil tape.

2.8 <S> FIRE DAMPERS/SMOKE & FIRE DAMPERS (IF A PART OF THE PROJECT)

A. Furnish and install UL labeled fire dampers or smoke and fire dampers as applicable with fusible links where indicated and/or required by local codes in accordance with NFPA 90A and 90B.

B. Dampers shall be 95% minimum free area. Fire dampers shall be Ruskin series DIBD, Greenheck series DFD, type B or NCA model FDD, type B, Classified UL-555. Smoke and fire damper shall be Ruskin FSD, Greenheck FSD, or NCA FSD, Classified UL-555 and UL-555S. Dampers shall be "dynamic rated".

C. Where dampers are installed in a horizontal position, provide stainless steel closure springs and cam type blade locks to insure complete damper shut-off.

D. Fire dampers shall be equipped with suitable frame style for round, oval or rectangular ducts.

E. Fire dampers shall only be installed in steel grilles, registers and diffusers. Aluminum air distribution devices may not be used in conjunction with fire dampers. It shall be the contractor's responsibility to verify that only steel devices are used with fire dampers.

F. Acceptable manufacturers: Advanced Air, Ruskin, Air Balance, Airstream Products, Greenheck, Safe-Air, Pottorff

2.9 WALL LOUVERS: <S>

A. Provide 4" thick stationary extruded aluminum louvers with drainable blades. Units shall exactly fit opening and be flashed completely weather tight.

B. Provide factory baked-enamel coating system. Final color shall be approved by the Architect.

C. Maximum free area velocity for intake louvers shall not exceed 1000 ft. per minute with a maximum pressure drop of 0.15 inches w.g.

D. Louver blades shall be a minimum 0.125 inch thick and rigidly bracketed for 20 pounds per square foot wind loading.

E. Provide accessories as follows:

Alum. bug screen in removable frames.

F. Acceptable manufacturers/types are PENN Model M412, Greenheck ESD-403, Arrow E445, American Warming E445, Ruskin ELF375DX or NCA model XAD-4-45.

2.10 AIR DISTRIBUTION DEVICES: <S>

A. Grilles, registers and ceiling outlets shall be as scheduled in the plans and shall be provided with sponge rubber or soft felt gaskets. If a manufacturer other than the one scheduled is used, the sizes shown on the drawings shall be checked for performance, noise level, face velocity, throw, pressure drop etc., before the submittal is made. Selections shall meet the manufacturer's own published data for the above performance criteria. The throw shall be such that the velocity at the end of the throw in the five foot occupancy zone will not be more than 50 FPM or less than 25 FPM. Should grilles other than those scheduled by name be furnished, manufacturer shall be prepared to demonstrate compliance with noise criteria on request to Engineer's satisfaction. All devices shall be tested per Air Diffuser Council and labeled as such.

B. Locations of outlets on drawings are approximate and shall be coordinated with other trades to make symmetrical patterns and shall be governed by the established pattern of the lighting fixtures or Architectural reflected ceiling plan. Where called for on the schedules, the grilles, registers and ceiling outlets shall be provided with deflecting devices and manual dampers. These shall be the standard product of the manufacturer, subject to review by the

Engineer and equal to brand scheduled. All ceiling devices shall be furnished to be compatible with the type ceiling in which they are installed.

C. Air distribution devices shall be as manufactured by Titus, Carnes, Anemostat, Krueger, Metalaire, Nailor-Hart, Price, Tuttle & Bailey, or Pottroff.

2.11 INSTRUMENT PORTS

Instrument ports shall be a 2 5/8" diameter base, neoprene gasket 2" deep neck, screwed cover operated with No. 024 spanner wrench, mounting screws, equal to Young 1101.

2.12 DUCT ACCESS DOORS (IF A PART OF THE PROJECT)

Duct access doors shall have gasketed frame with wing nut fasteners, (1" thick insulation bonded to interior face), 8" X 8" size (duct opening) on ductwork up to 14" and 12" X 12" size on larger ductwork, equal to Young 1310.

2.13 BAROMETRIC RELIEF DAMPERS

Barometric relief dampers shall have blade seals and adjustable counterbalance and shall be equal to NCA CBD-112, NCA XABD-1 or Arrow 500-B-CB, sized for the airflow or static pressure shown on the plans.

2.14 KITCHEN EXHAUST DUCTS (IF A PART OF THE PROJECT)

General: Fabricate kitchen exhaust ducts and supports, used for smoke and vapor removal from cooking equipment, of 18 ga. minimum stainless steel. For duct construction, comply with SMACNA “HVAC Duct Construction Standards”, and NFPA 96 “Removal of Smoke and Grease Laden Vapors from Commercial Cooking Equipment”. In all installations, insulate ductwork with 1-1/2” thick min, 6 pcf min duct wrap, U.L. listed and NFPA compliant for “grease ducts”.

PART 3—EXECUTION

3.1 WORKMANSHIP, QUALITY, AND REQUIREMENTS

A. Ductwork shown on the drawings, specified or required for the heating, ventilating and air conditioning systems shall be constructed and erected in a first class workmanlike manner in accordance with SMACNA recommendations for low pressure and medium pressure duct construction. This work shall be warranted for a period of one year from the date of acceptance of the job against noise, chatter, whistling or vibrations and free from pulsation under all conditions of operation. After the system is in operation, should these defects occur, they shall either be removed and replaced or reinforced as directed by the Architect.

B. Ductwork shall be erected in the general locations shown on the drawings, but must conform to all structural and finish conditions of the building. Before fabricating any ductwork, the Contractor shall check the physical conditions at the jobsite and shall make all necessary changes in cross sections, offsets, etc., whether they are specifically indicated or not.

C. Provide manually operated volume control dampers in all branches, splits and taps for proper balancing of air distribution whether indicated on the drawings or not. Dampers shall be either single blade or multi-blade as required as shown in the SMACNA manual. They shall have an indicating device with lock to hold damper in position for proper setting.

D. Damper operators in all unfinished areas shall be Young Series 400 of the exact style, type and sizes as required. All other operators shall be Young #315 and/or #895 as required. All dampers shall have Young end bearings on the rod at the opposite end from the operator. Where dampers are installed in ducts located above accessible type ceiling, damper operators shall not be extended through the finished ceiling. Damper operators above inaccessible ceilings shall be furnished with extension rods operable through diffuser and grille faces or from remote locations.

E. All square elbows shall have double thickness turning vanes per the SMACNA manual requirements except for any return air jumper ducts noted on drawings.

F. Furnish and install in the ductwork, hinged access doors to provide access to all dampers, automatic dampers, fusible links, cleaning operations, etc. Where the ducts are insulated, the access doors shall be double skin doors with one inch (1") of insulation in the door. Factory fabricated doors as manufactured by Milcor or equal meeting these specifications will be acceptable.

G. Where ducts connect to HVAC equipment, flexible connections shall be made using "Ventglas" fabric that is fire-resistant, waterproof, mildew- resistant and practically air tight and shall weigh approximately thirty ounces (30 oz.) per square yard. There shall be a minimum of one-half inch (1/2") slack in the connections and a minimum of two and one half inches (2-1/2”) distance between the edges of the duct except that there shall also be a minimum of one inch (1") of slack for each inch of static pressure on the fan system.

H. Furnish and install screens on all ducts, fans, etc., and openings furnished by this Contractor which led to, or are, outdoors. Screens shall be 16 gauge, one eight inch (1/8") mesh in removable galvanized steels frames.

I. Furnish test openings with covers in each zone duct for taking readings of air velocities or pressures in ducts. See the SMACNA manual for cover construction.

J. All holes in ducts for damper rods and other necessary devices, shall be either drilled or machine punched, (not pin punched), and shall not be any larger that necessary. All duct openings shall be provided with sheet metal caps if the openings are to be left unconnected for any length of time. In general, sheet metal screws shall not be used in duct construction unless the head (not the point) of the screw is in the airstream. Transformations shall have a ratio of not more than one inch (1") in transformation to every two inches (2") of length unless specifically shown otherwise on the drawings.

K. Leakage Testing of Installed System:
   1. The installed new [and existing duct systems] shall be tested to the designed operating pressure.
   2. Measure the air leakage at the test pressure by a calibrated orifice type of flow meter. Total allowable leakage of the system shall not exceed 2% of the air handling capacity of the system.
   3. If the system is tested in sections, the leakage rates shall be added to give the performance of the whole system.
   4. Leakage concentrated at one point may result in objectionable noise even if the system passes the leakage rate criteria. This noise source must be corrected to the satisfaction of the engineer.
   5. The orifice flow measurement device must have been individually calibrated against a primary standard, and this calibrated curve permanently attached to the orifice

tube assembly.

6. Testing must be in accordance with a printed procedure submitted to the engineer for approval.

3.2 FLASHING

A. Where ducts pass through roofs or exterior walls, suitable flashing shall be provided to prevent rain or air current from entering the building. The flashing shall be not less than No. 24 gauge galvanized steel.

B. Where ducts exposed to view pass through walls, floors or ceilings, furnish and install sheet metal collars to cover the voids around the duct.

3.3 FIRE DAMPERS/SMOKE & FIRE DAMPERS (IF A PART OF THE PROJECT)

A. Fire dampers/smoke & fire dampers shall be installed in accordance with the SMACNA recommendations and as detailed on the drawings.

B. Provide a duct access panel for each fire damper.

C. Seal wall and floor penetrations with approved fire-stopping material. Fire-stop shall be equal to BIO Fireshield, Inc., BIO K-2.

3.4 PAINTING

A. Whenever exposed zinc-coated galvanized steel ductwork is to be painted, the surface preparation shall be in accordance with the practices set forth in ASTM D2092. Painting shall be in accordance with project specification section 09900 “Painting”.

3.5 INSTALLATION OF KITCHEN EXHAUST DUCTS (IF A PART OF THE PROJECT)

A. General: Fabricate joints and seams with continuous welds for watertight construction. Provide for thermal expansion of ductwork through 2000°F (1093°C) temperature range. Install without dips or traps that may collect residues, except where traps have continuous or automatic residue removal. Provide access openings at each change in direction, located on sides of duct 1-1/2" minimum from bottom, and fitted with grease tight covers of same material as duct. In addition, all requirements of the latest edition of NFPA 96 must be met.

END OF SECTION

SECTION 23 75 13

AIR HANDLERS FOR HYDRONIC SYSTEMS

1.0 SCOPE

1.1 The purpose of this Specification is to establish standards for Air Handling Equipment for Hydronic Systems.

1.2 Applicable publications:

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. Air Conditioning and Refrigeration Institue:
   1. 410.....Forced Circulation Air-Cooling and Air-Heating Coils
   2. 430.....Central Station Air Handling Units

C. National Fire Protection Association (NFPA):
   90A .....Standard for the Installation of Air-Conditioning and Ventilating Systems

2.0 AIR HANDLER WITH COOLING AND HEATING COILS

2.1 Casing

The unit casing shall be constructed of heavy-gage galvanized steel. All unit access panels and the cooling coil casing shall be double-wall construction with foamed-in-place insulation. All other sections shall be provided with with 1-inch; 1-1/2 lb/cu. ft density fiberglass insulation using foil-facing. Provide coil access panels are on both sides of the unit and provide easy access to clean the drain pan and remove internal coils. Fan access panels shall be included to provide access to the fan, motor, and drive from both sides of the unit.

Mounting brackets shall be provided on all corners of the unit and any optional sections to secure units to the floor or ceiling and to connect available optional sections.

2.2 Drain Pan

The drain pan shall be non-corrosive and double sloped to allow condensate drainage. The drain pan construction shall be double-wall, foamed-in-place assembly of polymer material or optional stainless steel. Coils shall mount above the drain pan to allow easy drain pan inspection and cleaning.

The drain pan connection shall be 3/4” minimum and shall be positioned at the lowest point of the drain pan. Equip unit with an auxiliary drain connection where necessary to effect complete drainage.

2.3 Hydronic Coils

Hydronic coils shall have 1/2” outside diameter (minimum) x 0.016” wall thickness (minimum) round seamless copper tubes mechanically bonded to coil fins. Coil fins shall be aluminum. Heating coils shall be either one or two-row configurations. Cooling coils shall be four, six, or eight-row configuration. Multi-row coils shall have continuous tube circuits arranged for counterflow (water flow counter to the direction of unit airflow). Coils shall have galvanized steel casings. A foam sealing strip shall be

provided between casing (top and bottom) channels and fins to minimize air bypass and water carryover. Coils shall have round seamless copper pipe headers with NPT external thread steel pipe connections. Coils shall have one vent and one drain connection consisting of 3/8" NPT (minimum) internal thread copper adapter with steel square head pipe plug. Supply and return connections shall be located outside the unit casing and on the same side of the unit and shall be clearly labeled to facilitate field piping. Coils shall be proof tested at 450 psig and leak tested at 300 psig air-under-water. Coils shall be rated for maximum standard operating conditions of 300 psig at 200°F.

2.4 Fan

Units shall have a single, galvanized, forward curved, centrifugal blower type fan. The fan shaft shall be supported by permanently lubricated bearings with a 200,000 hour, L50 design life. The fan shall be dynamically balanced.

2.5 Drives

Drives shall be factory-mounted and wired variable frequency drives (VFD) suitable for fan speed modulation in a VAV application.

2.6 Filters

Provide two-inch, MERV 13, flat filters.

2.7 Motors

Motors shall be open drip proof with permanently sealed ball bearings. All single-phase motors and fractional horsepower three-phase motors shall have internal current and thermal overload protection and a minimum 1.15 service factor. Three-phase motors, one horsepower and larger, shall have a 1.15 minimum service factor with external current overload protection. All motors 5 hp and above shall be NEMA premium efficiency. Motors shall be in compliance with EPACT where applicable.

2.8 Mixing Section

The mixing section construction shall be heavy gage galvanized steel with two low-leak, parallel blade dampers with edge and jamb seals. Dampers shall be tested and certified in accordance with AMCA511 for air performance and air leakage. Leakage rate shall not exceed 3 cfm/ft^2 at one-inch wg. and 8 cfm/ft^2 at four-inch wg. Dampers shall be Ruskin CD60 type double-skin airfoil design or equivalent. Damper blades and frames shall be galvanized steel. The damper shall have a 1/2" drive for use with an optional factory-mounted actuator. The mixing section shall have side access panels to allow access of internal components.

2.9 Face and Bypass Section

Low-leakage face and bypass dampers shall be provided as scheduled on drawings. Dampers shall be tested and certified in accordance with AMCA511 for air performance and air leakage. Leakage rate shall not exceed 3 cfm/ft^2 at one-inch wg. and 8 cfm/ft^2 at four-inch wg. Dampers shall be Ruskin CD60 type double-skin airfoil design or equivalent. Damper blades and frames shall be galvanized steel. Damper blades shall be opposed-type blades, with metal compressible jamb seals and extruded vinyl blade edge seals. Blades shall rotate on stainless steel sleeve bearings. Face and bypass dampers shall be mechanically linked together and provide end driven control shafts.

3.0 Control Interface
Provide a control interface that includes a fan motor disconnect switch, fused transformer(s), fan contactor, and customer terminal strip for field-provided controls.

Provide the following with the control interface:
. • Low limit protection
. • Condensate overflow switch
. • Fan status switch
. • Filter status switch
The controller shall provide for (minimum)12 analog inputs, five analog outputs, six binary inputs, and six binary outputs.

Analog inputs are:

1. Space temperature, 5 to 122°F
2. Local setpoint, 50 to 85°F
3. Fan mode switch, off/ auto
4. Discharge air temperature, -40 to 212°F
5. Outdoor air temperature, -40 to 212°F
6. Mixed air temperature, -40 to 212°F
7. Space relative humidity, 0-100%
8. CO2detection, 0-2000 ppm (when CO2 detection is noted on the Project Plans)
9. Entering water temperature, -40 to 212°F
10. Duct static pressure (VAV), 0 to 1250 Pascals

Analog outputs are:
1. Supply fan speed, VAV units only
2. Cooling valve output or 2-pipe changeover, water
3. Heating valve output: water, steam, or electric heat
4. Face and bypass damper output
5. Outdoor air damper output

Binary inputs are:
1. Low temperature detection or coil defrost
2. Run/stop (smoke, condensate, etc)
3. Occupancy or generic
4. Supply fan status
5. Filter status
6. Exhaust fan status or coil defrost

Binary outputs are:
1. Supply fan start/stop
2. Exhaust fan start/stop

PART 3 – EXECUTION

3.1 DUCTWORK & INSULATION

This work is covered under Section 15890 or 15891.

3.2 HYDRONIC PIPING

This work is covered under Section 15180.

3.3 PIPING INSULATION

This work is covered under Section 15080.

3.4 PIPING SUPPORTS

This work is covered under Section 15060.

3.5 CONDENSATE PIPING

Condensate drain piping shall be fabricated from schedule 40 PVC and supported in accordance with local codes. Insulate condensate drain lines with 3/8" wall closed cell insulation equal to Rubatex Insul-tube 180. Condensate from units shall discharge into a hub drain furnished by the plumbing contractor as shown on the PLUMBING PLANS and details. **No PVC piping shall be present in any return air plenum or platform.** Provide p-trap with vacuum breaker and clean-outs at all condensate drain connections. Emergency drain pans, when indicated, shall be piped using 40 PVC pipe to the perimeter of the building. Provide float lockout switch in the pan to shut down the unit in the event of an overflow condition.

3.6 GRILLES, REGISTERS, DIFFUSERS, FIRE DAMPERS & RELIEF DAMPERS <S>

This work is covered under Section 15890 or 15891.

3.7 LOUVERS <S>

This work is covered under Section 15890 or 15891.

3.8 CONTROLS AND SAFETIES <S> <OM>

A. Furnish and install a complete, low voltage (24 VAC) control system for each unit. The HVAC Contractor is responsible for all control work, including all wiring and conduit, which must be installed in accordance with Section 16 of the specifications.

B. Furnish and install a U.L. listed duct-mounted firestat with factory setting of 135F, for units delivering 2000 cfm or less, to shut down the blowers when fire is detected.

C. Furnish and install a duct mounted photometric smoke detector, equal to System Sensor “Innovair” DH100ACDCLP, 120/24 VAC, with full width sampling tube in the return air duct or plenum (up stream of any outside air connection) for units delivering over 2000 cfm, wired to shut down the supply air fan when smoke is detected. Detector shall be listed per UL268A, capable of operating in duct systems from 100 to 4000 feet per minute air velocity.

D. Provide and install controls as required that are fully compatible with the Chilled/Heated Water Facility System and the Facility Management System.

E. Provide remote space sensor when shown on the plans. Tie the sensor to the thermostat to provide “average” temperature control of the heating/cooling system.

F. Each outside air damper will be controlled by the control system’s auxiliary contact to remain closed during the unoccupied periods, even if the fan cycles on for night-set back. During the occupied period, interlock the outside air damper to the supply air fan so the damper will open when the fan is running.

G. Label thermostats/temperature sensors with the number of the unit controlled. Labels shall be engraved plastic laminate tags glued to the equipment with letters on the tags at least 1/4" high.

H. The Contractor shall furnish and install all contactors, transformers and relays required to provide a complete and working system. All control wiring shall be color-coded using a minimum of 18-gage wire. All exposed control wiring shall be in conduit. All enclosures shall be suitable for the location where installed.

3.9 FILTERS

Provide 2 complete sets of filters for all furnaces and air handling units. After substantial building construction is complete and prior to final air balancing, replace the first set of filters with clean filters.

3.10 TESTING AND BALANCING <S>

A. Contractor will employ services of a qualified contractor to perform testing, adjusting, and balancing. To be approved by Architect/Engineer.

B. Furnish complete documentation of start-up and checkout including refrigerant system temperature and pressure data, electrical data and air balance.

All work shall be performed by an individual experienced in equipment start-up and air balancing.

NOTE: REFRIGERANT SHALL BE HANDLED ONLY BY EPA CERTIFIED TECHNICIANS. THE CONTRACTOR SHALL FURNISH DOCUMENTATION OF THIS CERTIFICATION TO THE Architect/Engineer BEFORE STARTING WORK.

C. Reports will be submitted by the independent firm to the Architect/Engineer indicating observations and results of tests and indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

D. Cooperate with independent firm, furnish assistance as requested.

E. Re-testing required because of non-compliance to specified requirements will be “charged to the Contractor”.

F. All air volumes shall be adjusted to equal those shown on the drawings +/- 5%. A detailed report, showing the air volumes at each grille, register, diffuser, relief damper and exhaust fan, plus start-up values for all motor bearing equipment furnished under this section of the specifications, shall be submitted to the Architect/Engineer for review and approval.

3.11 OPERATION AND MAINTENANCE MANUALS

A. Submit two copies of the Operation and Maintenance (O & M) Manual to the Architect/Engineer. O & M Manuals shall include repair procedures, replacement parts information on each piece of equipment, start-up information and

END OF SECTION

SECTION 26 20 10

ELECTRICAL SERVICE AND DISTRIBUTION

PART 1—GENERAL

1.1 DESCRIPTION

This section governs for furnishing, installing, testing and placing in service electrical systems.

1.2 QUALITY ASSURANCE

A. Comply with all National Electrical Code (NEC) requirements, local ordinances, and State and Federal regulations as applicable to this project.

B. Manufacturer - Furnish products of manufacturers named unless otherwise approved.

1.3 STORAGE AND HANDLING

Maintain materials and equipment in like-new condition. Prevent accumulation of construction dirt and excess condensation.

1.4 INSPECTIONS AND TESTS

A. Pre-Energization and Operating Tests – The complete electrical system shall be performance tested when first installed on-site. Each protective, switching, and control circuit shall be adjusted in accordance with the recommendations of the protective device study and tested by actual operation using current injection or equivalent methods as necessary to ensure that each and every such circuit operates correctly to the satisfaction of the authority having jurisdiction.
   1. Instrument Transformers – All instrument transformers shall be tested to verify correct polarity and burden.
   2. Protective Relays – Each protective relay shall be demonstrated to operate by injecting current or voltage, or both, at the associated instrument transformer output terminal and observing that the associated switching and signaling functions occur correctly and in proper time and sequence to accomplish the protective function intended.
   3. Switching Circuits – Each switching circuit shall be observed to operate the associated equipment being switched.
   4. Control and Signal Circuits – Each control or signal circuit shall be observed to perform its proper control function or produce a correct signal output.
   5. Metering Circuits – All metering circuits shall be verified to operate correctly from voltage and current sources, similarly to protective relay circuits.
   6. Acceptance Tests – Complete acceptance tests shall be performed, after the station installation is completed, on all assemblies, equipment, conductors, and control and protective systems, as applicable, to verify the integrity of all the systems.
   7. Relays and Metering Utilizing Phase Differences – All relays and metering that use phase differences for operation shall be verified by measuring phase angles at the relay under actual load conditions after operation commences.

B. Test Report – A test report covering the results of the tests required in NEC 225.56(A) shall be delivered to the authority having jurisdiction prior to energization.

1.5 ELECTRICAL SERVICE

A. Contractor shall be responsible for coordination of temporary and permanent electrical services with Electrical Delivery Provider prior to construction.

B. All cost associated with providing permanent electrical service to site from the Electrical Delivery Provider shall be submitted in writing to Architect prior to construction for review.

C. Contractor shall verify exact requirements from Electrical Delivery Provider and provide same. This shall include but not be limited to meter and meter location, underground conduit materials and construction, overhead materials and construction, conductors, service poles, and connections to transformer and meter.

D. Contractor shall verify requirements of the Electrical Delivery Provider for CT metering. Electrical service when CT meter is installed shall be terminated at main fused disconnect or main distribution panel as indicated on plans.

PART 2—PRODUCTS

2.1 ELECTRICAL

A. Conductors - To be copper unless otherwise specified and of size and type to conform to the requirements of National Electric Safety Code for loading and location

B. Switches and Controls - To be the size specified and comply with the National Electric Manufacturers Association (NEMA) standards. Devices, controls and material shall be subject to applicable codes and regulations. Deviation from plans and specifications shall have the prior approval of the Engineer.

C. Conduit-Outdoor
1. Underground and Under Foundations and Slabs - Schedule 40 electrical grade PVC for horizontal runs. At stub-ups from underground, install galvanized heavy wall rigid steel (UL) for the last three feet of horizontal run, radius, and vertical riser, unless noted otherwise. Install 9” wide yellow “Electrical Warning” tape 6” directly above underground conduit.
2. Outdoor Exposed – Galvanized heavy wall rigid steel (UL) conduit.

D. Conduit-Indoor - Inside buildings, covered or protected areas use Electrical Metallic Tubing (EMT) conduit.

E. Flexible Conduit - "Sealtite," type US, by American Brass Company or Anaconda.

F. Conduit Fittings - Crouse-Hinds, Appleton, or Killark. Unless noted otherwise, provide setscrew connections and couplings.

G. Electrical Panels - Plug-in type circuit breakers with capacity as required. Approved Manufacturers: G.E., Westinghouse, Cutler-Hammer, Square-D, or Allen-Bradley.

H. Indoor Receptacles - Heavy Duty, 20A min. “specification” grade, with wiring clamps with

large head screws for positive clamping of wiring for back and side wiring method, equal to Hubbell 5362. Finish to match existing receptacles where applicable. Finish per Architect for new construction.

I. Switches - Heavy Duty, 20A min. “specification grade,” equal to Hubbell 1221. Where show on plans 3-way switches shall be Heavy Duty, 20A min. “specification grade,” equal to Hubbell 1223. Finish to match existing switches where applicable. Finish per Architect for new construction.

J. Outdoor Receptacles - Weatherproof spring cover and conduit box (code approved) with GFCI protection.

K. Photoelectric/Timer Lighting Controls
   1. Photocells
      a. Photocells to be U.L. listed and electronic.
      b. Load capacity to be 1800 VA minimum but not less than 125% of load including power factor correction.
      c. Photocells to have integral surge/lightning protection.
      d. Photocell to have delay action to prevent de-energizing load due to light from headlights or lightning.
      e. Acceptable brand names include: Tork, Paragon, & Intermatic. Photocell brand to match timer brand.
   2. Timers
      a. Timers to be U.L. listed and mechanical.
      b. Load capacity to be rated at a minimum of 125% of load including power factor correction.
      c. Timer to provide 24-hour control. Provide one ON and one OFF tripper; timer to be capable of at least 3 on/off operations by adding additional trippers.
      d. Provide manual override.
      e. Acceptable brand names: Tork, Paragon, & Intermatic. Timer brand to match photocell brand.
   3. Installation – Install all controls per manufacturers recommendations.
      a. Relays can be eliminated if contacts are rated for the actual load.
      b. Do not use latching contactors.
      c. Mount photocells in an upright position facing toward natural light and away from artificial lights, tree shadows, and building shadows.

PART 3—EXECUTION

3.1 GENERAL

A. Install all equipment and materials in accordance with recommendations of each equipment manufacturer.

B. Space allocations and utility rough-ins have been designed on the basis of equipment items named by manufacturer and model number. If any equipment not so named is offered which differs substantially in dimensions or configuration from the named equipment, provide scaled shop drawings showing that the substitute can be installed in the same space available without interfering with other trades or with access for operation and maintenance in the completed project. The Installer shall coordinate final rough-in locations with actual equipment furnished.

C. Use only workmen skilled in this type of work.

3.2 INSTALLATION

A. CONDUIT
1. Steel Conduit Installation Practices: AISI Handbook "Steel Electrical Raceways" for steel.
2. Sleeves through footings for exterior runs to be "OZ" Series FSK, WSK, G and W, or 3M.
3. Exposed raceways to be installed parallel or perpendicular to walls, structural members of intersections, or vertical planes and ceilings.
4. Screw clamp backs to be used with conduits run on walls or ceilings.
5. Place an approved (OZ, Crouse-Hinds, Appleton) expansion fitting where crossing building expansion joints.
6. Install 9” wide yellow “Electrical Warning” tape 6” above outdoor buried conduit.

B. WIRE AND CABLE
1. Size - Type THHN or THWN stranded, 75ºC min. not smaller than No. 12 AWG, except control wire to be as required by the manufacturer. No. 12 AWG may be stranded or solid.
2. Branch circuit grounding conductors in conduit to be insulated unless otherwise noted.
3. Color coding - In accordance with NEC for color code control wires.
4. Connections and Splices in Dry Locations - For circuits loaded at less than 600 Volts AC, pressure connectors may be used (except for motors). Use compression lugs at motor terminals. Use compression sleeves for splices of No. 8 AWG and larger. Use electrical spring connectors (Scotchlock or 3M) for connections and wire joints in lighting and receptacle outlet boxes, and control junction boxes with terminal strips. Maximum wire size No. 8 AWG for spring connectors. Cover all splices, joints, and free ends of conductors with insulation equivalent to that of conductors or with insulating device suitable for the purpose.

C. PANELS
1. Top operating handle not to exceed 6 feet and 6 inches from finished floor.
2. Label all circuits on director card with embossing tape prior to job completion.
3. Three layer laminated nameplates shall be 3/32” inch thick, lengths as required to accommodate lettering, and in ¾” and 1 ¼” widths. Each plate shall have adhesive backing with pull-apart resistance of at least 100 PSI and be attached to panels with screws. Plates shall be laminated type with black background and white letters.
4. All sub panels shall have nameplate installed inside panel door stating the panel it is powered from.

D. FLEXIBLE CONDUIT CONNECTIONS

Minimum of 2 feet to be provided for equipment subject to vibration or movement and to all motors. Arrange to facilitate motor removal.

E. DISCONNECT SWITCHES

1. Unless noted otherwise provide non-fused disconnect switches for all outside equipment, including but not limited to, air conditioning condensing units and roof-mounted exhaust fans.
2. Provide local disconnect for all appliances as required by NEC not within 50ft and line-of-sight of associated circuit breaker.

3.3 PROTECTIVE DEVICE TIME-CURRENT COORDINATION ANALYSIS ARC-FLASH STUDY

A. Provide arc-flash labeling in accordance with NEC 110.16. Calculate the maximum available fault current as necessary to ensure the service equipment ratings are sufficient for the maximum available fault current at the line terminals of the equipment in accordance with NEC 110.24. The required field markings shall be adjusted to reflect the new level of maximum available fault current. Field markings shall be of sufficient durability to withstand the environment involved. Coordinate with Owner for additional requirements in regards to protective device time-current coordination analysis arc-flash study.

END SECTION

SECTION 26 50 10

LIGHTING

PART 1—GENERAL

1.1 SCOPE

A. Work of this Section shall include the following items:
- Interior LED
- Exterior LED
- Emergency Lighting System

1.2 SUBMITTALS

A. Submittals that deviate or substitute products or items differing from those specified shall provide cut sheets of both the specified item and the proposed substitution for product comparison. **Submittals not following this procedure will not be reviewed.**

PART 2—PRODUCTS

2.1 LIGHTING FIXTURES AND LAMPS

A. Provide fixtures including interior and exterior fixtures and emergency battery pack type fixtures as indicated on the plans and described in the schedule.

B. All battery packs supplying emergency lighting fixtures shall be capable of sustained operation for at least 90 minutes without any degradation in performance and without going into deep cell discharge.
1. When the fixture is powered by the battery pack, at least one third of the normal light output of one lamp shall be available for emergency lighting. Unless otherwise noted on the plans only one lamp shall be available for emergency lighting.
2. All emergency lights shall have a lighted push-to-test button clearly visible and accessible.
3. All battery packs shall be NICAD unless noted otherwise on the plans.

C. Fixtures shall be complete with lamps as indicated, internal wiring, drivers, transformers, brackets, fittings, lenses, louvers, guards, reflectors, pole supports and accessories as required, indicated or detailed.

D. Fixture make and model designations are shown in the lighting schedule on the Project drawings. Acceptable manufacturers are Lithonia Lighting, Cooper Lighting, Cree, Philips, RAB Lighting, and Hubbell/Prescolite provided substitutions meet the design intent and specifications of the scheduled fixtures including, but is not limited to color, shape, size, and output. Substitutions for products other than those stipulated will be considered by the Architect up to 3 days before the receipt of bids. The burden of proof of equality rests with the Prime Bidder. **Substitutions shall be by Architect's written approval only and may require submission of samples.**

E. Provide a transformer/driver for LED lights that meets the manufacturer's requirements. Verify with the manufacturer the minimum and maximum number of fixtures that can be

powered from a single transformer/driver so as to provide stable, flicker-free operation and long life.

PART 3—EXECUTION

3.1 LIGHTING FIXTURES

A. Installation methods for each fixture shall be as indicated or detailed and as recommended by the fixture manufacturer for the application. Supports such as mounting brackets, hangers, clamp, etc., shall be provided in the best practical manner consistent with good workmanship and appearance.

B. Any fixture damaged during construction prior to final acceptance of the project shall be replaced or repaired to the satisfaction of the Engineer.

C. Contractor shall note architectural finish schedules and existing conditions and furnish proper mounting accessories or trim as required to properly mount each fixture type.

D. Recessed fixtures shall be provided with mounting frames or rings and shall finish flush to the ceiling without light leaks. Fixtures shall be connected by means of 3/8" flexible metal conduit (max 6'-0" length) from outlet boxes mounted above or alongside the fixture. “Daisy-chaining” will not be permitted

E. Fixtures exposed to outdoor temperatures shall be rated for 0 degree Fahrenheit operation.

END SECTION

SECTION 27 10 10

DATA AND TELEPHONE CABLE PLANT

PART 1—GENERAL

1. SCOPE OF WORK

A. Provide all equipment, materials, labor, supervision, and services necessary for or incidental to the installation and testing of a complete DATA and VOICE cable plant providing all permanent premise cabling and wiring devices required to support a facility wide computer network and telephone cabling system and as shown or indicated on the drawings and/or as specified.

B. Provide a 20+ year manufacturer warranty on installed data and voice cabling system.

2. CODES AND STANDARDS

A. NFPA 70 National Electrical Codes.

B. NFPA 101 Code for Safety to Life from Fire in Buildings and Structures.

C. ANSI/TIA-568.0-D – Generic Telecommunications Cabling for Customer Premises.

D. ANSI/TIA-568.1-D - Commercial Building Telecommunications Cabling Standard.

E. ANSI/TIA-568-C.2-1 – Balanced Twisted-Pair Telecommunications Cabling and Components Standard, Addendum 1: Specifications for 100Ω Category 8 Cabling

F. ANSI/TIA-568-C.3-1 – Optical Fiber Cabling Components Standard.

G. ANSI/NECA/TIA-568-C.4- Broadband Coaxial Cabling and Components Standard

H. ANSI/TIA-569-D – Telecommunications Pathways and Spaces.

I. TIA-607-C – Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.

J. TIA-606-B.1 – Administration Standard for Telecommunications Infrastructure.

K. BICSI- Other BICSI Standards which may apply.

L. All applicable parts will be Underwriters Laboratories, Inc. approved.

M. All applicable parts will be FCC Class B approved.

N. Americans with Disabilities Act.

O. Local and State Building Codes.

P. All requirements of the local Authority Having Jurisdiction (AHJ).

3. SUBMITTALS

A. Submit to the engineer/designer shop drawings, product data (including cut sheets and catalog information), and samples required by the contract documents. Submit shop drawings, product data, and samples with such promptness and in such-sequence as-to cause no delay in the work or in the activities of separate contractors.

1. By submitting shop drawings, product data, and samples, the contractor represents that he or she has carefully reviewed and verified materials, quantities, field measurements, and field construction criteria related thereto. It also represents that the contractor has checked, coordinated, and verified that information contained within shop drawings, product data, and samples conform to the requirements of the work and of the contract documents. The engineer/designer remains responsible for the design concept expressed in the contract documents as defined herein.
2. The engineer's/designer's approval of shop drawings, product data, and samples submitted by the contractor shall not relieve the contractor of responsibility for deviations from requirements of the contract documents, unless the contractor has specifically informed the engineer/designer in writing of such deviation at time of submittal, and the engineer/designer has given written approval of the specific deviation. The contractor shall continue to be responsible for deviations from requirements of the contract documents not specifically noted by the contractor in writing, and specifically approved by the engineer in writing.
3. The engineer's/designer's approval of shop drawings, product data, and samples shall not relieve the contractor of responsibility for errors or omissions in such shop drawings, product data, and samples.

B. The engineer's/designer's review and approval, or other appropriate action upon shop drawings, product data, and samples, is for the limited purpose of checking for conformance with information given and design concept expressed in the contract documents. The engineer's/designer's review of such submittals is not conducted for the purpose of determining accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the contractor as required by the contract documents. The review shall not constitute approval of safety precautions or of construction means, methods, techniques, sequences, or procedures. The engineer's/designer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

C. Perform no portion of the work requiring submittal and review of shop drawings, product data, or samples, until the engineer/designer has approved the respective submittal. Such work shall be in accordance with approved submittals.

D. Submit shop drawings, product data, and samples as a complete set within thirty (30) days of award of contract.
   1. Shop drawings: Submit the following:
      a. Backbone (riser) diagrams
      b. System block diagram, indicating interconnection between system components and subsystems
   2. Product Data - Provide equipment list and data sheet on system devices, racks, special boxes, cables, and other material as requested by the Architect including:
      a. Manufacturer
      b. Model Number
      c. Indication all options and accessories
      d. Catalog data sheet with photograph

E. Submit project record drawings at conclusion of the project.
   1. Approved shop drawings
   2. Plan drawings indicating locations and identification of work area outlets, nodes, telecommunications rooms (TRs), and backbone (riser) cable runs
   3. Telecommunications rooms (TRs) and equipment room (ER) termination detail sheets.
   4. Cross-connect schedules including entrance point, main cross-connects, intermediate cross-connects, and horizontal cross-connects.
   5. Labeling and administration documentation.
   6. Warranty documents for equipment.
   7. Copper certification test result printouts and diskettes,
   8. Optical fiber power meter/light source test results.

4. QUALIFICATIONS OF BIDDER

A. The Project Manager shall be the main point of contact for the project between the Owner and the subcontractor's technicians.

B. The Project manager shall be a current RCDD® if required on plans.

C. The same site supervisor shall be assigned to the project site for 95% of the work week, when technicians are on-site, and shall be responsible for the management of Lead Technicians.

D. Bidders who do not currently possess the necessary qualifications, trained and experienced personnel, financial capacity, and meet the other requirements herein described will be disqualified.

E. The bidder, as a business entity, shall be an authorized and designated representative of the equipment manufacturer with full warranty rights, and shall have been actively engaged in the business of selling, installing, and servicing commercial building cable systems for a period of at least 5 years.

F. Recently formed companies are acceptable only if specific pre-approval is requested, and

granted by the Architect/Engineer, based on experience of key personnel, current and completed projects, and all licensing requirements are met 10 working days prior to the bid date.

G. The bidder shall have an office within 100 miles of the job site staffed with trained technicians who are qualified and licensed to supervise the installation, to be responsible that the system is installed as submitted, to conduct system start up and perform a 100 percent operational audit of all installed devices, to instruct the Owners representatives in the proper operation of the system, and to provide service throughout the warranty period.

H. The bidder shall be fully experienced in the design and installation of systems as herein specified, and shall furnish with the bid an itemized list of the installations of the type specified herein. The list shall include the name of the project, date of completion, the amount of the contract, the name, and telephone number of the person to contact for reference. This list must contain at least five (5) projects within a 100-mile radius of the school district to allow school administration officials to visit the job site for review of the system installation and service.

I. The bidder shall not have any unresolved grievances or complaints of record regarding workmanship, code compliance, or service response. A Contractor that has any prior finding(s) of a code violation or has any litigation in process is unacceptable.

J. The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

K. The bidder shall employ full time local technicians and installers. The manufacturer shall maintain a full time factory employed service staff for product support and service.

L. Untrained, undocumented or otherwise unqualified personnel are not allowed to perform any portion of the communications infrastructure installation.

M. The ability of any bidder to obtain plans and provide a performance bond shall not be regarded as the sole qualification of such bidder's competency and responsibility to meet the requirements and obligations of the contract.

N. Before using the bid of a subcontractor as part of his bid, the General Contractor shall satisfy himself that the proposed subcontractor can satisfy all of the requirements expressed above. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that the bidder and/or any subcontractor he proposes can properly qualify to carry out the obligation of any part of the contract, and to complete the work contemplated therein.

O. The Owner reserves the right to reject the bid of any bidder who has previously failed to perform properly, or complete on time, contracts of a similar nature.

5. ALTERNATE PROPOSALS

A. Bidders wishing to propose systems, which differ in any features, functions, or operating

characteristics from those outlined in these specifications must do so in writing to the specifying authority at least ten (10) days prior to bid opening.

B. For manufacturers equipment or models other than that specified, the bidder shall supply proof that such substitute equipment in compatible with all devices to be furnished, and that the equipment equals or exceeds the features, functions, performance, and quality of the specified equipment. Proposals must include detailed information showing all deviations from the system as specified.

C. Bidders that do not obtain prior approval for alternate equipment will not be considered an acceptable supplier for this project. Final approval of the alternate system shall be based on the decision of the Owner and Architect. Prior approval to bid this project does not automatically insure the system will be an acceptable equivalent.

6. QUALITY ASSURANCE

A. The contractor shall have worked satisfactorily for a minimum of five (5) years on systems of this type and size.

B. Upon request by the engineer/designer, furnish a list of references with specific information regarding type of project and involvement in providing of equipment and systems.

C. Equipment and materials of the type for which there are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.

D. Where equipment and materials have industry certification, labels, or standards (i.e., NEMA - National Electrical Manufacturers Association), this equipment shall be labeled as certified or complying with standards.

E. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.

F. Subcontractors shall assume all rights and obligations toward the contractor that the contractor assumes toward the owner and engineer/designer.

7. DELIVERY, STORAGE, AND HANDLING

A. Protect equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the owner for secure storage of equipment and materials. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

8. SEQUENCE AND SCHEDULING

A. Submit schedule for installation of equipment and cabling. Indicate delivery, installation, and testing for conformance to specific job completion dates. As a minimum, dates are to be provided low bid award, installation start date, completion of station cabling, completion of riser cabling, completion of testing and labeling, cutover, completion of the final punch list, and owner acceptance.

9. USE OF THE SITE

A. Use of the site shall be at the owner's direction in matters in which the owner deems it necessary to place restriction.

B. Access to building wherein the work is performed shall be as directed by the owner.

C. The owner will occupy the premises during the entire period of construction for conducting his or her normal business operations. Cooperate with the owner to minimize conflict and to facilitate owner's operations.

D. Schedule necessary shutdowns of plant services with the owner, and obtain written permission from the owner. Refer to article - CONTINUITY OF SERVCES-herein.

E. Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations of the owner.

10. CONTINUITY OF SERVICES

A. Take no action that will interfere with, or interrupt, existing building services unless previous arrangements have been made with the owner's representative. Arrange the work to minimize shutdown time.

B. Owner's personnel will perform shutdown of operating systems. The contractor shall give three (3) days' advance notice for systems shutdown.

C. Should services be inadvertently interrupted, immediately furnish labor, including overtime, material, and equipment necessary for prompt restoration of interrupted service.

11. DRAWINGS. MANUALS. AND TRAINING

A. Upon completion of the installation and prior to final inspection, this Contractor shall furnish five (5) copies of as-built drawings. Provide one reproducible vellum and four prints. In addition, this Contractor shall furnish four (4) copies of a manual giving complete instructions for the operation, inspection, testing and maintenance of the system including wiring diagrams. Place cable test results in manuals.

B. All cable paths and wiring methodology shall be documented. All cables shall have both ends labeled and included in the as-built documentation. Provide on a CD-ROM in Excel compatible form spreadsheet file cross referencing all cable run numbers, architectural room number, and owners room number from the origin and destination of each cable run.

C. A formal on-site training session shall be provided by this contractor to the Owners Representative / Maintenance personnel and shall include instruction in the location, inspection, maintenance, testing, and operation of all system components. Provide a minimum of two (2) hours of documented general instruction.

12. WARRANTY, SERVICE. TESTING. CERTIFICATION

A. Unless otherwise specified, unconditionally guarantee in writing the materials, equipment, and workmanship for a period of not less than twenty (20) years from date of acceptance by the owner. The owner shall deem acceptance as beneficial use.

B. Transfer manufacturer's warranties to the owner in addition to the General System Guarantee. Submit these warranties on each item in list form with shop drawings. Detail specific parts within equipment that are subject to separate conditional warranty. Warranty proprietary equipment and systems involved in this contract during the guarantee period. Final payment shall not relieve you of these obligations.

C. The System Contractor shall make a thorough inspection of the complete installation to ensure the following:
   1. Complete and functional system
   2. Installed in accordance with manufacturer's instructions.
   3. All cabling shall test free from all grounds and shorts.

D. Data UTP cable shall be tested at 350 MHz or greater. The cable tester shall produce a printed report, noting label information, for each cable run. Testing shall be conducted with a Level III or equivalent cable test scanner with active injector capable of Category 6.

E. Telephone UTP cable shall be tested at 100 MHz with the same type tester to insure Category 5e requirements.

F. ADDITIONAL REQUIREMENTS:
   1. A representative of the end-user shall be invited to witness field testing. The representative shall be notified of the start date of the testing phase five (5) business days before testing commences.
   2. A representative of the end-user will select a random sample of 5% of the installed links. The representative (or his authorized delegate) shall test these randomly selected links and the results are to be stored in accordance with the prescriptions in Section 1.4. The results obtained shall be copared to the data provided by the installation contractor. If more than 2% of the sample results differ in terms of the pass/fail determination, the installation contractor under supervision of the end-user representative shall repeat 100% testing and the cost shall be borne by the installation contractor.

G. PERFORMANCE TEST PARAMETERS
   1. The test of each cable link shall contain all of the following parameters as detailed below. In order to pass the link test all measurements (at each frequency in the range from 1 MHz through minimum 350 MHz) must meet or exceed the limit value determined in the TIA/EIA standards.
   2. **Wire Map –** Wire Map shall report Pass if the wiring of each wire-pair from end to end is determined to be correct. The Wire Map results shall include the continuity of the shield connection if present.
   3. **Length –** The field tester shall be capable of measuring length of all pairs of a permanent link or channel based on the propagation delay measurement and the average value for NVP (1). The physical length of the link shall be calculated using the pair with the shortest electrical delay. This length figure shall be reported and shall be used for making the Pass/Fail decision. The Pass/Fail criteria are based on the maximum length allowed for the permanent link configuration (90 meters - 295 ft) or the channel (100 meters - 328 ft) plus 10% to allow for the variation and uncertainty of NVP.
   4. **Insertion Loss (Attenuation) –** Insertion Loss is a measure of signal loss in the permanent link or channel. The term 'Attenuation' has been used to designate 'insertion loss'. Insertion Loss shall be tested from 1 MHz through minimum 350 MHz in maximum step size of 1 MHz. It is preferred to measure attenuation at the same frequency intervals as NEXT Loss in order to provide a more accurate

calculation of the Attenuation-to-Crosstalk Ratio (ACR) parameter.

5. **Nominal Velocity of Propagation (NVP**) expresses the speed of the electrical signals along the cabling link in relation to the speed of light in vacuum. Insulation characteristics and twist rate of the wire pair influence NVP in minor ways. Typically, an 'average' value for NVP is published for all four wire-pairs in a data cable.
6. **NEXT Loss**, **pair-to-pair** – Pair-to-pair near-end crosstalk loss (abbreviated as NEXT Loss) shall be tested for each wire pair combination from each end of the link (a total of 12 pair combinations). This parameter is to be measured from 1 through minimum 350 MHz. NEXT Loss measures the crosstalk disturbance on a wire pair at the end from which the disturbance signal is transmitted (near-end) on the disturbing pair.
7. **PSNEXT Loss –** Power Sum NEXT Loss shall be evaluated and reported for each wire pair from both ends of the link-under-test (a total of 8 results). PSNEXT Loss captures the combined near-end crosstalk effect (statistical) on a wire pair when all other pairs actively transmit signals. Like NEXT this test parameter must be evaluated from 1 through minimum 350 MHz and the step size may not exceed the maximum step size defined in the standards.
8. **ELFEXT Loss**, **pair-to-pair –** Pair-to-pair FEXT Loss shall be measured for each wire-pair combination from both ends of the link-under-test. FEXT Loss measures the unwanted signal coupling (crosstalk disturbance) on a wire pair at the opposite end (far-end) from which the transmitter emits the disturbing signal on the disturbing pair. FEXT is measured to compute ELFEXT Loss that must be evaluated and reported in the test results. ELFEXT measures the relative strength of the far-end crosstalk disturbance relative to the attenuated signal that arrives at the end of the link. This test yields 24 wire-pair combinations. ELFEXT is to be measured from 1 through minimum 350 MHz and the maximum step size for FEXT Loss measurements shall not exceed the maximum step size defined in the standards. Minimum test results documentation (summary results): Identify the wire pair combination that exhibits the worst-case margin and the wire pair combination that exhibits the worst value for ELFEXT. These wire pairs must be identified for the tests performed from each end. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.
9. **PSELFEXT Loss** – As defined in TIA/EIA standards.
10. **Power Sum ELFEXT** is a calculated parameter that combines the effect of the FEXT disturbance from three wire pairs on the fourth one. This test yields 8 wire-pair combinations.
11. **Return Loss** – Return Loss (RL) measures the total energy reflected on each wire pair. Return Loss is to be measured from both ends of the link-under-test for each wire pair. This parameter is also to be measured form 1 through minimum 350 MHz in frequency increments that do not exceed the maximum step size defined in the standards. Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst case margin and the wire pair that exhibits the worst value for Return Loss. These wire pairs must be identified for the tests performed from each end. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.
12. **ACR (Attenuation to crosstalk ratio)** [This parameter is not demanded by the standards but may be required in order to obtain the premise wiring vendor's warranty] – ACR provides an indication of bandwidth for the two wire-pair network applications. ACR is a computed parameter that is analogous to ELFEXT and expresses the signal to noise ratio for a two wire-pair system. This calculation yields 12 combinations - six from each end of the link. Minimum test results documentation (summary results): Identify the wire pair combination that exhibits the worst case margin and the wire pair combination that exhibits the worst value

for ACR. These wire pair combinations must be identified for the tests performed from each end. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.

13. **PSACR** [This parameter is not required by the standards but may be required in order to obtain the premise wiring vendor's warranty] – The Power Sum version of ACR is based on PSNEXT and takes into account the combined NEXT disturbance of all adjacent wire pairs on each individual pair. This calculation yields 8 combinations - one for each wire pair from both ends of the link. Minimum test results documentation (summary results): Identify the wire pair that exhibits the worst-case margin and the wire pair that exhibits the worst value for PSACR. These wire pairs must be identified for the tests performed from each end. Each reported case shall include the frequency at which it occurs as well as the test limit value at this frequency.
14. **Propagation Delay –** Propagation delay is the time required for the signal to travel from one of the link to the other. This measurement is to be performed for each of the four wire pairs. Minimum test results documentation (summary results): Identify the wire pair with the worst-case propagation delay. The report shall include the propagation delay value measured as well as the test limit value.
15. **Delay Skew –** This parameter shows the difference in propagation delay between the four wire pairs. The pair with the shortest propagation delay is the reference pair with a delay skew value of zero. Minimum test results documentation (summary results): Identify the wire pair with the worst-case propagation delay (the longest propagation delay). The report shall include the delay skew value measured as well as the test limit value.

H. TEST RESULT DOCUMENTATION

1. The test results information for each link shall be recorded in the memory of the field tester upon completion of the test.
2. The test results records saved by the tester shall be transferred into a Windows(tm)-based database utility that allows for the maintenance, inspection and archiving of these test records. A guarantee must be made that the measurement results are transferred to the PC unaltered, i.e., "as saved in the tester" at the end of each test and that these results cannot be modified at a later time.
3. The database for the completed job shall be stored and delivered on CD-ROM including the software tools required to view, inspect, and print any selection of test reports.
4. A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information.
    a. The identification of the link in accordance with the naming convention defined in the overall system documentation
    b. The overall Pass/Fail evaluation of the link-under-test including the NEXT Headroom (overall worst case) number.
    c. The date and time the test results were saved in the memory of the tester
    d. General Information to be provided in the electronic data base with the test results information for each link:
        i. The identification of the customer site as specified by the end-user
        ii. The identification of the link in accordance with the naming convention defined in the overall system documentation
        iii. The overall Pass/Fail evaluation of the link-under-test
        iv. The name of the standard selected to execute the stored test results
        v. The cable type and the value of NVP used for length calculations
        vi. The date and time the test results were saved in the memory of the tester

vii. The brand name, model and serial number of the tester
viii. The identification of the tester interface
ix. The revision of the tester software and the revision of the test standards database in the tester

PART 2—PRODUCTS

1. GENERAL

A. All cable and wiring devices provided should be listed and labeled by Underwriters Laboratories, Inc. for the intended use under the latest appropriate testing standard.

B. Only equipment devices have been shown on the contract drawings. Specific wiring between equipment has not been shown.

C. All equipment and components shall be new, and the manufacturer's current model. All like devices shall be of the same manufacturer and model number.

D. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., cable shall not be supported by or lay on suspended ceilings). Fasteners and supports shall be adequate to support the required load.

E. Installation subject to approval, inspection, and test of the Architect/Engineer.

2. ACCEPTABLE MANUFACTURES

A. All reference to manufacturers or suppliers' model numbers and other pertinent information herein are supplied to establish minimum standards of performance, function and quality. The intent is to establish a standard of quality, function and features. It is the responsibility of the bidder to insure that the proposed product meets or exceeds every standard set forth in these specifications.

B. It is the responsibility of the Contractor to provide all features and functions as outlined in these specifications.

C. The functions and features specified are vital to the operation of this facility; therefore, inclusion in the list of acceptable manufacturers does not release the contractor from strict compliance with the requirements of this specification.

D. The following are acceptable cable manufactures any other proposed suppliers must be pre-approved:
1. Belden
2. Berk-tek
3. CommScope
4. Panduit
5. Essex
6. General
7. Mohawk
8. TE Connectivity
9. Optical Cable Corporation

E. The following are acceptable wiring device manufactures any other proposed suppliers must be pre-approved:

1. Hubbell
2. Ortronics
3. Panduit
4. Leviton
5. Siemens
6. TE Connectivity

F. The following are acceptable Telecommunication Room Hardware manufacturers any other proposed suppliers must be pre-approved:
1. B-Line
2. Chatsworth
3. Damac
4. CISCO
5. Blonder Tongue

3. SYSTEM DESCRIPTION

A. Data: The data communication system will provide the permanent part of the building wiring (cable plant) required to support a computer local area or wide area network. The new MDF shall be connected in a star topology. The cabling will extend from each designated data jack to the new MDF. This system shall allow all the additional equipment required to complete the computer network to simply be plugged in.
1. **DATA INSERTS CATERGORY 6** – All data jacks shall be wired with Category 6 (data grade) Blue. The back of the device shall have color-coded insulation displacement contact (IDC) type connections.
2. **DATA UTP CABLING. CATEGORY 6** – NEC type CMP cable blue, Category 6, Plenum, 24 AWG solid copper conductor, 4-pair UTP or equivalent. It should be able to support data rates up to 350 MHz
3. **DATA WALL PLATES** – Provide multiple jack modular Electrical stainless steel wall plates with label windows where shown on plans or required. Each location with data only shall have two ports. Each location with data and telephone shall have two data ports and two telephone ports.
4. **COPPER PATCH CABLES** – Provide 3’ and 10’ Category 6 Blue patch cables for each active data outlet, passive panel switch.

B. Telephone: Telephone communication system will provide the permanent part of the building wiring (cable plant) required to support a telephone system as shown or indicated on the plans. The drop cabling will extend from each designated telephone jack to a telephone backboard. This system shall allow all the additional equipment required to complete the telephone system to be plugged into a jack or punched down at the telephone backboard. This specification section does not specify or include any of the telephone electronic equipment including all desk sets, wall sets, modular cords, and switching equipment. Contractor shall coordinate and schedule with Telephone Delivery Provider for connection and installation of service. All cost associated with connection and installation of telephone service shall be responsibility of Contractor.
1. **TELEPHONE JACKS** – All telephone jacks shall be 8-pin modular female connectors (RJ-45). All cabling, punch blocks, connectors, and jacks provided will meet and be tested to TIA/EIA 568-B Category 5e standards supporting data transmission rates up to 100 Mbps. All cabling, terminations and devices shall meet Category 5e standards. Wiring topology to be a hierarchical star pattern extending from a telephone backboard to each jack.
2. **TELEPHONE BACKBOARD BLOCKS. CATEGORY 5e** - Provide the required quantity of board mounted, Category 5e minimum, 66, 110 or other termination blocks. Provide spool and "D" hook or other wire management devices as required.

All blocks and cables shall be labeled and documented to ANSI/TIA standards.

3. **TELEPHONE UTP CABLING. CATEGORY 5e** - NEC type CMP cable, Category 5e White Plenum. All cable shall have labels on both ends utilizing self-laminating, flexible vinyl film and non-smear nylon marking pens.
4. **TELEPHONE LINE ELECTRICAL SURGE PROTECTORS** - Electrical surge protection shall be provided for all service entrance connections and on cables that connect one building to another (i.e. any other portion of a building complex not under one continuous roof at both exit points) to prevent damage to equipment. Provide solid-state plug-in protector units to provide over-voltage protection and heat coils to provide protection. Provide 100 pair plug-in protector panels as required.
5. **WALL TELEPHONE JACKS** - Provide a non-keyed RJ-45 jack, stainless steel wall plate with telephone wall set mounting studs, and Category 6 cable to telephone block. The back of the device shall have color-coded insulation displacement contact (IDC) type connections.
6. **FAX MACHINE JACKS** - Provide a non-keyed RJ-45 Red jack, wall plate, and Category 6 cable to telephone block. The back of the device shall have color coded insulation displacement contact (IDC) type

4. CABLE INSTALLATION AND ATTACHMENTS

A. System wiring and equipment installation shall be in accordance with good engineering practices as established by the TIA and the NEC. Wiring shall meet all state and local electrical codes. All wiring shall test free from all grounds and shorts. All communications cable shall be supported from the building structure and bundled. The support system shall provide a protective pathway to eliminate stress that could damage the cabling. The cable shall not be crushed, deformed, skinned, crimped, twisted, or formed into tight radius bends that could compromise the integrity of the cabling. Communication cables shall not be run loose on ceiling grid or ceiling tiles. Support shall be provided by mounting appropriate fasteners, which may be loaded with multiple cables. Provided that the weight load is carried by the support rod or wire the support assembly may attach to the ceiling grid for lateral stabilization. The required support wires for the ceiling grid or light fixtures shall not be utilized. Any fastener attached to the ceiling grid shall not interfere with inserting or removing ceiling tiles. All cabling and supports must be positioned at least 12 inches above the ceiling grid.

B. Communication cables shall be run in bundles above accessible ceilings and supported from building structure utilizing J-Hooks or cable trays. Cabling shall be loosely bundled with Velcro randomly spaced at 30 to 48 inches on center; Velcro shall not be tight enough to deform cabling and shall not be used to support the cabling. **Tie wraps and Zip Ties shall not be acceptable.**

C. Attachments for cabling support shall be spaced at 48 to 60 inches on center. The cable bundle shall not sag more than 12 inches mid-span between attachments. All attachments shall be approved for Category 5e or Category 6 cabling as per Part 2.3 above.

Attachments for Category 5e shall be sized as follows:

1.	Bundles up to 1" dia. (20 CAT3 or 5e cables)	Caddy #CAT16 or equivalent
2.	Bundles up to 1 -5/16" dia. (50 CAT3 or 5e cables)	Caddy #CAT21 or equivalent
3.	Bundles up to 2" dia. (90 CAT3 or 5e cables)	Caddy #CAT32 or equivalent
4.	Bundles up to 4" dia. (330 CAT3 or 5e cables)	Caddy #CAT64 or equivalent

Attachments for Category 6 shall be sized as follows:

1.	Bundles up to 1” dia. (15 CAT6 cables)	Caddy #CAT16 or equivalent
2.	Bundles up to 1 -5/16” dia. (40 CAT6 cables)	Caddy #CAT21 or equivalent
3.	Bundles up to 2” dia. (60 CAT6 cables)	Caddy #CAT32 or equivalent
4.	Bundles up to 4” dia. (220 CAT6 cables)	Caddy #CAT64 or equivalent

D. Do not mix different signal strength cables on the same J-Hook (i.e. fire alarm with telephone/data cable). Multiple J-Hooks can be on the same attachment point up to the rated weight of the attachment device.

E. Cable tray shall be routed over the MDF/IDF racks and MDF/IDF equipment board at the top of the open racks as shown on plans. Cable tray shall be CPI Model No. 10250-012 or equivalent 12" wide, heavy-duty steel construction cable runway with cross members at 12" intervals with a standard gray finish. Cable tray shall be securely supported from the building structure and grounded.

F. Communication cables shall be run in conduits, where stubs are provided, from wall or floor jacks to above accessible ceilings. Conduit shall be required only within walls and concealed spaces to provide access. Provide a plastic snap bushing or sleeve on the end of each conduit stub such as Thomas & Betts no. 443 – ¾”, 424 - 1", 425 -1 1/4", 427 - 2" or equivalent.

G. Conduit, duct or track shall be used for communication cable in exposed areas.

H. All conduit, ducts, track and raceways shall be supported from the structure at industry standard intervals for the size specified, utilizing proper anchoring devices and techniques for each type of cable used.

I. All penetrations through fire rated walls or floors shall feature a short length of metal conduit. The hole shall be neatly cut, not oversize or irregular. Seal the interior of the conduit sleeve around the cables and around the outside of the sleeve on each side of the penetration with fire-stop caulk or putty, such as Minnesota Mining & Mfg. Co (3M) – CP25WB+ caulk, MPS-2+ putty, or equivalent. Install according to the manufacturer's instructions.

J. All cable shall have a label on both ends utilizing self-laminating, flexible vinyl film and non-smear nylon marking pens.

K. Each cable run shall include a three-foot service loop with Velcro located in the ceiling above the rack. This is to allow for future re-termination or repair.

L. Mount all head end equipment firmly in place. Route cable in a professional, neat and orderly installation.

M. All cabling shall be placed with regard to the environment, EMI/RFI interference and its effect on communication signal transmission.

N. Non-conductive fiber optic cable is immune from EMI/RFI interference. Give priority when selecting a rout to minimize exposure to possible cable damage from maintenance or service of all systems in the attic space.

O. Do not route any data cable within two feet of any light fixture, HVAC unit, service access area, electric panel, or any device containing a motor or transformer.

P. Communication cable will not be installed in the same conduit, duct or track with line voltage electrical cable

Q. Maximum pulling tension should not exceed 25 lb/ft. or manufactures recommendation, whichever is less.

R. Any pulling compounds (lubricants) utilized must be approved by the cable manufacturer and shall not degrade the strength or electrical characteristics of the cable.

S. No terminations, splices or equipment shall be installed in or above ceilings.

T. Cable bends shall not exceed the manufacturer's suggested bend radius.

U. Provide for adequate ventilation in all equipment racks and take precautions to prevent electromagnetic electrostatic hum.

V. Raceways shall be used for their intended purpose. Communications wires and cables shall not be strapped, taped, or attached by any means to the exterior of any conduit or raceway as a means of support.

W. A grounding bus bar shall be installed at each IDF and MDF location. This ground bus bar shall be connected to the building grounding system. All electronic equipment shall be connected to the grounding bus bar as per the manufacturer's requirements and recommendations.

END SECTION

SECTION 27 60 10

FIRE ALARM SYSTEM

PART 1—GENERAL

1.1 DESCRIPTION

This Section governs for furnishing and installing Fire Alarm System.

1.2 RELATED WORK

Heating, Ventilation & Air Conditioning

1.3 SUBMITTAL REQUIREMENTS

A. Provide Cutsheets of all equipment and wire.

B. Provide Battery Calculations and Voltage Drop Calculations.

C. Provide floorplans in accordance with the International Building Code, showing all device locations, candela ratings of signals, and point to point wiring. Drawings shall be sealed by a Fire Alarm Planning Superintendent. Fire Alarm Contractor shall verify system design meet all code requirements.

1.4 CODES AND STANDDARDS

A. NFPA 70 National Electrical Code

B. NFPA 72 National Fire Alarm and Signaling Code

C. NFPA 101 Code for Safety to Life from Fire in Buildings and Structures

D. Texas Administrative Code

E. Americans with Disabilities Act

F. Local and State Building Codes

G. All requirements of the local Authority Having Jurisdiction (AHJ)

1.5 WARRANTY

The contractor shall provide a full one year parts and labor warranty of the system from the date of final acceptance of the project. The contractor shall also provide service contract to the owner prior to the completion of the initial warranty period for their review.

PART 2—PRODUCTS

2.1 APPROVED MANUFACTURERS

A. Specifications are based upon first named. Others listed may be used provided deviations from specifications are minor.

1. Edwards Company
2. Notifier Company
3. Simplex Company
4. Fire Lite Alarm
5. Siemens Fire Alarm

B. Provide compatible equipment from one manufacturer.

2.2 EQUIPMENT

A. Control Panel - Panel to be U.L. listed meeting requirements for power limited fire protection signaling circuits of the National Electrical Code Panel shall be recessed into wall. Provide an EST IO500 Addressable Fire Alarm Control Panel. The panel shall be expandable for future building additions. Provide signal Power Boosters (EST BPS 6) as required to provide Signal Power.

B. Annunciator Panel- Where required of if shown on the plans, provide an EST RLCD-C Annunciator Panel. Panel shall have LCD display and be capable of full control of the control panel.

C. Addressable Double Action Pull Station- Provide EST SIGA-278 Addressable Pull Stations constructed of red Lexan with red raised letters reading “FIRE” and with simple, concise instructions for activation of the station by the general public. Architect prefers white devices if available.

D. Horn/Strobe Unit – EST Genesis Series White flush mounted audible/visual units. All signals shall meet the current ADA and TAS requirements. Fire alarm contractor shall verify proper candela rating and Db level requirement.

E. For Work under NFPA 2013 provide low frequency Signals in all Sleeping Occupancies.

F. Ceiling Mount Heat Detectors- Provide EST SIGA2-HFS 135F Analog fixed temperature Heat Detectors as required.

G. Ceiling Mount Smoke Detectors- Provide EST SIGA2-PS Analog Photoelectric Smoke Detectors where shown on the plans. Detector shall have separate head and base. Smoke Detectors shall be installed above the control panel, above booster power supplies, at door holders, smoke doors and as required by the local authority having jurisdiction.

H. Duct Mounted Smoke Detectors- Provide EST SIGA- DH Analog Photoelectric Duct detectors where required. Duct detector shall shut down its air handler as required by applicable code. Provide remote LED in a visible location for quick identification of Duct Detector in Alarm. Fire Alarm Contractor to verify if Duct Detectors are required on Supply or Return side (or both).

I. Carbon Monoxide/Carbon Dioxide Detectors – If shown on the plans, provide EST SIGA2-COS Detectors.

J. Sprinkler connection-Fire Alarm Contractor to provide EST SIGA-CT2 or SIGA-WTM Monitor Module to monitor Sprinkler Switches as required.

K. For work under IBC 2012 a manual emergency voice communication system shall be required.

PART 3—EXECUTION

3.1 Wire shall be run in conduits or plenum rated. Non Plenum Rated Cable will not be accepted unless ran in conduit.

A. All conduit, duct, track or raceways shall be supported from the building structure at industry standard intervals for the size and type required. Utilize the proper anchoring devices and techniques for each type of cable used.

B. Fire Alarm cables shall be run in bundles above accessible ceilings and supported from the building structure. Cabling shall be loosely bundled with wire wraps spaced at 48 inch centers. The cable bundle shall not be allowed to sage more than 12 inches mid-span between attachments. All cable runs shall follow building lines and 90 degree turns. No cables shall be attached to any other trades equipment or mounting devices. J-HOOKS and Caddy straps are to be used for any bundles of wire in all corridors. Size the caddy straps and j-hooks to properly support the size of the bundles.

C. All penetrations through fire-rated walls shall feature short length of metal conduit. The sleeve shall be neatly enclosed by the fire wall material. Do not oversize the sleeve opening. Each sleeve shall be sealed with approved fire rated caulk or putty on each side of the penetration.

3.2 FINAL TESTING AND CLOSE OUT

A. The Contractor shall field test the complete system and demonstrate the system extension to the satisfaction of the Owner.

B. The Contractor shall provide to the Owner a complete set of Auto CADD as-built drawings locating all of the systems cable runs, device locations and descriptions, both in disk form and hard copy form. Contractor shall also provide owners manuals.

3.3 INSTALLATION

A. Fire Alarm panels in public areas shall be recessed as much as possible within the wall.

B. Provide Remote Annunciators in locations as approved by the local AHJ if the Fire Alarm Control Panel is located in a non-readily-accessible area.

C. Install system per the manufacturer’s specifications.

3.4 TESTING

A. Set and check out system for proper operation upon completion.

END SECTION

SECTION 323113
FENCING AND GATES
(By Owner)

PART 1 GENERAL

1.1. DESCRIPTION OF WORK

A. Chain link fence and gates.

1.2. QUALITY OF WORK

A. Provide fences and gates, including necessary erection accessories, fittings, fastenings and posts.

1.3. SUBMITTALS

A. Product Data: Submit manufacturer's technical data, and installation instructions for metal fencing, fabric, gates, and accessories.

1.4. RELATED SECTIONS:

A. Section 087163 Detention Door Hardware.

PART 2 PRODUCTS

2.1. CHAIN LINK FENCE AND GATES

2.1.1 GENERAL

A. Fabricator shall be responsible for the design of all gates, including rolling gate frame, wheels and travel guide.

B. Dimensions indicated for pipe, roll-formed, and H-sections are outside dimensions, exclusive of coatings.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following:

1. Galvanized Steel Fencing and Fabric:
   Allied Tube and Conduit Corp.
   American Fence Corp.
   Anchor Fence, Inc.
   Cyclone Fence Division, USX Corp.

2.1.2 STEEL FABRIC

A. Fabric: No. 9 ga. (0.148" + 0.005") size steel wires, 2" mesh, and both top and bottom selvages twisted and barged for fabric over 60" high. Furnish one-piece fabric widths.

B. Fabric Finish: Galvanized, ASTM A 392, Class I, with not less than 1.2 oz. zinc per sq.ft. of surface.

2.1.3 FRAMING AND ACCESSORIES

A. Steel Framework, General: Galvanized steel, ASTM A 120 or A 123, with not less than 1.8 oz. zinc per sq. ft. of surface.

B. Fittings, Accessories and Base Plates: Galvanized, ASTM A 153, with zinc weights per Table I.

C. End, Corner and Pull Posts: Minimum Sizes and weights as follows:
1. 2.875" OD steel pipe, 5.79 lbs. per lin. ft., or 3.5"×3.5" roll-formed sections, 4.85 lbs. per lin. ft.

D. Line Posts: Space 10' o.c. maximum, unless otherwise indicated, of following minimum sizes and weights.
1. 2.875" OD steel pipe, 5.79 lbs. per lin. ft. or 2.25"×1.875" H-sections, 3.26 lbs. per lin. ft.

E. Gate Posts: Furnish posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:

Leaf Width	Gate Post	Lbs./lin. ft.
Up to 6'	3.5"×3.5" roll-formed	4.85
	section or 2.875" OD pipe	5.79
Over 6' to 13'	4.000" OD pipe	9.11
Over 13' to 18'	6.625" OD pipe	18.97
Over 18'	8.625" OD pipe	28.55

F. Tension Wires: 7-gage, coated coil spring wire, metal and finish to match fabric. Locate at top and bottom.

G. Post Tops: Provide weather tight closure cap with loop to receive tension wire or toprail; one cap for each post.

H. Stretcher Bars: One-piece lengths equal to full height of fabric, with minimum cross-section of $^{3}/_{16}$"×¾". Provide one stretcher bar for each gate and end post, and 2 for each corner and pull post, except where fabric is integrally woven into post.

I. Stretcher Bar Bands: Space not over 15" o.c., to secure stretcher bars to end, corner, pull, and gate posts.

J. Lock Boxes for Detention Locks: 10 ga. Galvanized steel box and cover plate as required to accommodate detention locks at gates.

K. Provide base plates on posts where indicated on the drawings anchored to concrete slabs with expansion bolts where applicable.

PART 3 EXECUTION

3.1. CHAIN LINK FENCES AND GATES

3.1.1 INSTALLATION

A. Do not begin installation and erection before final grading is completed, unless otherwise permitted.

B. Excavation: Drill or hand excavate (using post hole digger) holes for posts to diameters and spacings indicated, in firm, undistributed or compacted soil.
   1. If not indicated on drawings, excavate holes for each post to minimum diameters as recommended by fence manufacturer, but not less than 4 times largest cross-section of post.
   2. Unless otherwise indicated, excavate hole depths approximately 3" lower than post bottom, with bottom of posts set not less than 36" below finish grade surface.

C. Setting Posts: Center and align posts in holes 3" above bottom of excavation.
   1. Place concrete around posts and vibrate or tamp for consolidation. Check each post for vertical and top alignment, and hold in position during placement and finishing operations.
   2. Unless otherwise indicated, extend concrete footings 2" above grade and trowel to a crown to shed water.

D. Top Rails: Run rail continuously through post caps, bending to radius for curbed runs. Provide expansion couplings as recommended by fencing manufacturer.

E. Bottom Rails: Run rail continuous between posts, bending to radius for curved runs. Provide top rail brackets capable of supporting 3 strands barbed wire – angle brackets inward to property.

F. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.

G. Tension Wire: Install tension wires through post cap loops before stretching fabric and tie to each post cap with not less than 6 ga. galvanized wire. Fasten fabric to tension wire using 11 ga. galvanized steel hog rings spaced 24" o.c.

H. Fabric: Leave approximately 2" between finish grade and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released. Fencing fabric to be 8'-0" high.

I. Stretcher Bars: Thread through or clamp to fabric 4" o.c., and secure posts with metal bands spaced 15" o.c.

J. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

K. Tie Wires: Use U-shaped wire, conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing. Direct twisted tie ends away from the secure side of the fencing.
Tie fabric to line posts, with steel wire ties spaced 12" o.c. Tie fabric to rails and braces, with wire ties spaced 24" o.c. Tie fabric to tension wires, with steel hog rings spaced 24" o.c.

L. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

END OF SECTION

SECTION 30 01 31

TV INSPECTION OF SEWER PIPELINES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: TV inspection of sewer pipelines.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. TV Inspection of Sewer Pipelines: Basis of Measurement: By linear foot.

1.3 REFERENCES

A. American Water Works Association: AWWA D100 - Standard for Welded Steel Tanks for Water Storage.

B. Electronics Industries Association (EIA).

1.4 SUBMITTALS

A. Submit completed tape cassettes, identified by tape number, project name, street name, right-of-way property name, and manhole numbers.

B. Tapes become property of Owner.

1.5 QUALITY ASSURANCE

A. Use cameras with video output capable of producing minimum of 600 lines of horizontal resolution at center; optimum imagery with minimum illumination; and meet requirements of EIA Standard Video Signal.

1.6 QUALIFICATIONS

A. Applicator: Company specializing in performing work of this section.

PART 2 - PRODUCTS

2.1 DIGITAL FILES

A. Digital video files.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify location of sewer pipelines to be inspected.

3.2 PREPARATION

A. Flush and clean pipeline interiors to remove sludge, dirt, sand, stone, grease, and other materials from pipe to ensure clear view of interior conditions.

B. Intercept flushed debris at next downstream manhole by use of weir or screening device, remove, and dispose of debris off site.

C. Furnish materials, labor, equipment, power, maintenance, to implement a temporary bypass pumping system around work area for time required to complete TV inspection.

3.3 APPLICATION

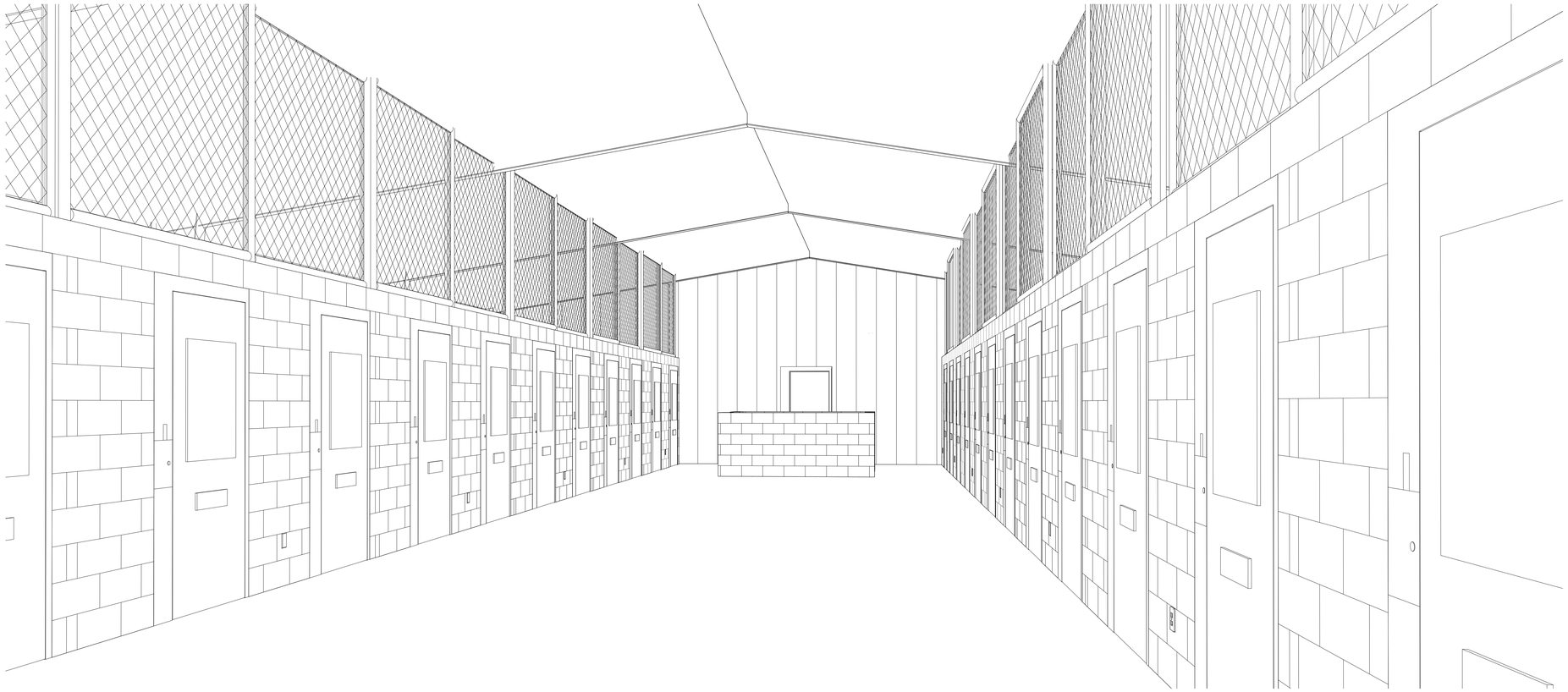
A. Closed-circuit TV Camera System:
   1. Utilize cameras specifically designed and constructed for closed-circuit sewer line inspection. Utilize camera equipment with pan and tilt capability to view each lateral connection at multiple angles.
   2. Utilize camera capable of moving both upstream and downstream; minimum 1,000 feet (300 m) horizontal distance with one setup; direct reading cable position meter.

3.4 FIELD QUALITY CONTROL

A. Pipeline Inspection:
   1. Identify and record locations of flat grades, dips, deflected joints, open joints, broken pipe, protrusions into pipeline, and points of infiltration.
   2. Locate and record service connections.
   3. Record locations of pipeline defects and connection horizontal distance, in feet (meters), and direction from manholes.

END OF SECTION

JEFFERSON COUNTY
CORRECTIONAL CENTER - RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TX



COUNTY JUDGE — **JEFF BRANICK**
COMMISSIONER, PRECINCT 1 — **EDDIE ARNOLD**
COMMISSIONER, PRECINCT 2 — **CARY ERICKSON**
COMMISSIONER, PRECINCT 3 — **MICHAEL SINEGAL**
COMMISSIONER, PRECINCT 4 — **EVERETTE 'BO' ALFRED**
SHERIFF — **ZENA STEPHENS**

GENERAL NOTES:

1. REFER TO PROJECT MANUAL FOR INSTRUCTIONS TO OFFERORS / BIDDERS, PROPOSAL DOCUMENTS, AND SPECIFICATIONS.
2. REFER TO CIVIL ENGINEERING DOCUMENTS FOR CIVIL / SITE REQUIREMENTS.
3. REFER TO STRUCTURAL ENGINEERING DOCUMENTS FOR STRUCTURAL REQUIREMENTS.
4. REFER TO MECHANICAL ENGINEERING DOCUMENTS FOR MECHANICAL SYSTEMS REQUIREMENTS.
5. REFER TO ELECTRICAL ENGINEERING DOCUMENTS FOR ELECTRICAL SYSTEMS REQUIREMENTS.
6. REFER TO PLUMBING DOCUMENTS FOR PLUMBING SYSTEMS REQUIREMENTS.
7. REFER TO FIRE PROTECTION DOCUMENTS FOR FIRE PROTECTION SYSTEMS REQUIREMENTS.
8. REFER TO SECURITY ELECTRONICS DOCUMENTS FOR SECURITY ELECTRONICS SYSTEM REQUIREMENTS.

SHEET LIST

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No.	Revision	Date

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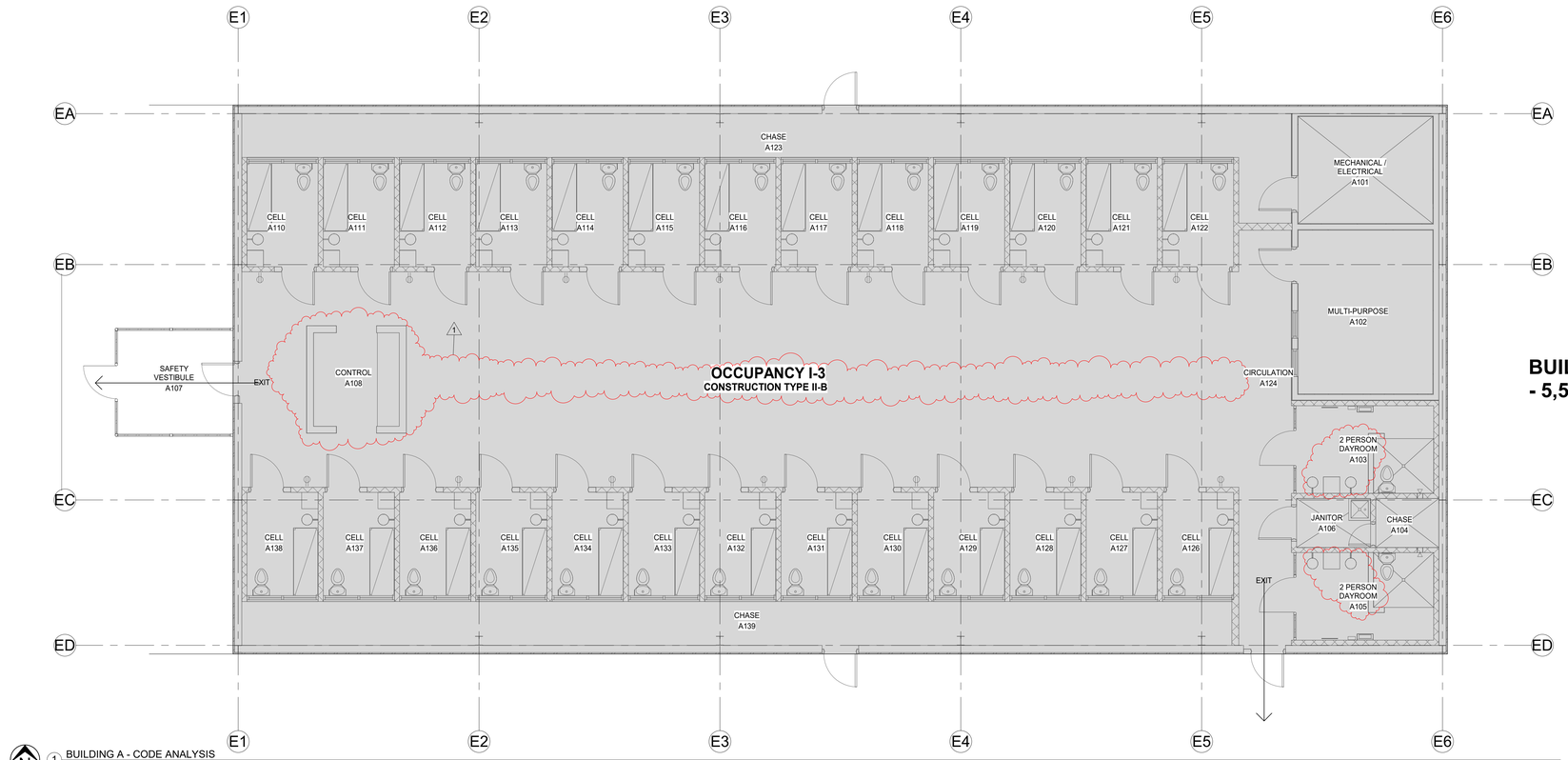
7/30/24

Project Number	JCCCAC-23
Date	7/30/24
Scale	

COVER SHEET

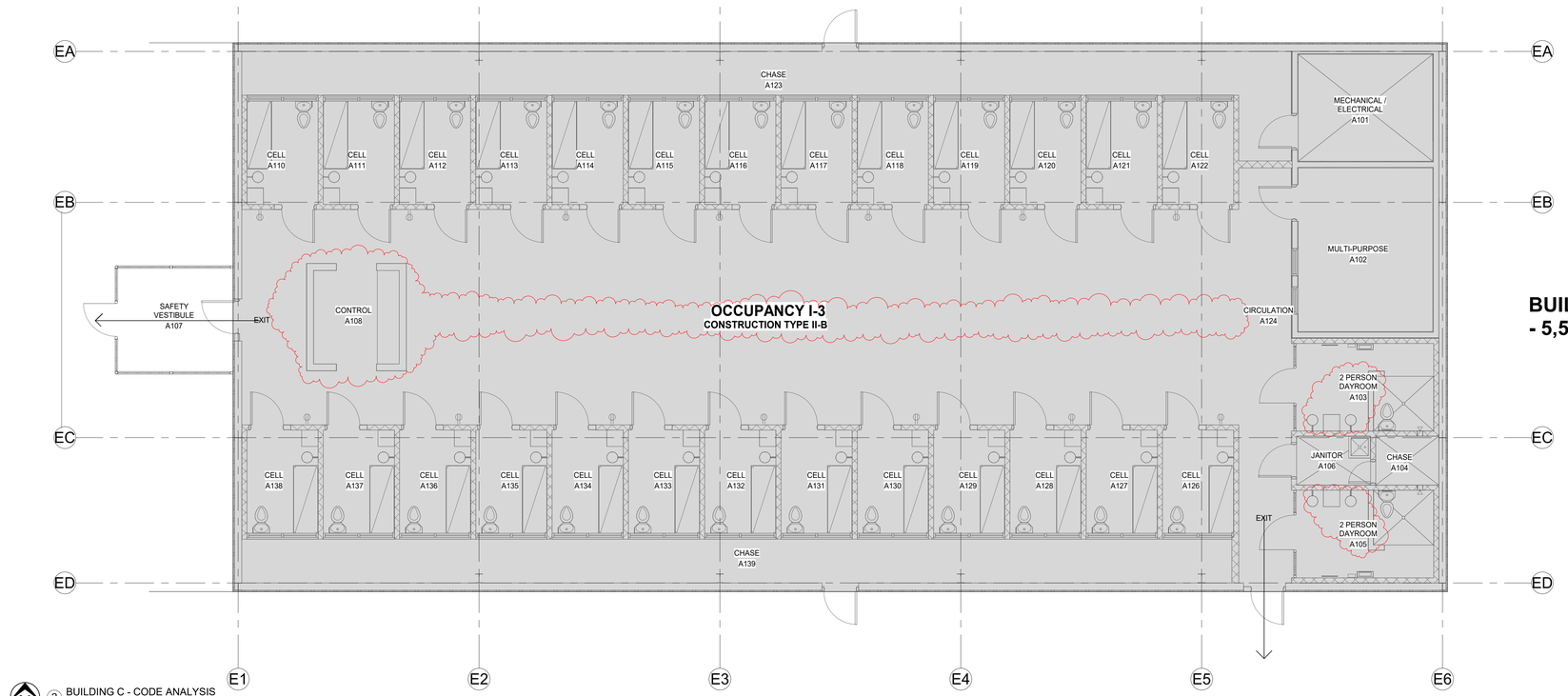
A0.0



BUILDING A
- 5,560 SF

N
PLAN NORTH

1 BUILDING A - CODE ANALYSIS
3/16" = 1'-0"



BUILDING C
- 5,560 SF

N
PLAN NORTH

2 BUILDING C - CODE ANALYSIS
3/16" = 1'-0"

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No.	Revision	Date
1	TCJS REVIEW	7/24/24

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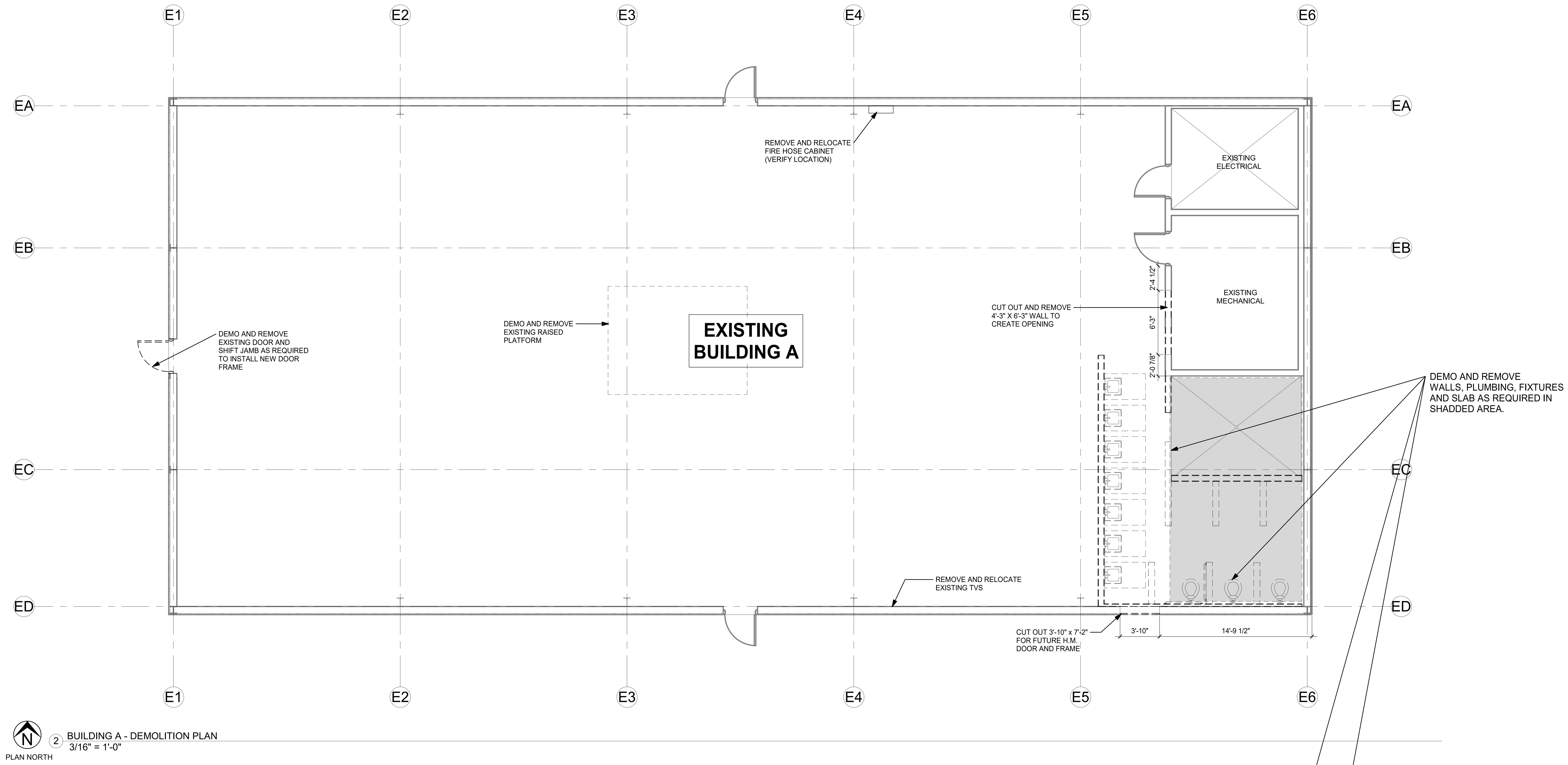
7/30/24

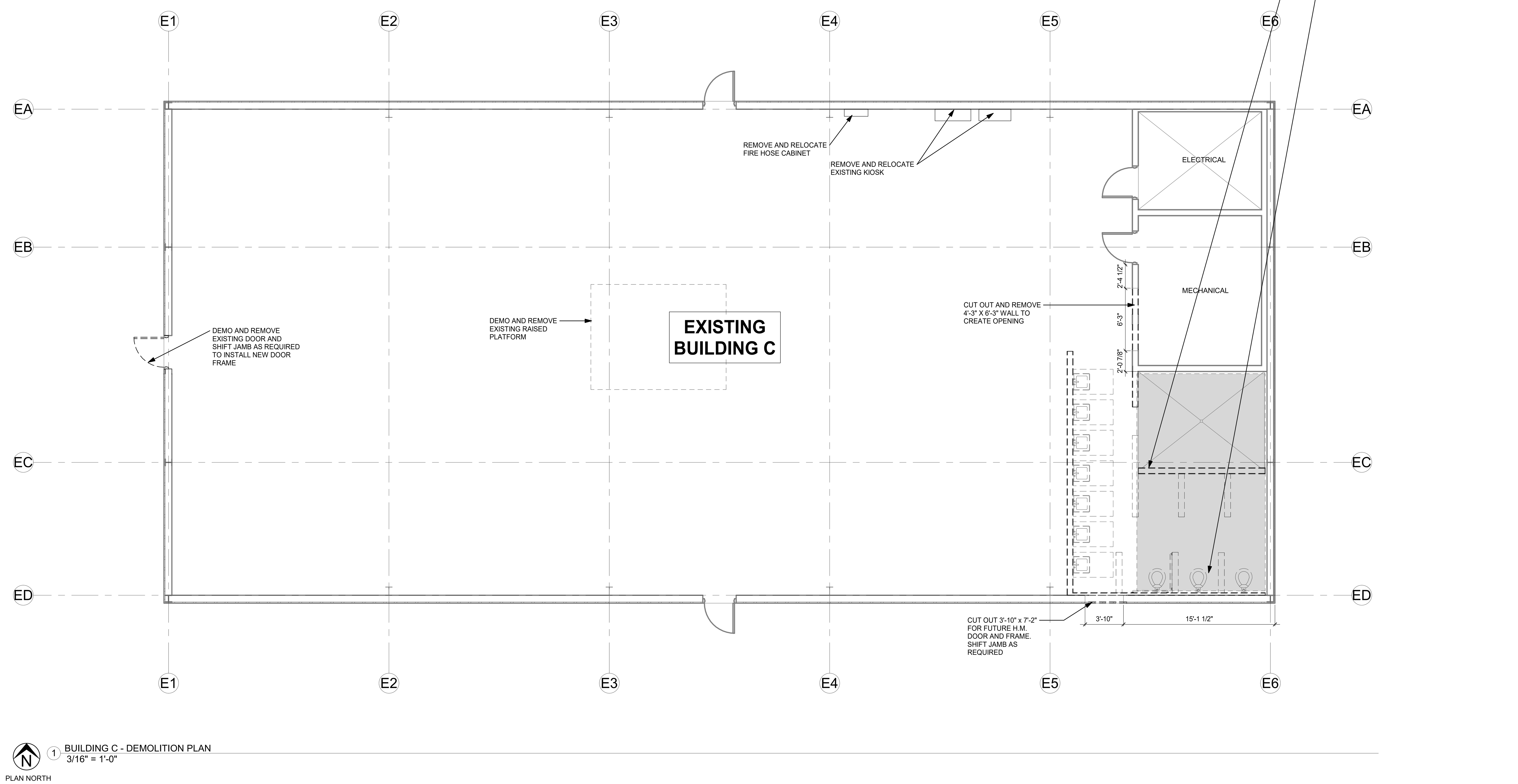
Project Number	JCCCAC-23
Date	7/30/24
Scale	3/16" = 1'-0"

CODE ANALYSIS

A0.2



2 BUILDING A - DEMOLITION PLAN
3/16" = 1'-0"



1 BUILDING C - DEMOLITION PLAN
3/16" = 1'-0"

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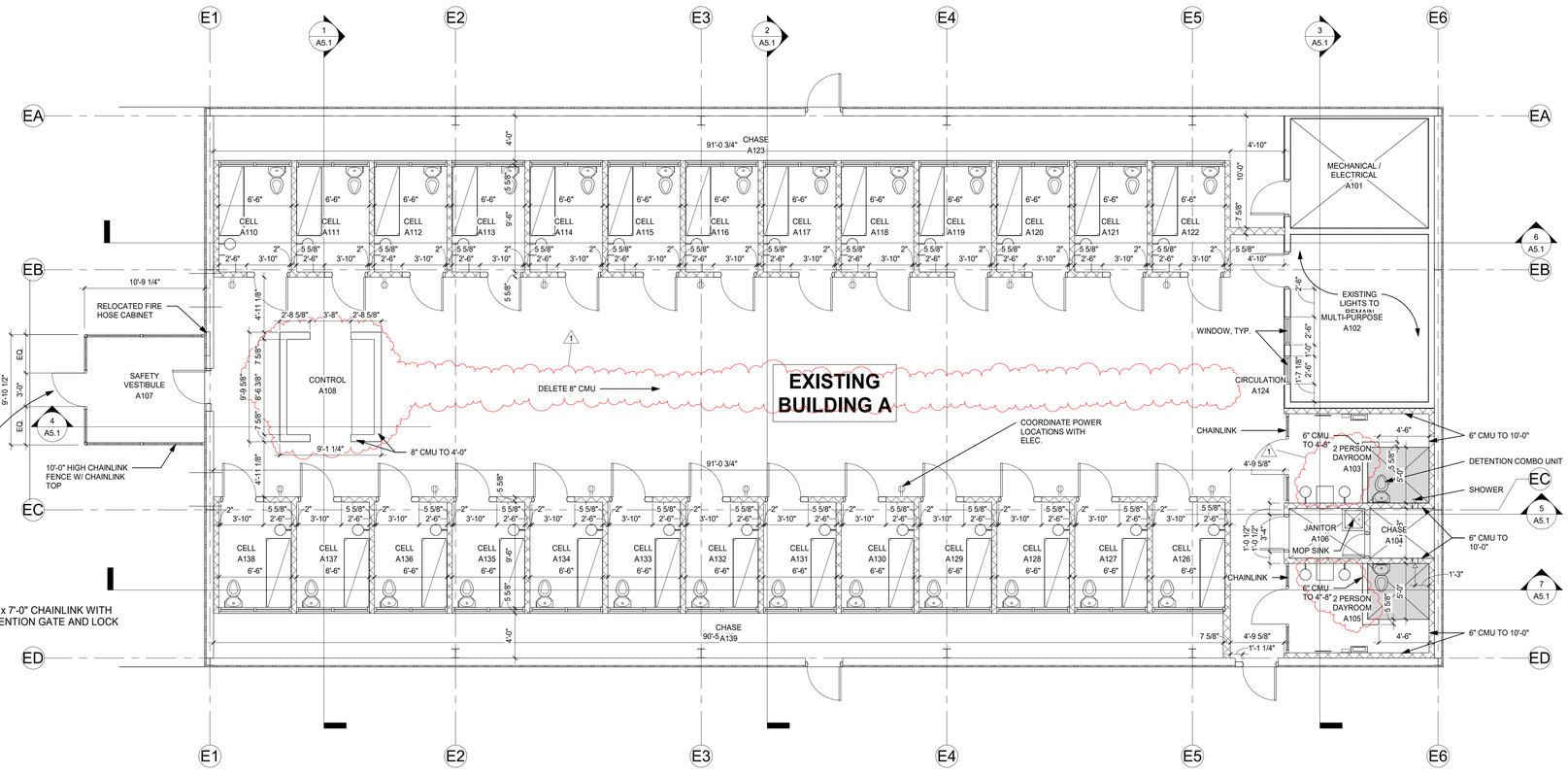
Project Number	JCCCAC-23
Date	7/30/24
Scale	3/16" = 1'-0"

BUILDING A & C - DEMOLITION FLOOR PLAN

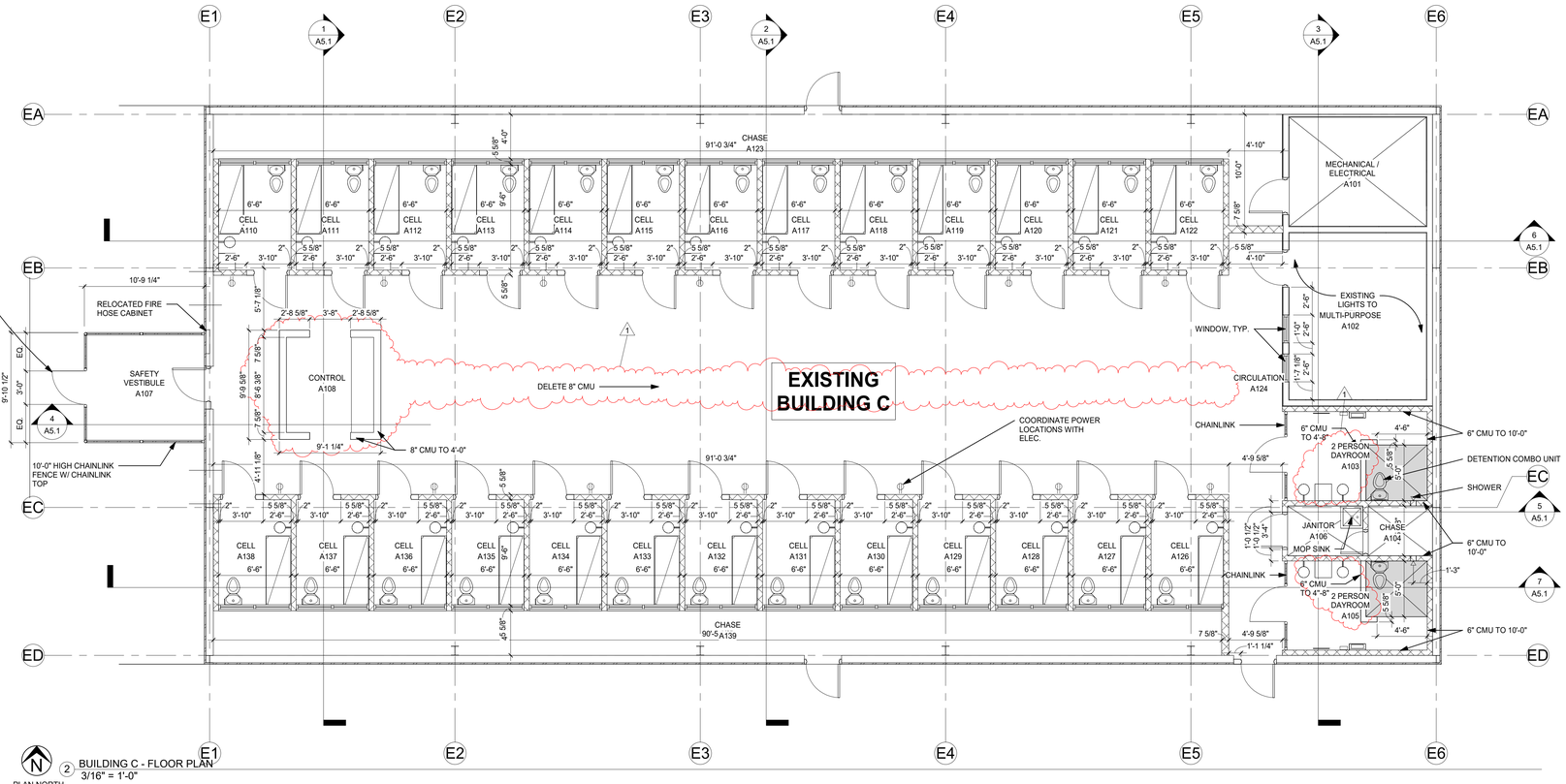
A0.3

PLAN NOTES:

1. SHADED AREA [ ] INDICATES FLOOR SLAB RECESSED 1/2" AT EDGE AND SLOPES TO FLOOR DRAIN. SET TOP OF FLOOR DRAIN 1" BELOW FIN. FL. PROVIDE NON-SLIP EPOXY COATING ON FLOOR SURFACE AND EPOXY COATING ON WALL SURFACES OF ALL SURROUNDING WALLS.



1 BUILDING A - FLOOR PLAN
3/16" = 1'-0"



2 BUILDING C - FLOOR PLAN
3/16" = 1'-0"

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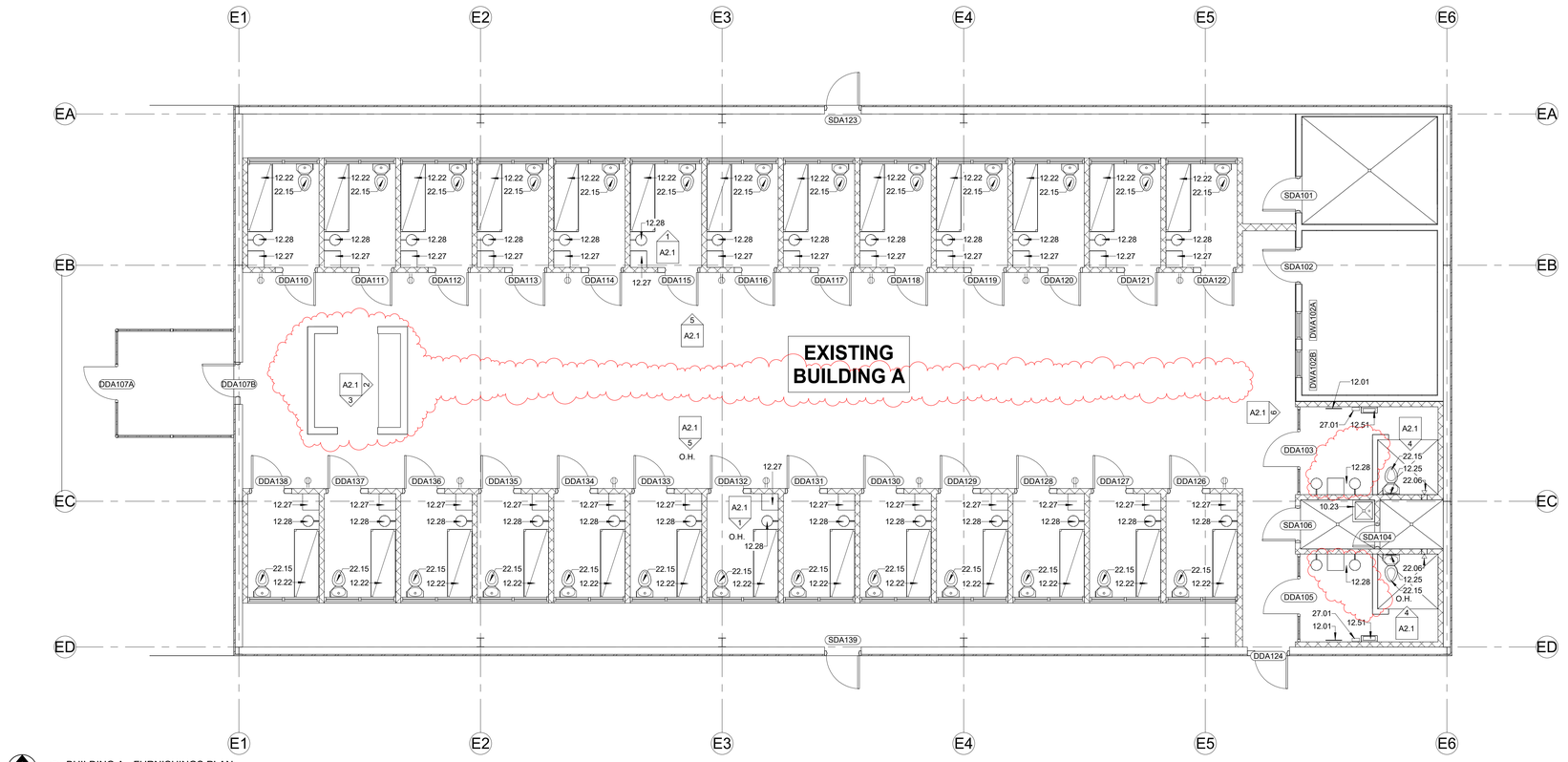
7/30/24

Project Number	JCCCAC-23
Date	7/30/24
Scale	As indicated

BUILDING A & C - DIMENSION FLOOR PLAN

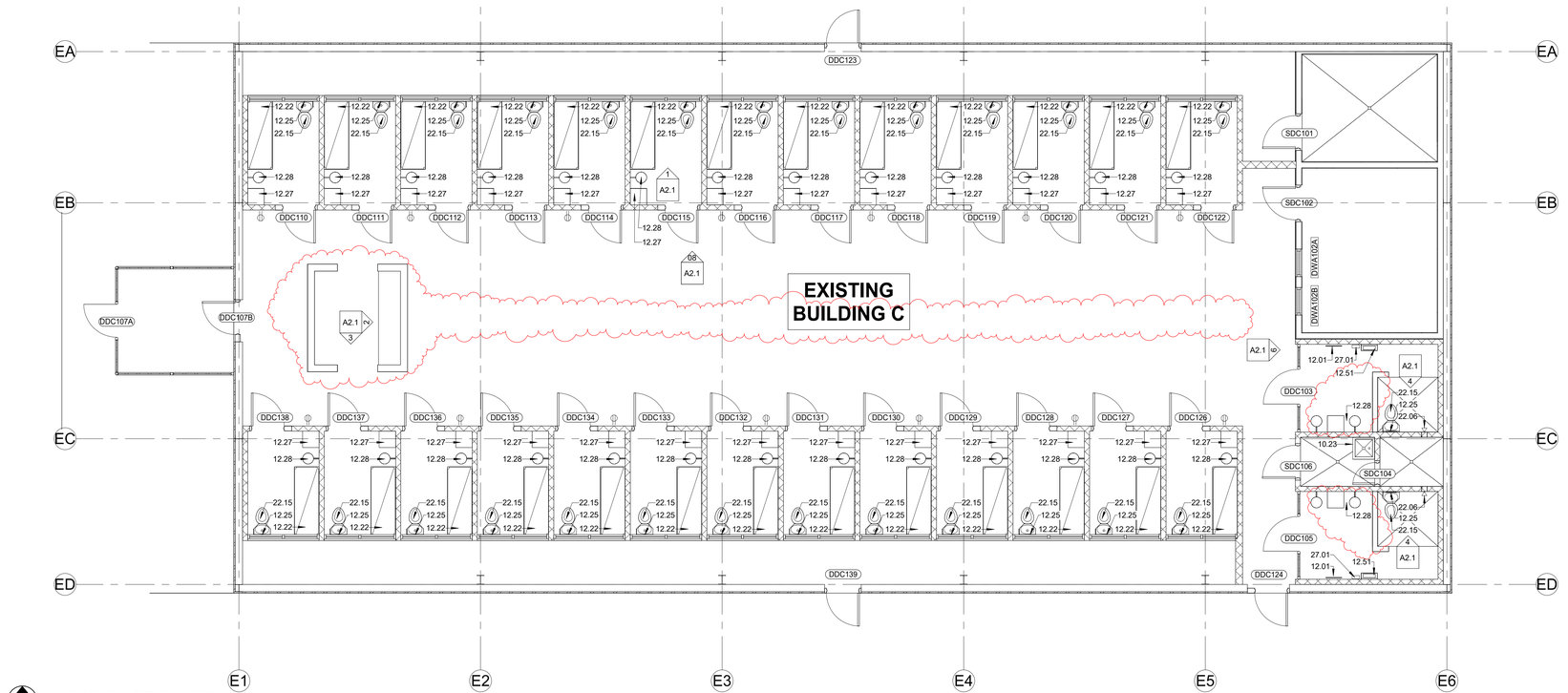
A1.0

NUMBERED NOTES	
NUMBER	DESCRIPTION
10.23	MOP SINK STAINLESS STEEL SPLASH ON EACH WALL TOUCHING MOPSINK
12.01	TV/MONITOR BY OWNER
12.22	FLOOR MOUNTED SINGLE BUNK
12.25	DETENTION MIRROR
12.27	WALL MOUNTED DETENTION DESK
12.28	WALL MOUNTED STOOL
12.51	KIOSK BY OWNER
22.06	SHOWER UNIT
22.15	DETENTION TOILET AND SINK COMBO UNIT
27.01	INMATE VIDEO VISITATION OR PHONE JACK - VIDEO UNITS OR PHONES BY OTHERS



1 BUILDING A - FURNISHINGS PLAN
3/16" = 1'-0"

PLAN NORTH



2 BUILDING C - FURNISHINGS PLAN
3/16" = 1'-0"

PLAN NORTH

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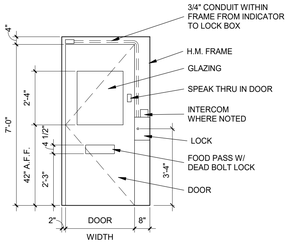
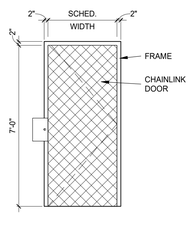
DOORS / WINDOWS / FURNISHINGS PLAN & SCHEDULES / DETAILS

A1.1



D1 DOOR ELEVATION
3/8" = 1'-0"



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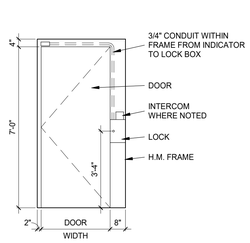

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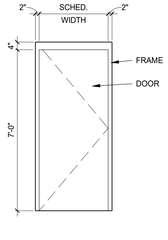

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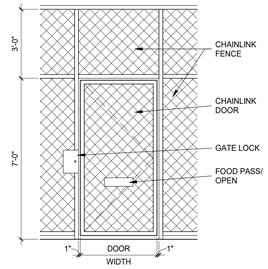

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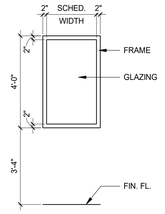

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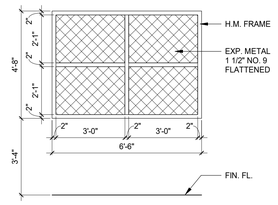
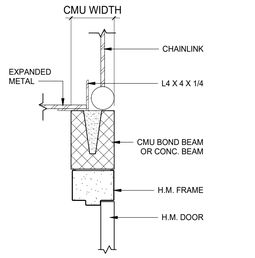
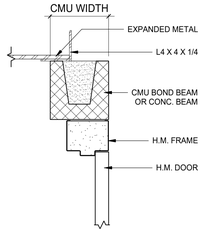


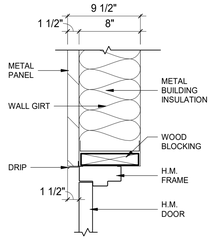
W2 DOOR ELEVATION
3/8" = 1'-0"



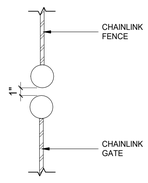
H1 HEAD DETAIL
1 1/2" = 1'-0"



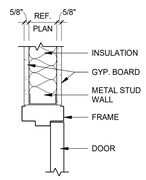
H2 HEAD DETAIL
1 1/2" = 1'-0"



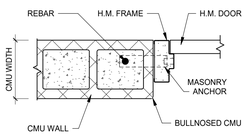
H3 HEAD DETAIL
1 1/2" = 1'-0"



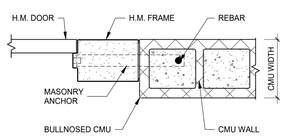
H4 HEAD DETAIL
1 1/2" = 1'-0"



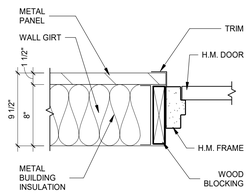
H5 HEAD DETAIL
1 1/2" = 1'-0"



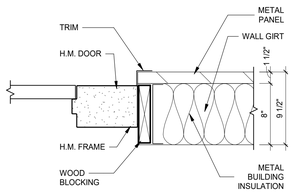
J1 JAMB DETAIL
1 1/2" = 1'-0"



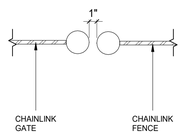
J2 JAMB DETAIL
1 1/2" = 1'-0"



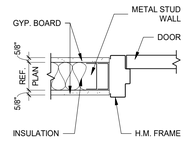
J3 JAMB DETAIL
1 1/2" = 1'-0"



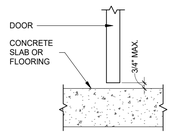
J4 JAMB DETAIL
1 1/2" = 1'-0"



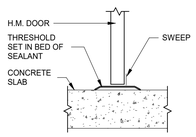
J5 JAMB DETAIL
1 1/2" = 1'-0"



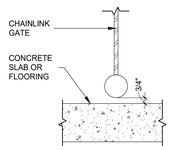
J6 JAMB DETAIL
1 1/2" = 1'-0"



S1 SILL DETAIL
1 1/2" = 1'-0"



S2 SILL DETAIL
1 1/2" = 1'-0"



S3 SILL DETAIL
1 1/2" = 1'-0"

DETENTION DOOR SCHEDULE

MARKER	ELEVATION	SIZE	GLAZING	HEAD	JAMB	MULLION	SILL	REMOVABLE STOP SIDE	MARKER
DDA103	D5	3'-0" x 7'-0" / H.M.	-	H4	J4	-	S3	A124	DDA103
DDA105	D5	3'-0" x 7'-0" / H.M.	-	H4	J4	-	S3	A124	DDA105
DDA107A	D2	3'-0" x 7'-0" / H.M.	-	H4	J4	-	S3	-	DDA107A
DDA107B	D4	3'-0" x 7'-0" / H.M.	-	H3	J3, J4	-	S2	-	DDA107B
DDA110	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA110
DDA111	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA111
DDA112	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA112
DDA113	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA113
DDA114	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA114
DDA115	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA115
DDA116	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA116
DDA117	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA117
DDA118	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA118
DDA119	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA119
DDA120	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA120
DDA121	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA121
DDA122	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDA122
DDA124	D4	3'-0" x 7'-0" / H.M.	-	H3	J3, J4	-	S2	-	DDA124
DDA126	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA126
DDA127	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA127
DDA128	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA128
DDA129	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA129
DDA130	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA130
DDA131	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA131
DDA132	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA132
DDA133	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA133
DDA134	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA134
DDA135	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA135
DDA136	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA136
DDA137	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA137
DDA138	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDA138
DDC103	D5	3'-0" x 7'-0" / H.M.	-	H4	J4	-	S3	A124	DDC103
DDC105	D5	3'-0" x 7'-0" / H.M.	-	H4	J4	-	S3	A124	DDC105
DDC107A	D2	3'-0" x 7'-0" / H.M.	-	H4	J4	-	S3	-	DDC107A
DDC107B	D4	3'-0" x 7'-0" / H.M.	-	H3	J3, J4	-	S2	-	DDC107B
DDC110	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC110
DDC111	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC111
DDC112	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC112
DDC113	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC113
DDC114	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC114
DDC115	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC115
DDC116	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC116
DDC117	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC117
DDC118	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC118
DDC119	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC119
DDC120	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC120
DDC121	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC121
DDC122	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A109	DDC122
DDC124	D4	3'-0" x 7'-0" / H.M.	-	H3	J3, J4	-	S2	-	DDC124
DDC126	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC126
DDC127	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC127
DDC128	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC128
DDC129	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC129
DDC130	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC130
DDC131	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC131
DDC132	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC132
DDC133	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC133
DDC134	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC134
DDC135	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC135
DDC136	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC136
DDC137	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC137
DDC138	D1	3'-0" x 7'-0" / H.M.	SG-1	H1	J1, J2	-	S1	A125	DDC138
SDA101	D4	3'-0" x 7'-0" / H.M.	-	H5	J6	-	S1	-	SDA101
SDA102	D4	3'-0" x 7'-0" / H.M.	-	H5	J6	-	S1	-	SDA102
SDA104	D4	2'-0"x7'-0" / H.M.	-	H2	J1	-	S1	-	SDA104
SDA106	D4	3'-0" x 7'-0" / H.M.	-	H1	J1	-	S1	-	SDA106
SDA123	D4	3'-0" x 7'-0" / H.M.	-	H3	J3	-	S2	-	SDA123
SDA139	D4	3'-0" x 7'-0" / H.M.	-	H3	J3	-	S2	-	SDA139
SDC101	D4	3'-0" x 7'-0" / H.M.	-	H5	J6	-	S1	-	SDC101
SDC102	D4	3'-0" x 7'-0" / H.M.	-	H5	J6	-	S1	-	SDC102
SDC104	D4	2'-0"x7'-0" / H.M.	-	H2	J1	-	S1	-	SDC104
SDC106	D4	3'-0" x 7'-0" / H.M.	-	H1	J1	-	S1	-	SDC106
SDC123	D4	3'-0" x 7'-0" / H.M.	-	H3	J3	-	S2	-	SDC123
SDC139	D4	3'-0" x 7'-0" / H.M.	-	H3	J3	-	S2	-	SDC139

WINDOW SCHEDULE

MARK	ELEVATION	WINDOW SIZE	GLAZING	HEAD	JAMB	MULLION	SILL	REMOVABLE STOP SIDE	MARK
DWA102A	W1	2'-6" X 4'-0" / H.M.	SG-1					A124	DWA102A
DWA102B	W1	2'-6" X 4'-0" / H.M.	SG-1					A124	DWA102B
DWA108A	W1	2'-6" X 4'-0" / H.M.	SG-1					A109	DWA108A
DWA108B	W1	2'-6" X 4'-0" / H.M.	SG-1					A109	DWA108B
DWA108C	W1	2'-6" X 4'-0" / H.M.	SG-1					A125	DWA108C
DWA108D	W1	2'-6" X 4'-0" / H.M.	SG-1					A125	DWA108D

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JEFFERSON COUNTY
CORRECTIONAL CENTER -
RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

7/30/24

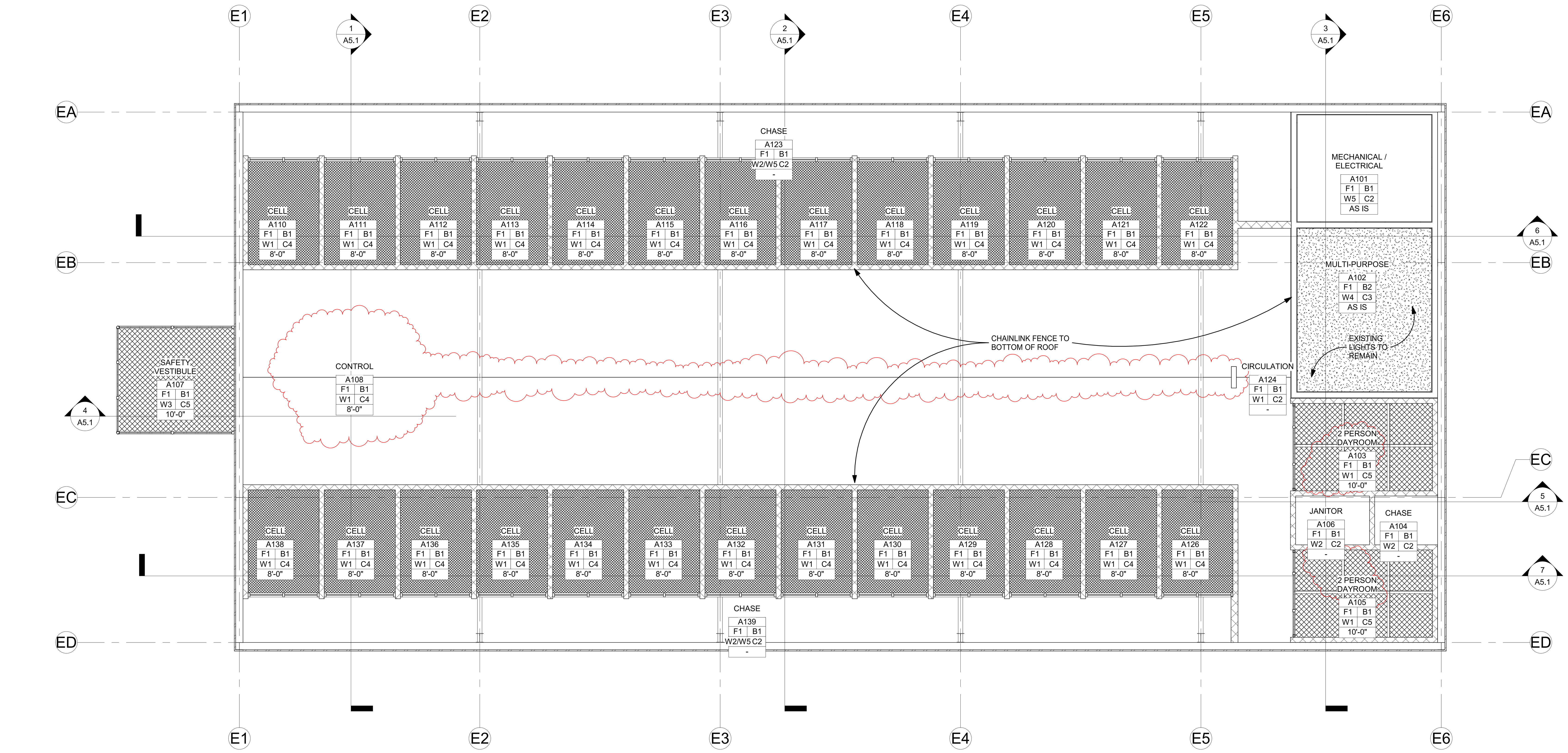
Project Number	JCCCAC-23
Date	7/30/24
Scale	As indicated

DOORS / WINDOWS / FURNISHINGS PLAN & SCHEDULES / DETAILS

A1.2

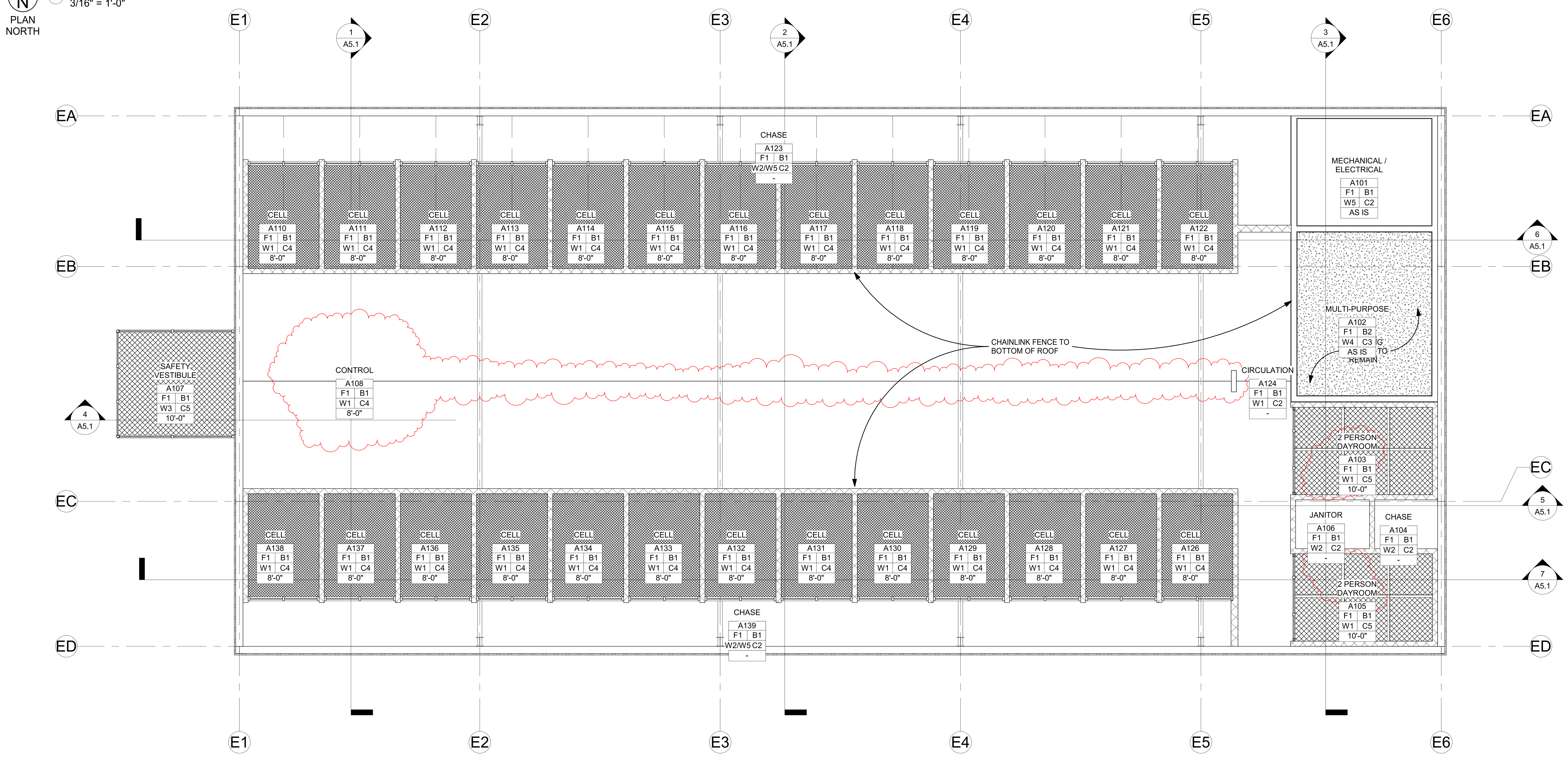
ROOM FINISH LEGEND (NOT ALL MAY APPLY)

F1	EXISTING CONCRETE
F2	RESINOUS COATING SYSTEM
B1	NONE
B2	1x6 MDF BOARD, PAINTED
W1	PAINTED CMU
W2	UNPAINTED CMU
W3	CHAINLINK FENCING
W4	PAINTED DRYWALL
W5	EXPOSED STRUCTURE TO REMAIN AS IS
C1	PAINTED DRYWALL
C2	EXPOSED STRUCTURE TO REMAIN AS IS
C3	EXISTING DRYWALL TO BE PAINTED
C4	EXPANDED METAL - 1 1/2" NO. 9 FLATTENED BY MCNICHOLS CO. OR EQUAL
C5	CHAINLINK FENCING



PLAN NORTH

1 BUILDING A - REFLECTED CEILING PLAN
3/16" = 1'-0"



PLAN NORTH

2 BUILDING C - REFLECTED CEILING PLAN
3/16" = 1'-0"

FINISH SCHEDULE LEGEND

FLOORING / WALL — ROOM NUMBER / BASE / CEILING / CEILING HEIGHT

BURNS ARCHITECTURE, LLC
ARCHITECTS · ADVISORS · CONSULTANTS

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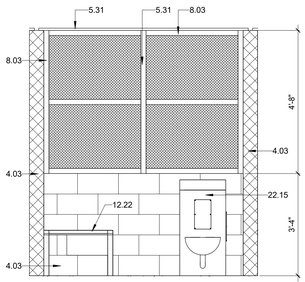
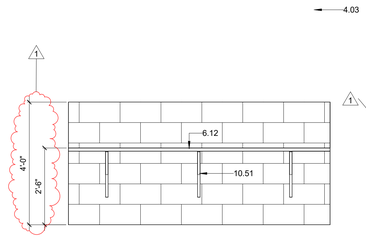
BUILDING A & C -REFLECTED CEILING PLAN

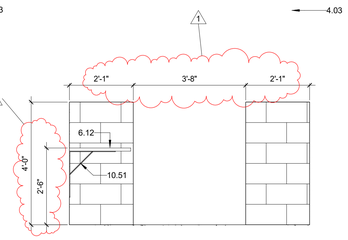
A1.3



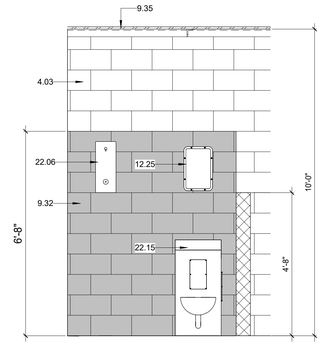
1 INTERIOR ELEVATION
1/2" = 1'-0"



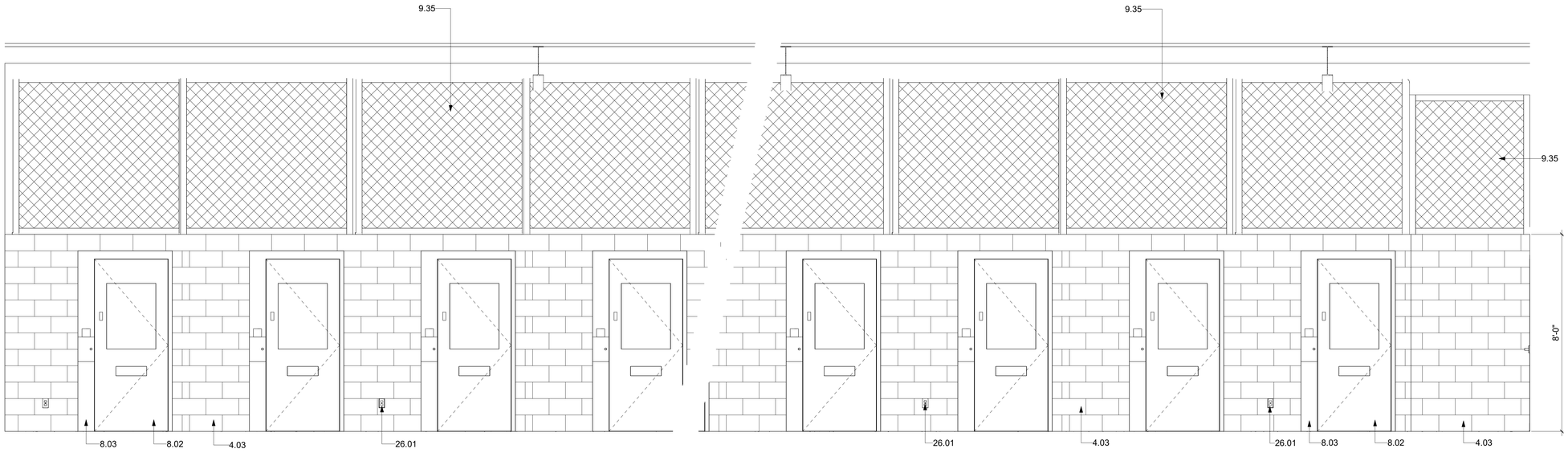
2 INTERIOR ELEVATION
1/2" = 1'-0"



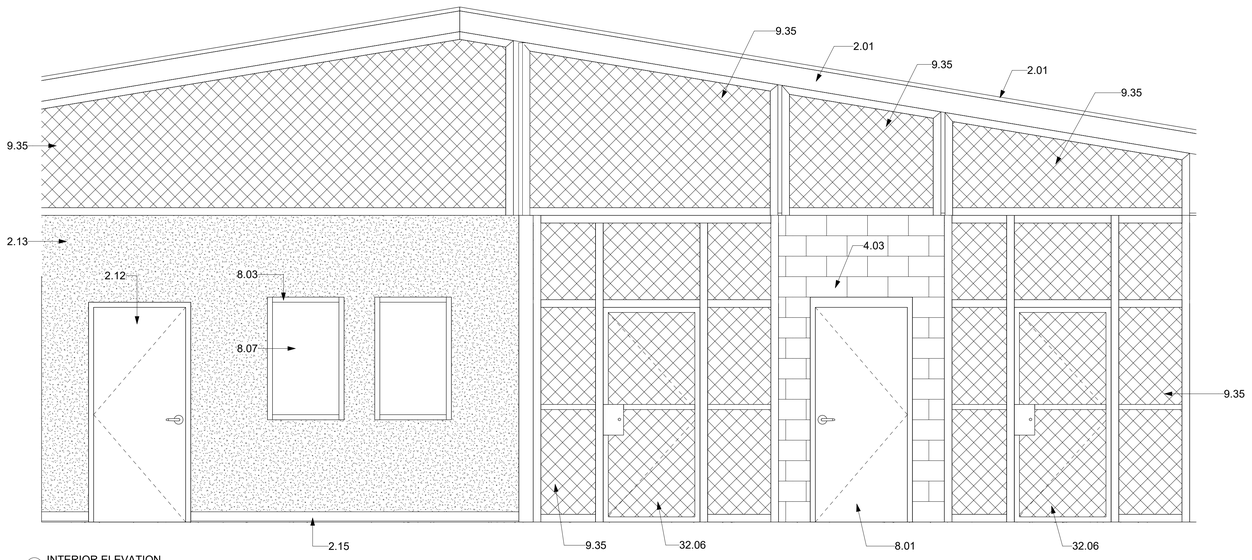
3 INTERIOR ELEVATION
1/2" = 1'-0"



4 INTERIOR ELEVATION
1/2" = 1'-0"



5 INTERIOR ELEVATION
1/2" = 1'-0"



6 INTERIOR ELEVATION
1/2" = 1'-0"

NUMBERED NOTES	
NUMBER	DESCRIPTION
2.01	EXISTING BUILDING STRUCTURE
2.12	EXISTING DOOR
2.13	EXISTING WALL
2.15	EXISTING BASE
4.03	PAINTED CMU
5.31	EXPANDED METAL
6.12	COUNTERTOP ON 3/4" PLYWOOD - STAINLESS STEEL
8.01	DOOR AND FRAME
8.02	HOLLOW METAL DOOR
8.03	HOLLOW METAL FRAME
8.07	GLAZING
9.32	6'-8" HIGH EPOXY WALL COATING @ INSIDE PERIMETER OF TOILET / LAVATORY / SHOWER AREA
9.35	CHAINLINK PANEL
10.51	SUPPORT BRACKET
12.22	FLOOR MOUNTED SINGLE BUNK
12.25	DETENTION MIRROR
22.06	SHOWER UNIT
22.15	DETENTION TOILET AND SINK COMBO UNIT
26.01	DATA / POWER OUTLET (INSIDE CABINET WHERE DASHED, COVER PLATE MUST BE FLUSH WITH FINISHED SURFACE, COORDINATE WITH ACOUSTICAL WALL PANELS, ETC.)
32.06	CHAINLINK GATE

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REGISTERED ARCHITECT · KENNETH C. BURNS · STATE OF TEXAS
7/30/24

Project Number	JCCCAC-23
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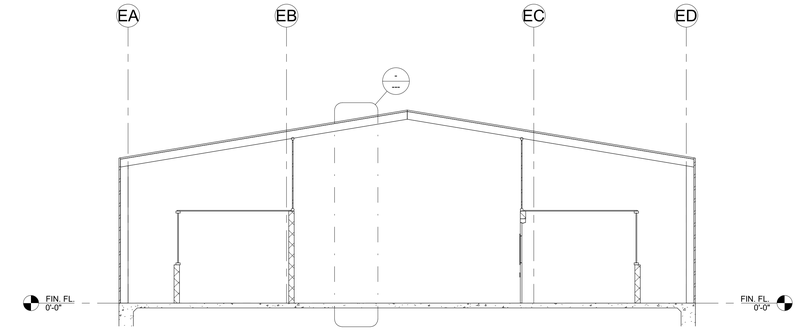
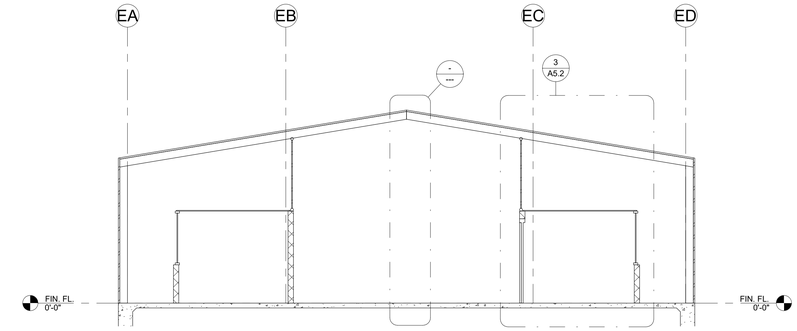
Scale	1/2" = 1'-0"

INTERIOR ELEVATIONS

A2.1



1 BUILDING SECTION
3/16" = 1'-0"



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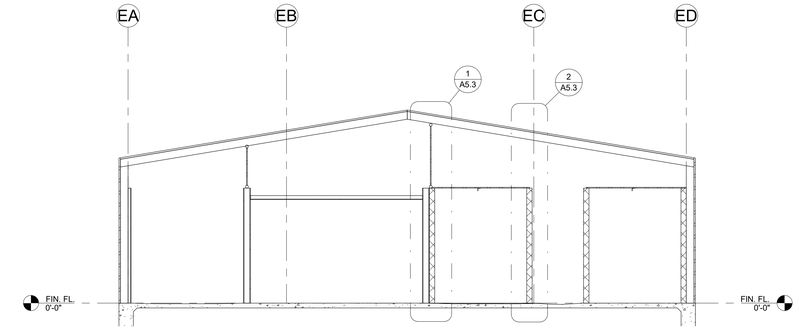
3/16" = 1'-0"



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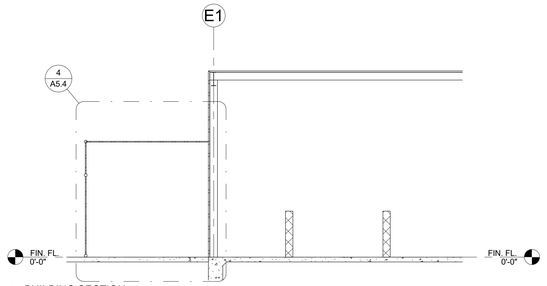

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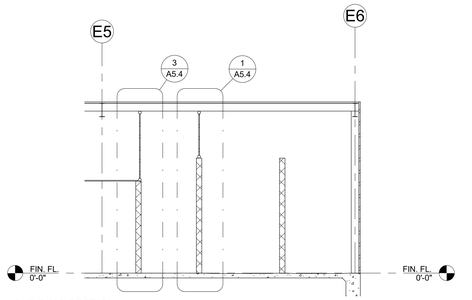
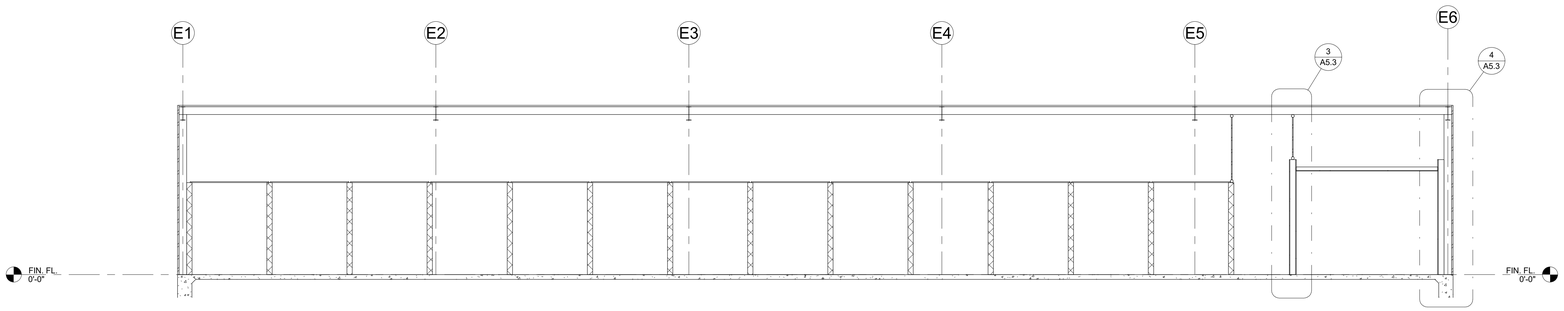
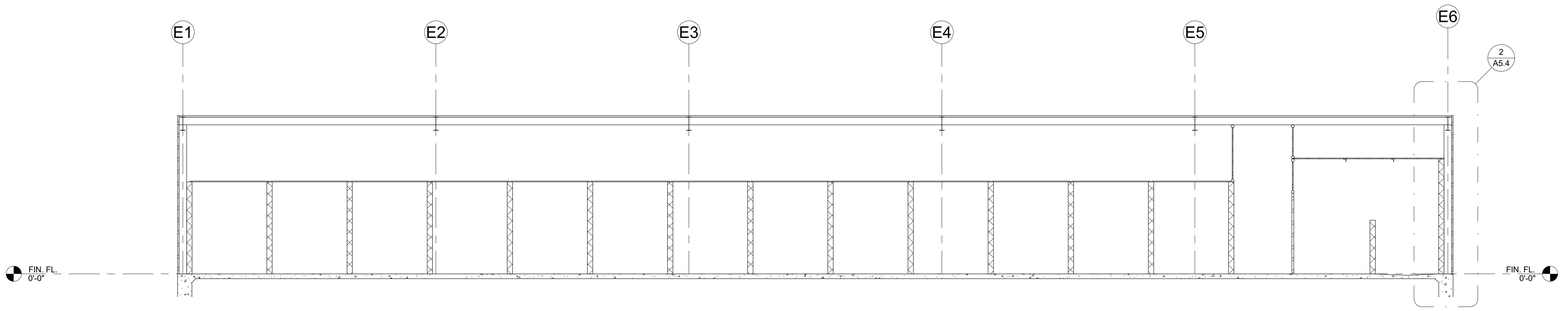


5 BUILDING SECTION
3/16" = 1'-0"



6 BUILDING SECTION
3/16" = 1'-0"



7 BUILDING SECTION
3/16" = 1'-0"

BURNS ARCHITECTURE
ARCHITECTS · ADVISORS · CONSULTANTS

BURNS ARCHITECTURE,LLC
P.O. BOX 2639
GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER -
RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

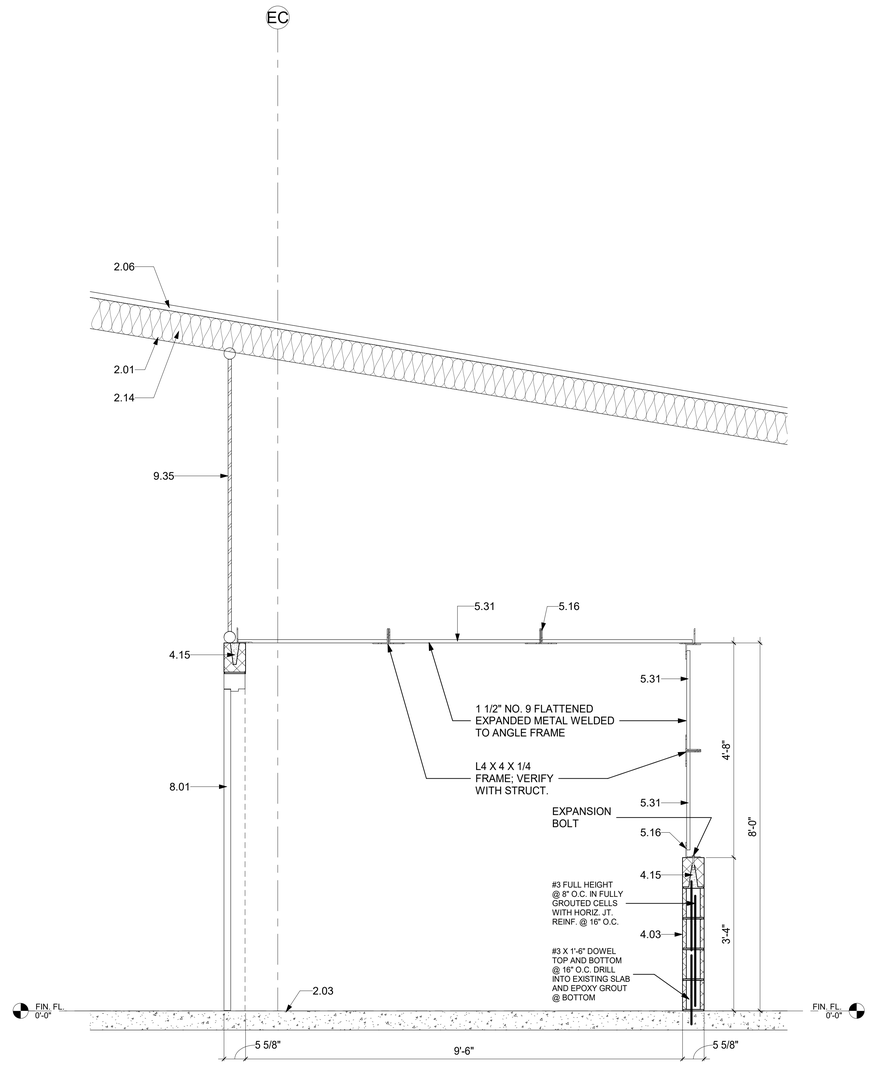
REGISTERED ARCHITECT · KENNETH C. BURNS · STATE OF TEXAS
7/30/24

Project Number	JCCCAC-23
Date	7/30/24
Scale	3/16" = 1'-0"

BUILDING SECTIONS

A5.1

NUMBERED NOTES	
NUMBER	**DESCRIPTION**
2.01	EXISTING BUILDING STRUCTURE
2.03	EXISTING GRADE BEAM AND OR SLAB
2.06	EXISTING ROOF
2.14	EXISTING INSULATION
4.03	PAINTED CMU
4.15	CMU BOND BEAM, REF. STRUCTURAL
5.16	STEEL ANGLE ANCHORED TO CMU AND CONCRETE PLANK. REF. STRUCTURAL
5.31	EXPANDED METAL
8.01	DOOR AND FRAME
9.35	CHAINLINK PANEL



DELETE WALL SECTIONS

3 WALL SECTION
3/4" = 1'-0"

BURNS ARCHITECTURE, LLC
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GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER -
RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	TCJS REVIEW	7/24/24

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

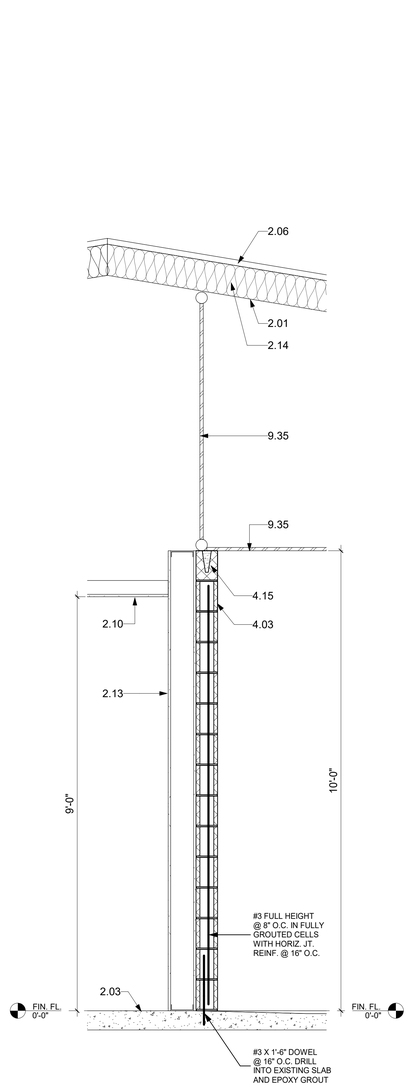
7/30/24

Project Number	JCCCAC-23
Date	7/30/24
Scale	3/4" = 1'-0"

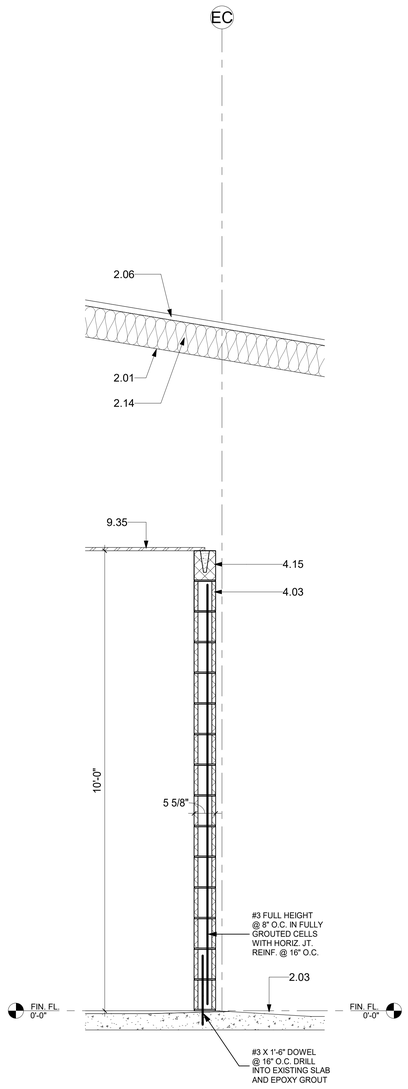
WALL SECTIONS

A5.2

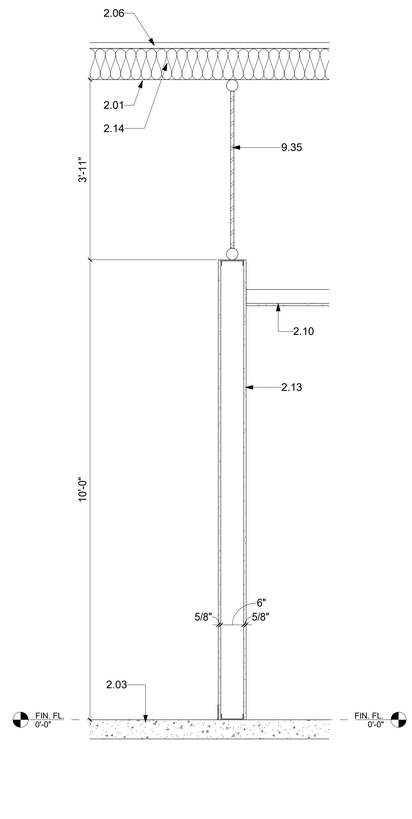
NUMBERED NOTES	
NUMBER	DESCRIPTION
2.01	EXISTING BUILDING STRUCTURE
2.03	EXISTING GRADE BEAM AND OR SLAB
2.06	EXISTING ROOF
2.10	EXISTING CEILING
2.11	EXISTING METAL WALL PANEL
2.13	EXISTING WALL
2.14	EXISTING INSULATION
4.03	PAINTED CMU
4.15	CMU BOND BEAM, REF. STRUCTURAL
9.35	CHAINLINK PANEL



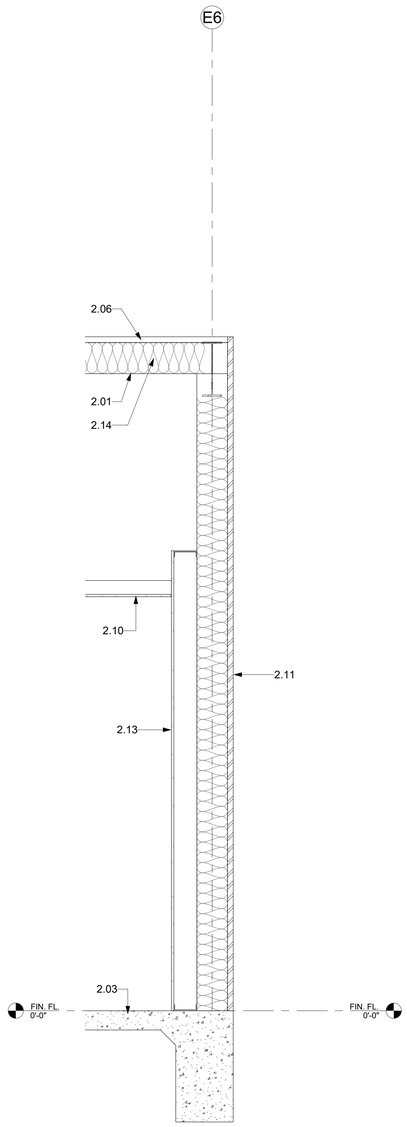
1 WALL SECTION
3/4" = 1'-0"



2 WALL SECTION
3/4" = 1'-0"



3 WALL SECTION
3/4" = 1'-0"



4 WALL SECTION
3/4" = 1'-0"

BURNS ARCHITECTURE, LLC
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GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER -
RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

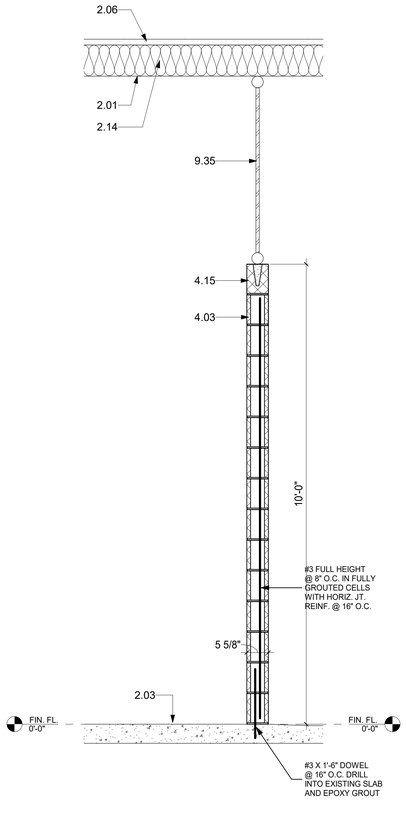
7/30/24

Project Number	JCCCAC-23
Date	7/30/24
Scale	3/4" = 1'-0"

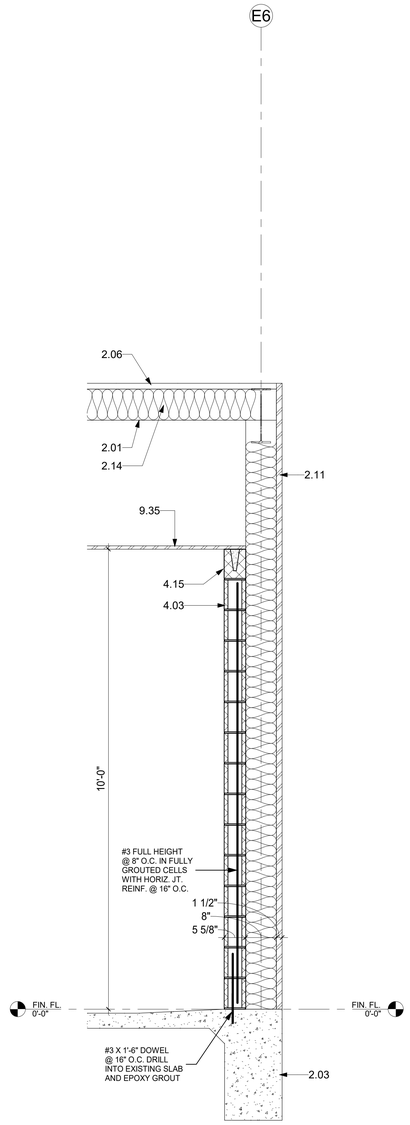
WALL SECTIONS

A5.3

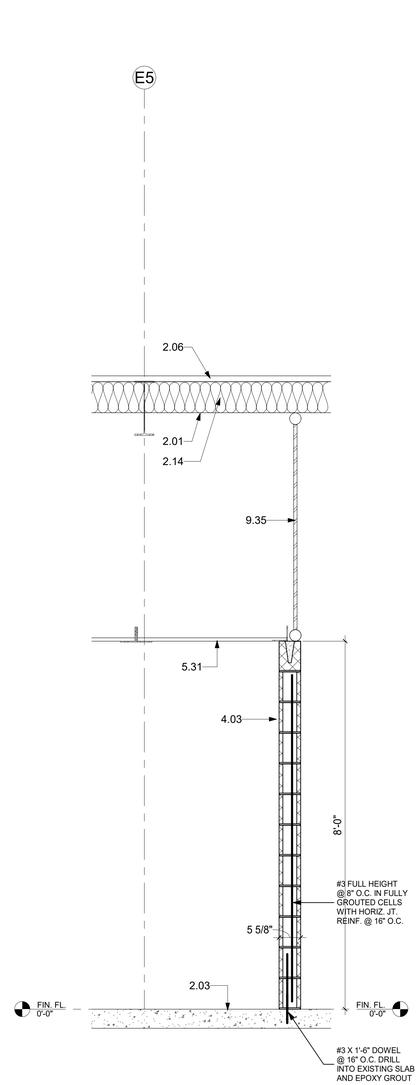
NUMBERED NOTES	
NUMBER	**DESCRIPTION**
2.01	EXISTING BUILDING STRUCTURE
2.03	EXISTING GRADE BEAM AND OR SLAB
2.06	EXISTING ROOF
2.11	EXISTING METAL WALL PANEL
2.14	EXISTING INSULATION
4.03	PAINTED CMU
4.15	CMU BOND BEAM, REF. STRUCTURAL
5.31	EXPANDED METAL
9.35	CHAINLINK PANEL



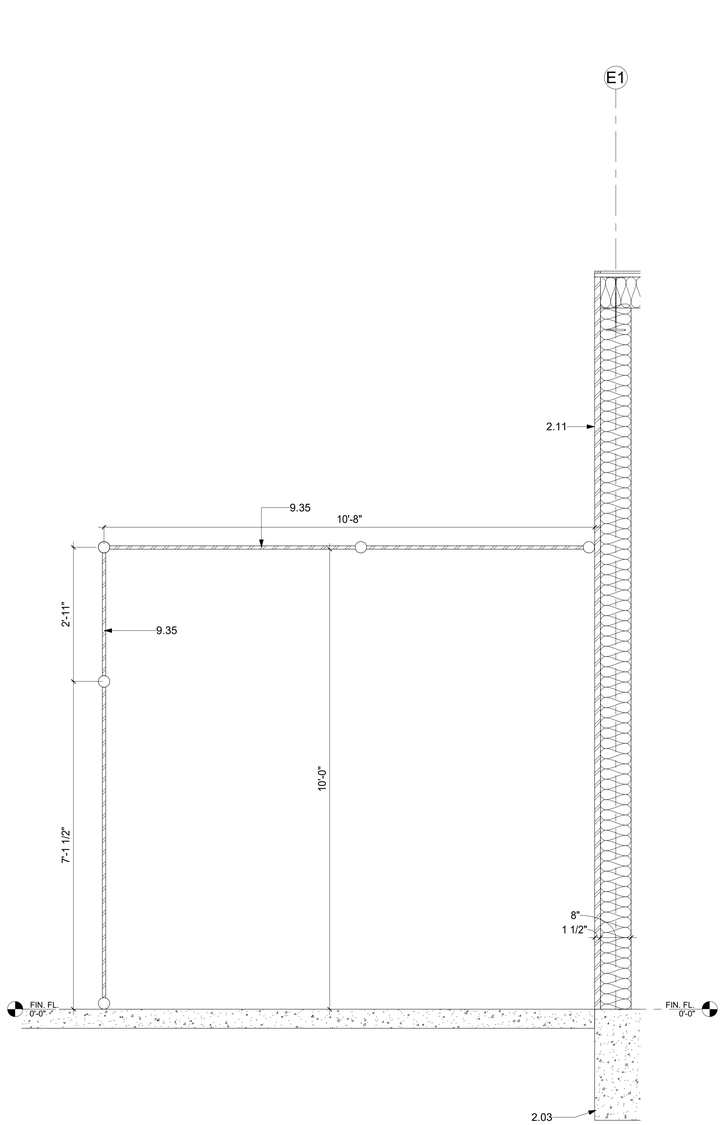
1 WALL SECTION
3/4" = 1'-0"



2 WALL SECTION
3/4" = 1'-0"



3 WALL SECTION
3/4" = 1'-0"



4 WALL SECTION
3/4" = 1'-0"

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JEFFERSON COUNTY
CORRECTIONAL CENTER -
RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date

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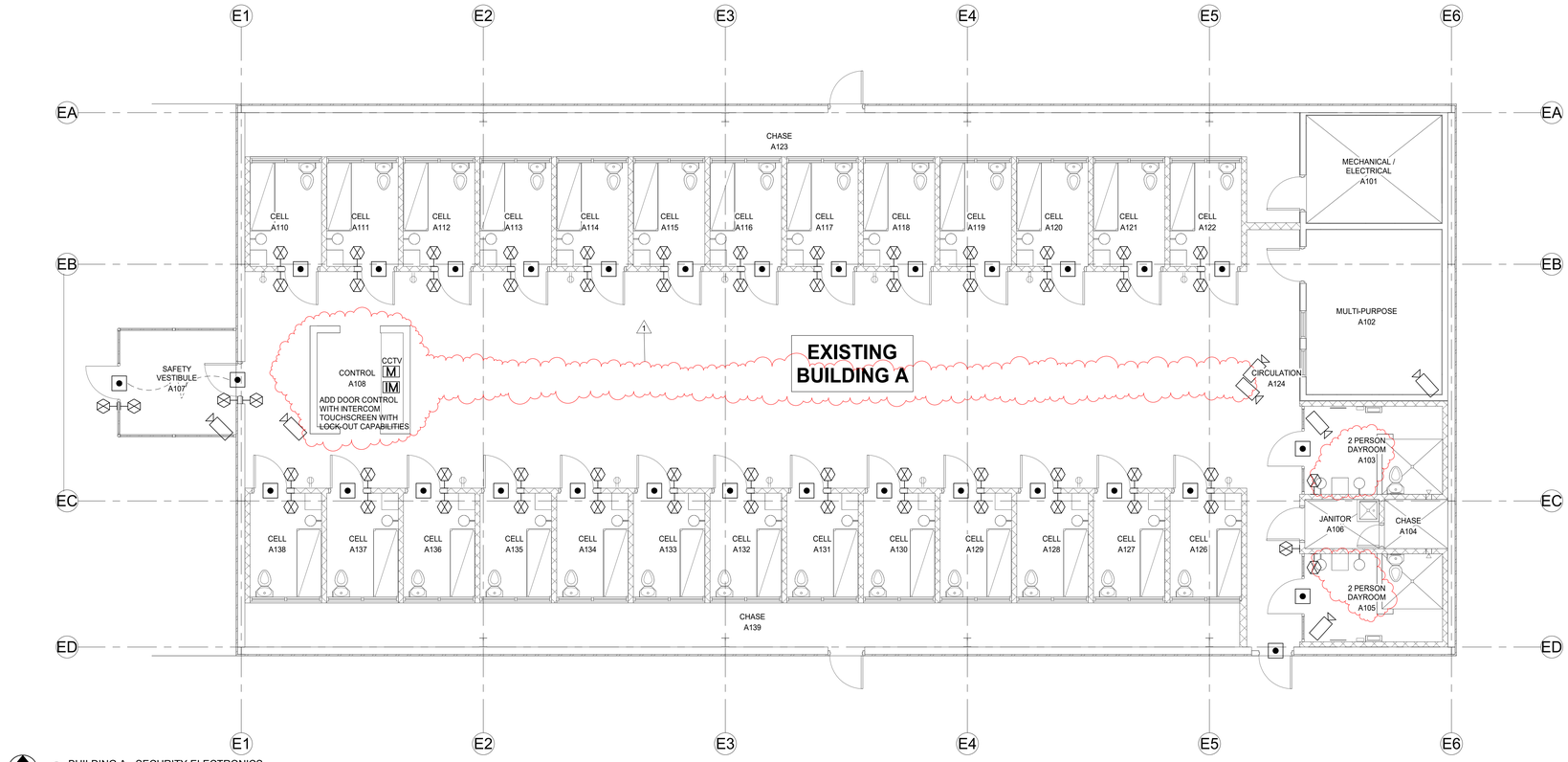
CONSTRUCTION DOCUMENTS

REGISTERED ARCHITECT KENNETH C. BURNS STATE OF TEXAS
7/30/24

Project Number	JCCCAC-23
Date	7/30/24
Scale	3/4" = 1'-0"

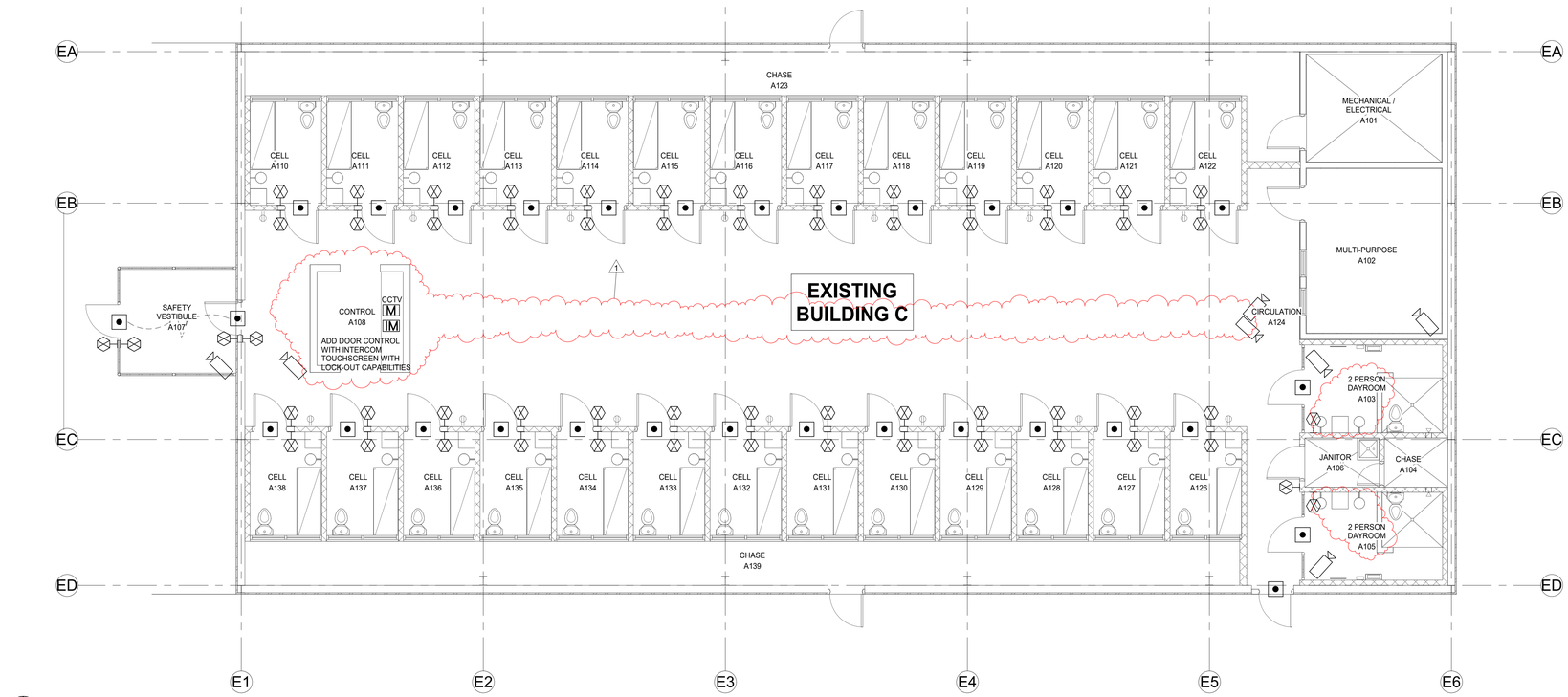
WALL SECTIONS

A5.4



1 BUILDING A - SECURITY ELECTRONICS
3/16" = 1'-0"

PLAN NORTH



2 BUILDING C - SECURITY ELECTRONICS
3/16" = 1'-0"

PLAN NORTH

SECURITY ELECTRONICS LEGEND
(NOT ALL NOTES APPLY)

M	MICROPHONE
S	SPEAKER
M	CCTV MONITOR
ICM	INTERCOM MASTER PANEL
TS	TOUCHSCREEN STATION
	LIGHTING CONTROL
	INTERCOM
	INTERLOCK
REX	REQUEST TO EXIT (DOOR UNLOCKED AT TOUCHSCREEN)
	ELECTRONIC SPEAK THRU
	TWO-WAY PHONE
AM	AIPHONE MASTER INTERCOM STATION
AP	AIPHONE INTERCOM WITH PRIVACY CONTROL
CA	CARD ACCESS SYSTEM DEVICE
DVR	DIGITAL VIDEO RECORDER
ARD	AUDIO RECORDING DEVICE
WT	WATCH TOUR
DB	DOOR CHIME PUSH BUTTON
DR	DOOR RELEASE
	ELECTRIC LOCK
	IP CCTV CAMERA
CB	CALL BUTTON
CVW	CLIENT VIEWING WORKSTATION
I	INTERCOM
$	SWITCH PER ELECTRICAL TO TURN ON/OFF MICROPHONE AND CAMERA

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JEFFERSON COUNTY
CORRECTIONAL CENTER -
RENOVATIONS TO BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	TCJS REVIEW	7/24/24

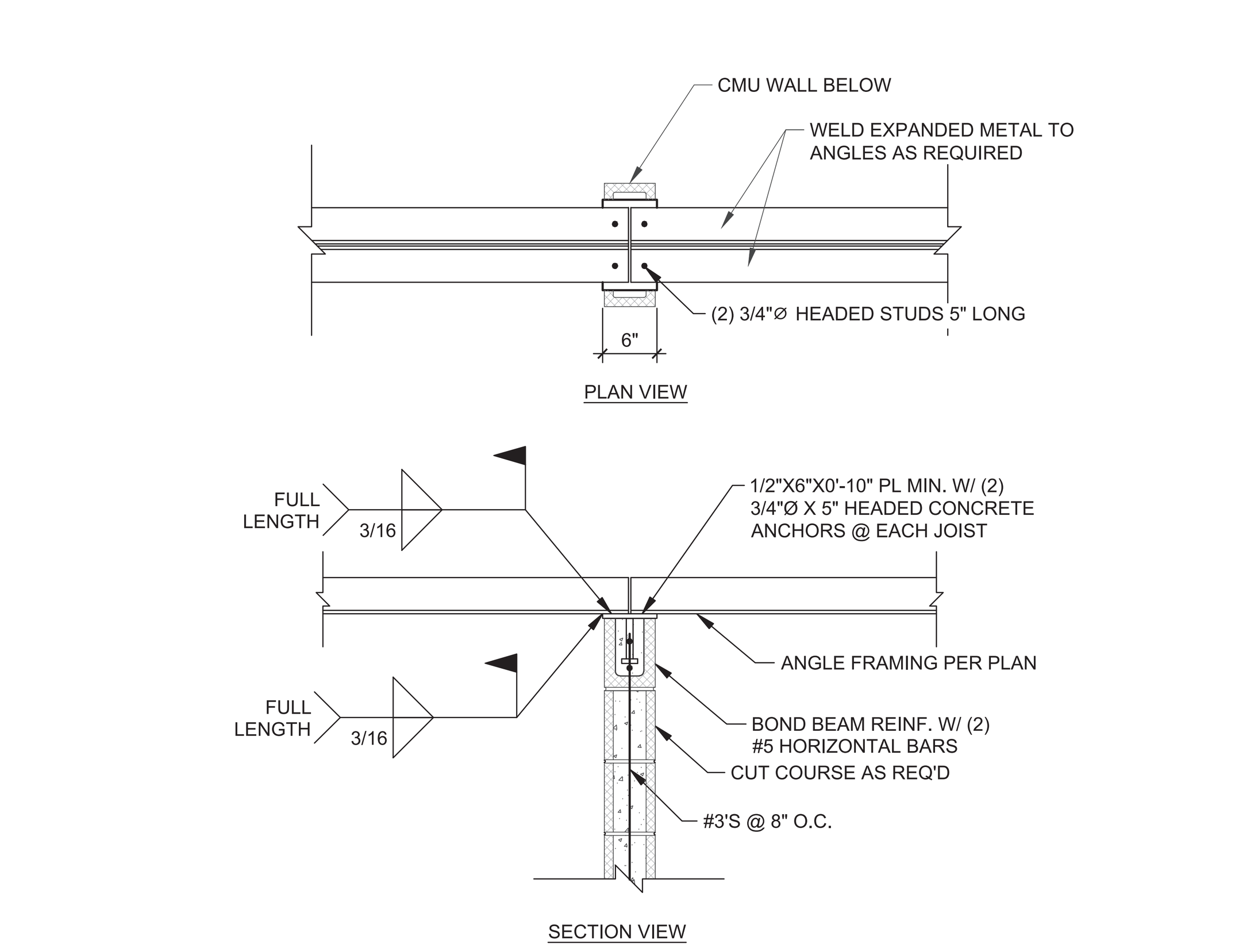
NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

REGISTERED ARCHITECT · KENNETH C. BURNS · STATE OF TEXAS
7/30/24

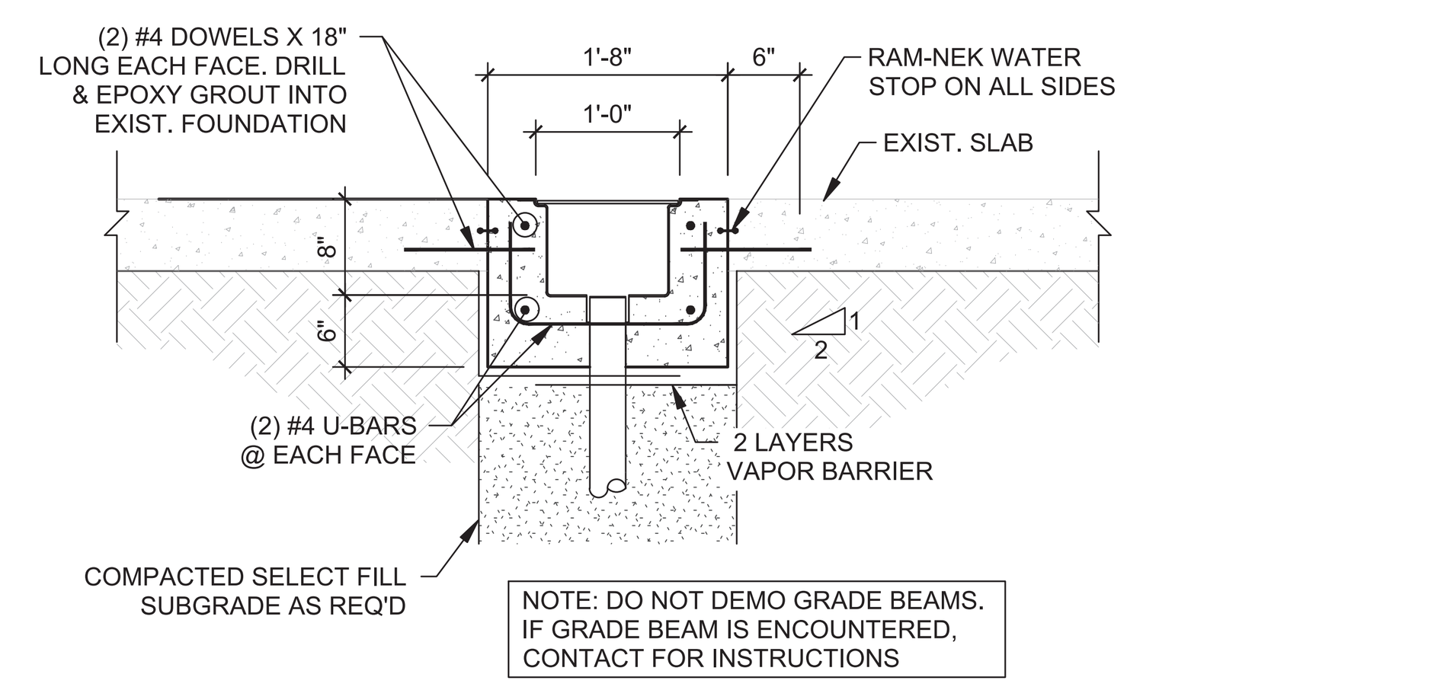
Project Number	JCCCAC-23
Date	7/30/24
Scale	As indicated

BUILDING A & C - SECURITY ELECTRONICS PLAN

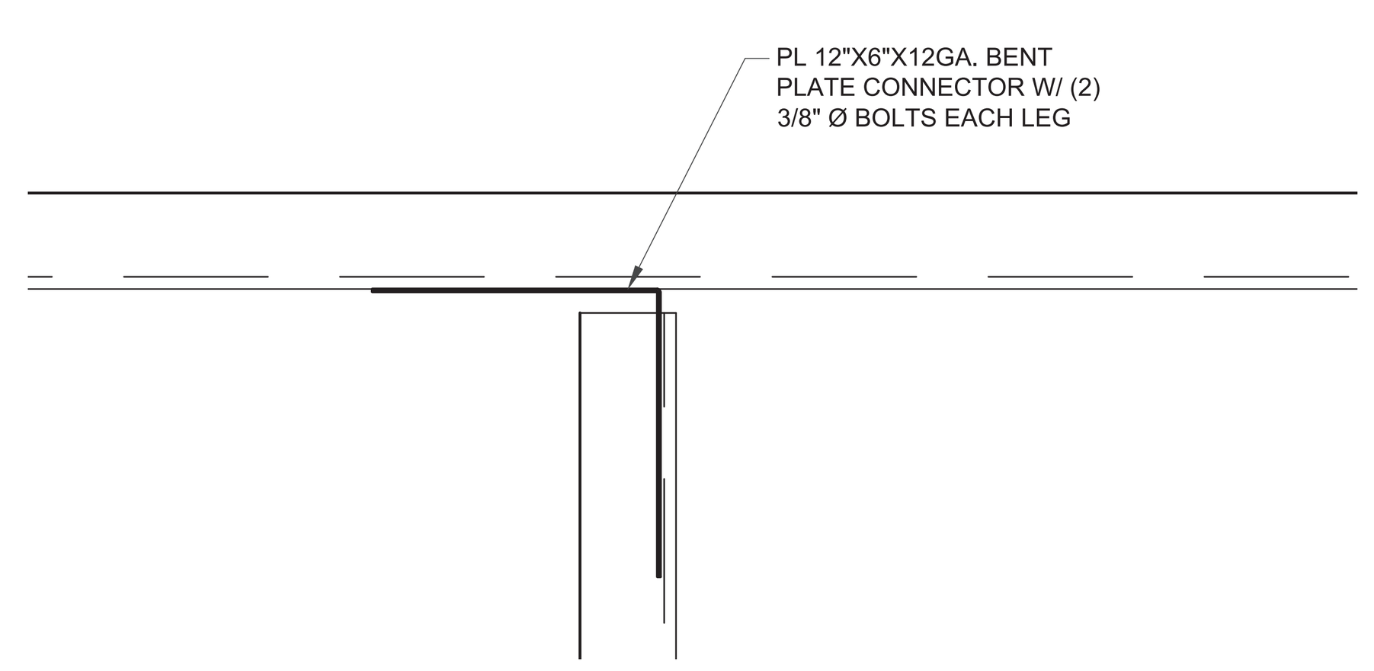
SE1.0



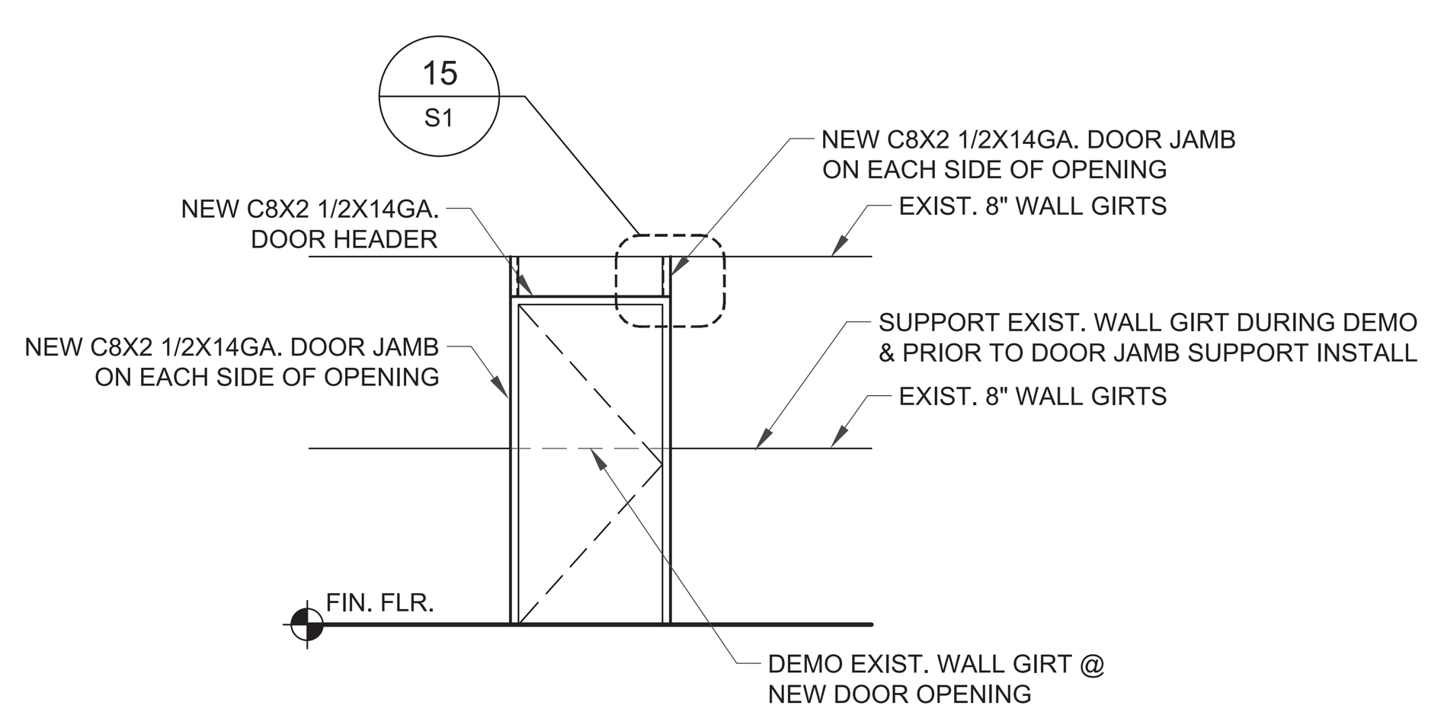
17 CMU DOWELS IN EXISTING SLAB
3/4" =1'-0"



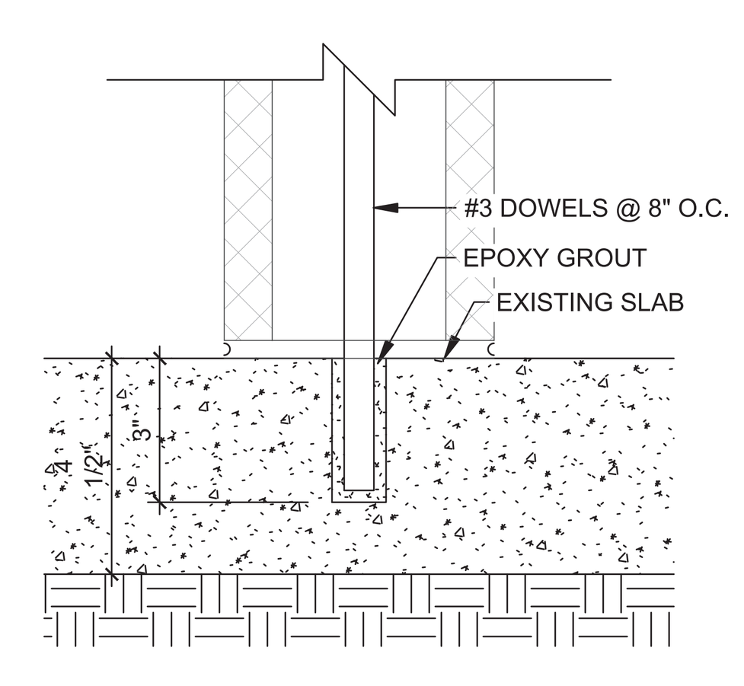
16 FLOOR SINK IN EXISTING SLAB
3/4" =1'-0"



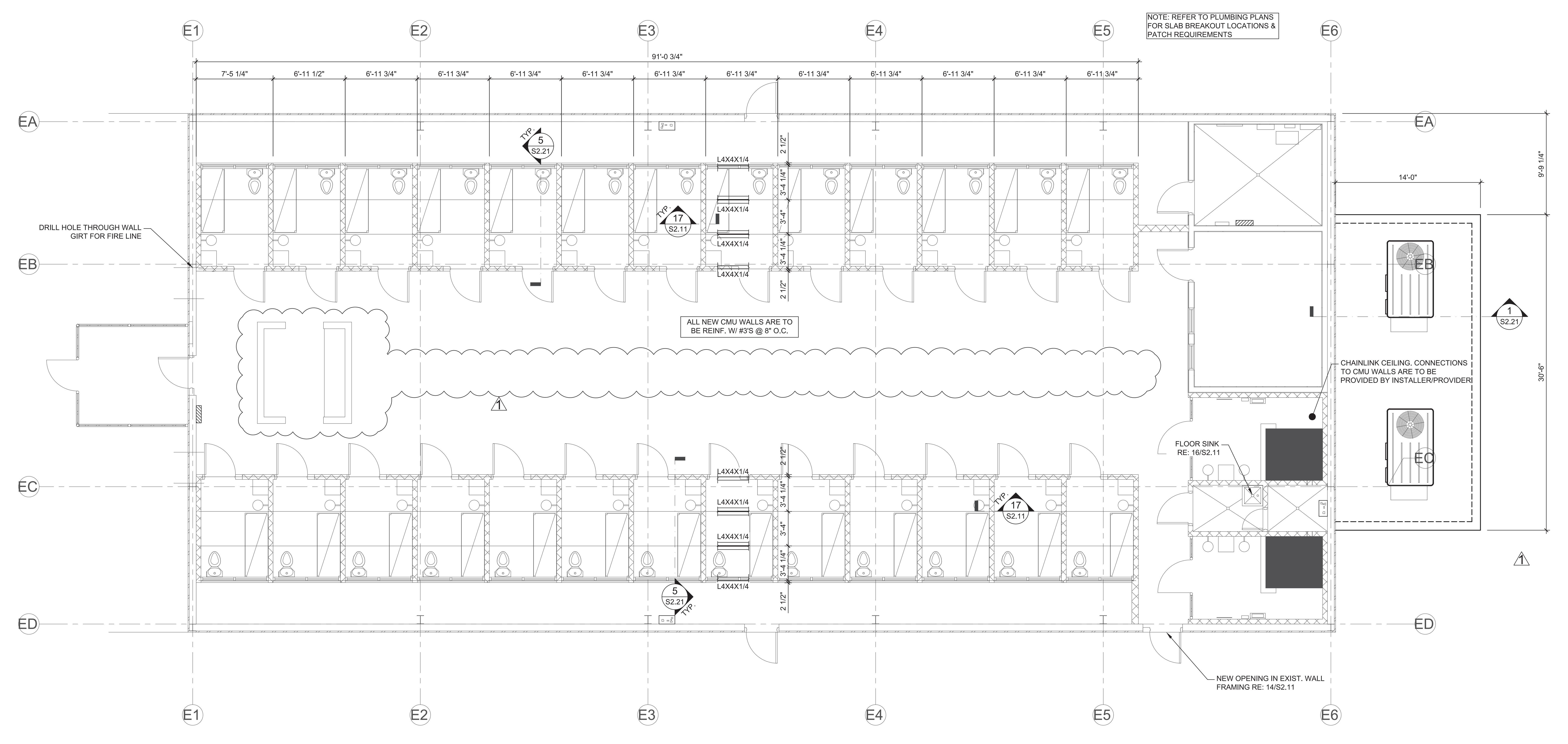
15 NEW OPENING FRAMING SECTION
3" =1'-0"



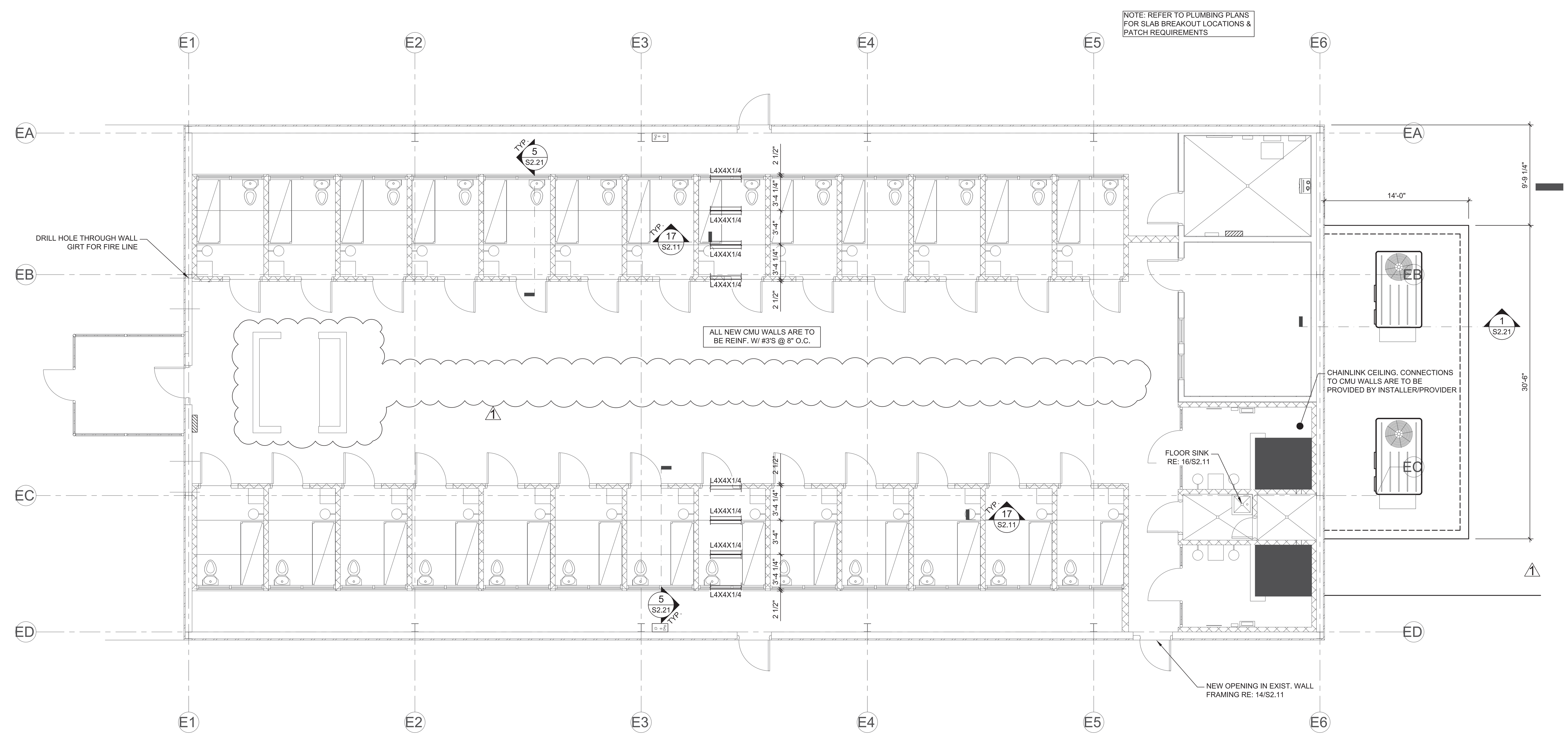
14 NEW OPENING IN EXISTING WALL
1/4" =1'-0"



13 CMU DOWELS IN EXISTING SLAB
3" =1'-0"



3 BUILDING "A"
3/16" =1'-0"



1 BUILDING "C"
3/16" =1'-0"

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GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	ADDENDUM	4-11-24
2	ADDENDUM	7-30-24

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

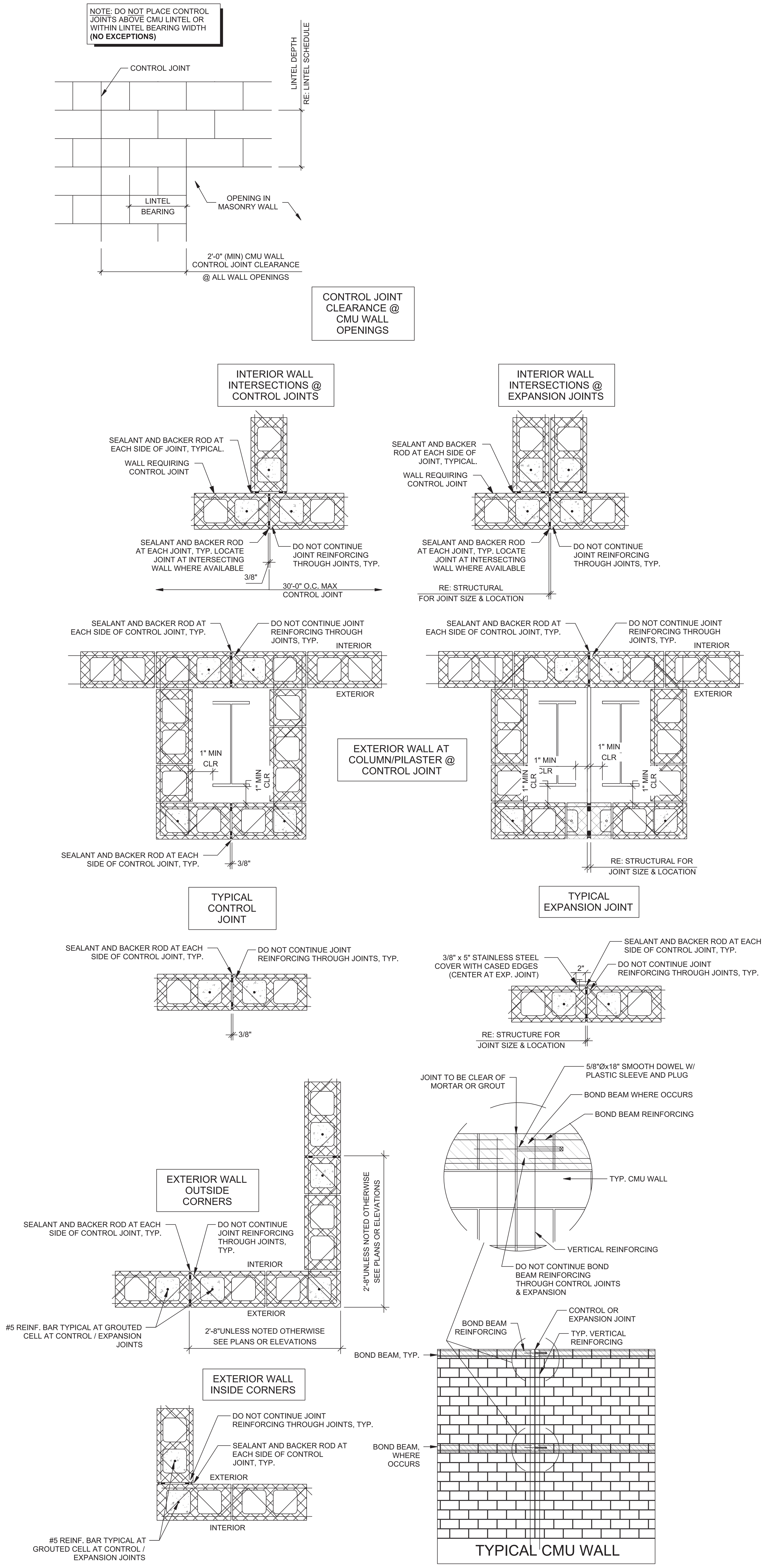
STATE OF TEXAS
ZACHERY K. PARKER
144556
LICENSED
PROFESSIONAL ENGINEER
07/30/2024

GLS PROJECT #154079
GLS
ARCHITECTURE · ENGINEERING · INTERIORS
LANDSCAPE · SURVEYING
1609 S. CHESTNUT ST. STE. 202 · LUFKIN, TEXAS 75901 · (936) 637-4900
4077 CROSS PARK DR. STE. 100 · BRYAN, TEXAS 77802 · (979) 776-3500
455 RICE ROAD STE. 107 · TYLER, TEXAS 75703 · (903) 581-3805

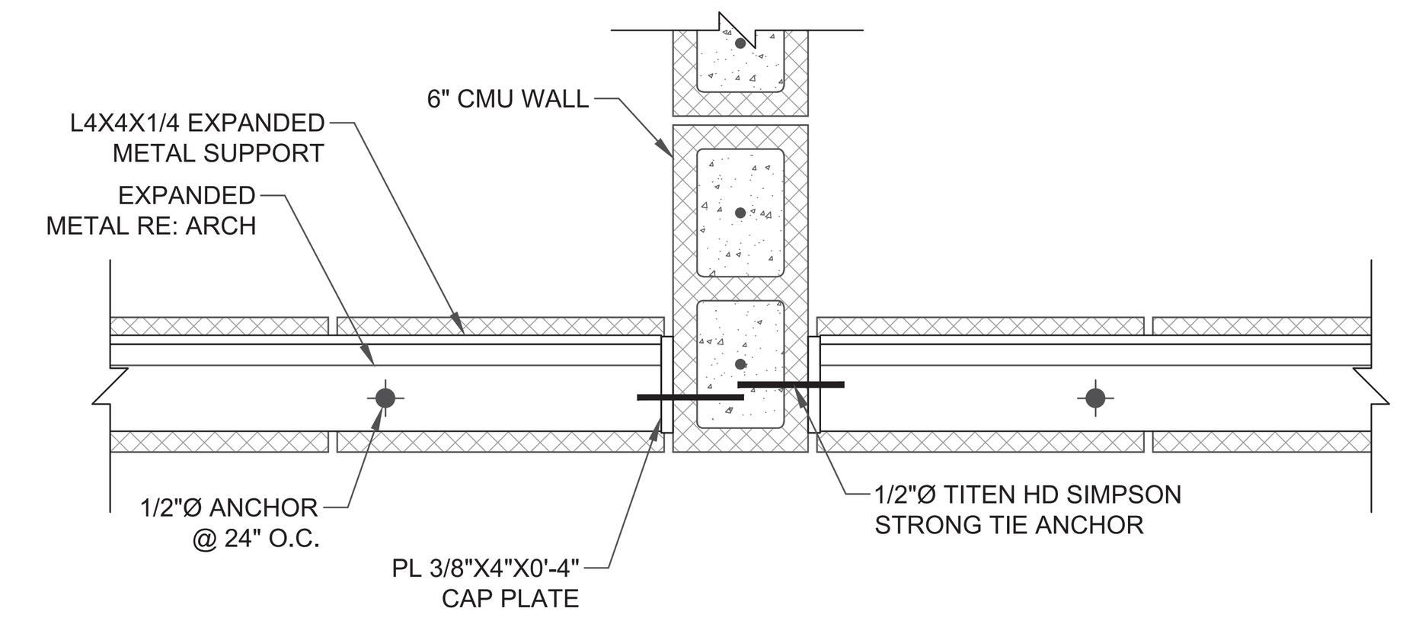
Project Number	JCCCAC-23
Date	3/28/2024
Scale	AS NOTED

FOUNDATION PLAN AND DETAILS

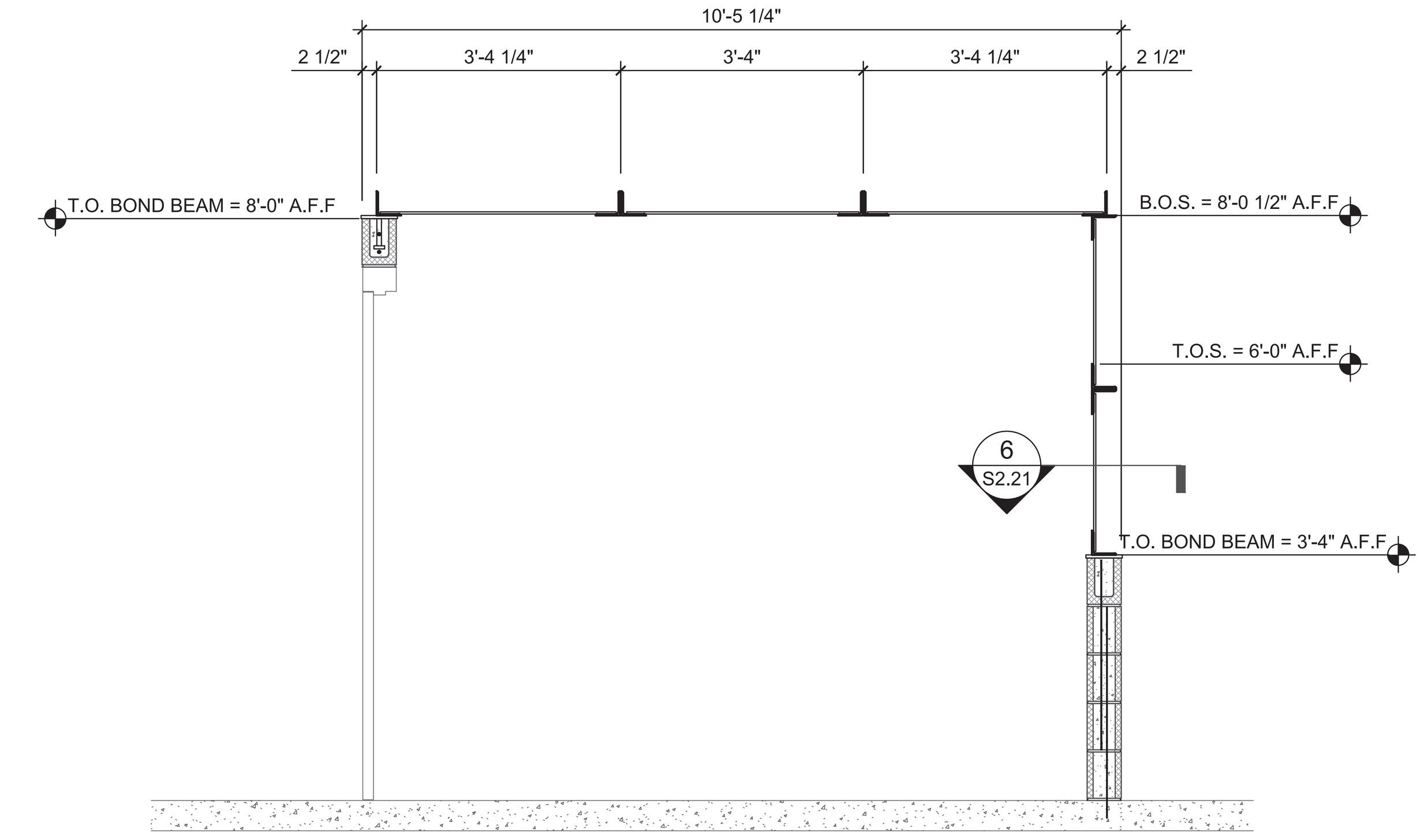
S2.11



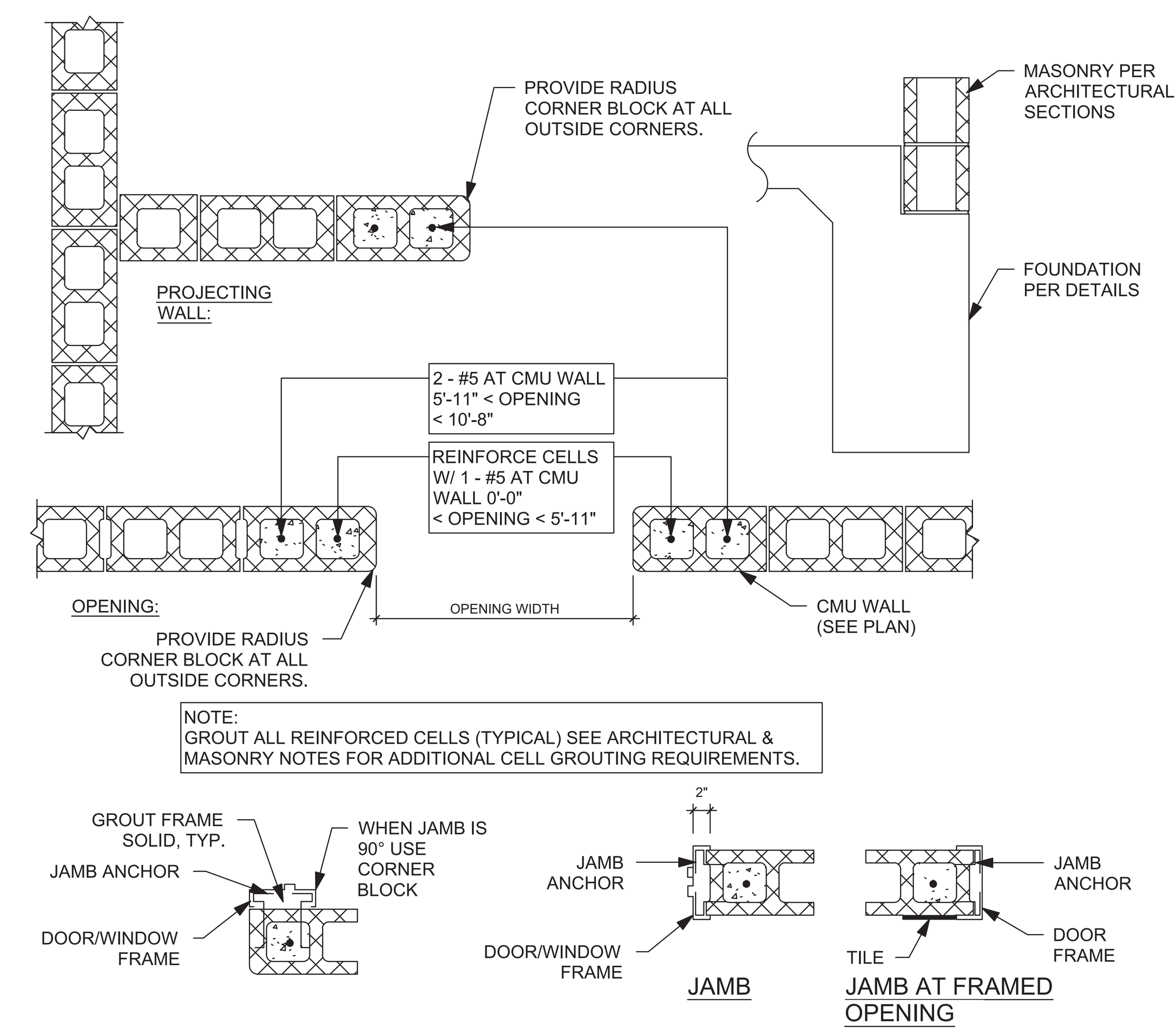
4 CMU MASONRY JOINTS
N.T.S.

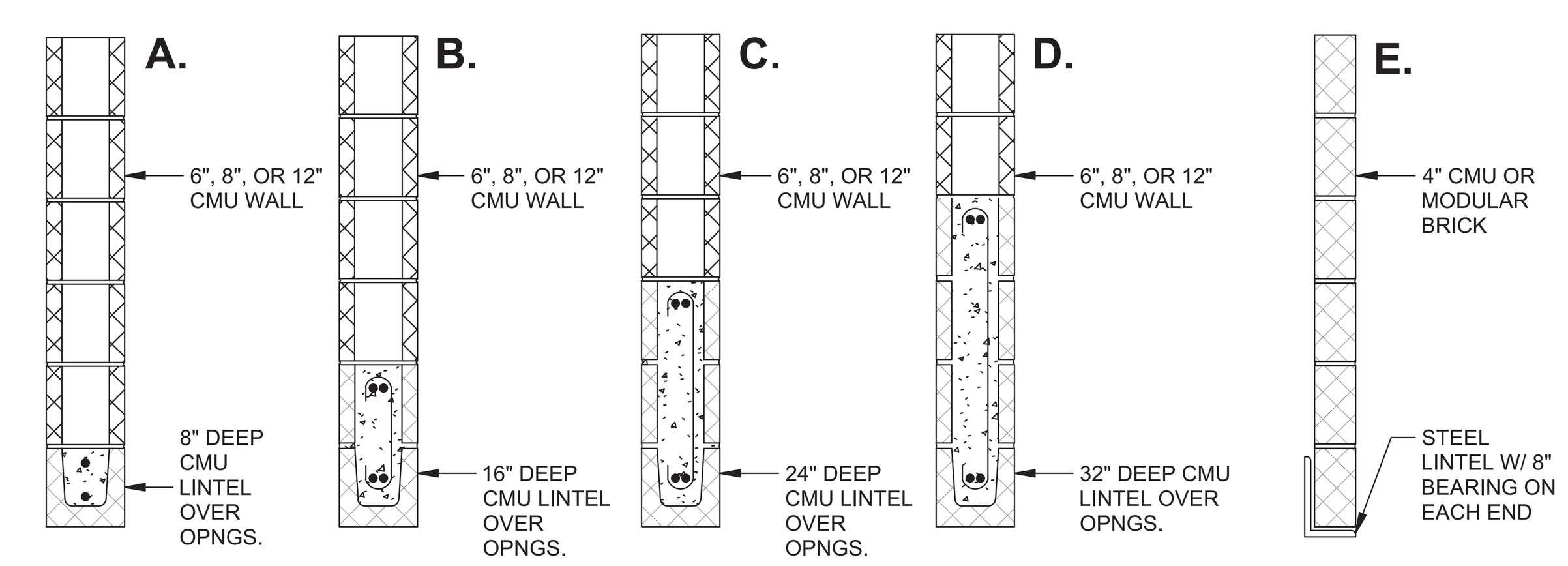


6 FRAMING SECTION
1 1/2" =1'-0"



5 FRAMING SECTION
1/2" = 1'-0"

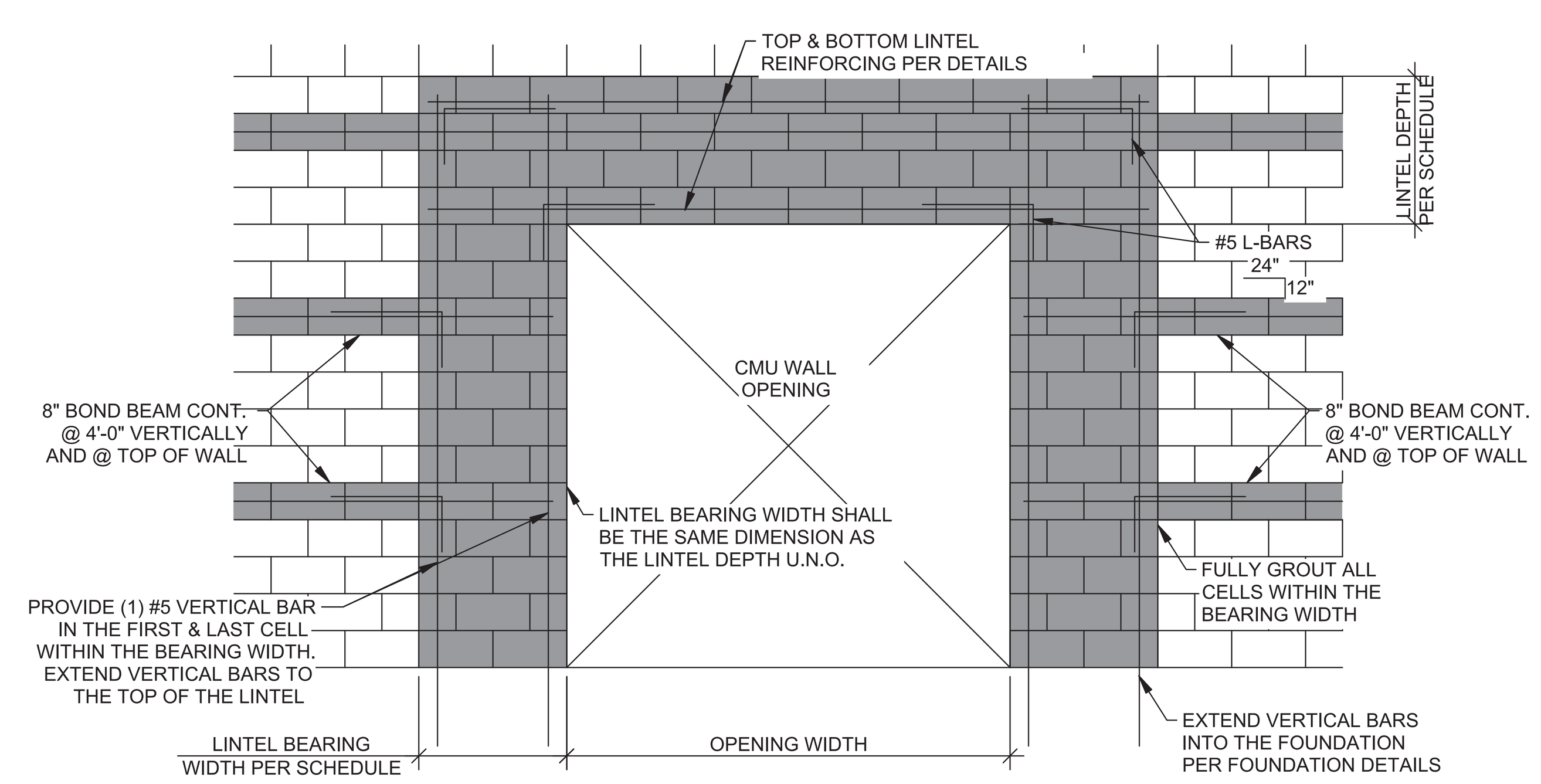




MASONRY LINTEL SCHEDULE

	WALL THICKNESS	OPENING WIDTH	LINTEL	REINFORCING	BEARING
A	6", 8", 12"	LESS THAN 5'-11"	8" DEEP	1-#5 T & B W/ #3 STIRRUPS @ 16" O.C.	8" BEARING
B	6", 8", 12"	6'-0" TO 10'-8"	16" DEEP	2-#5 T & B W/ #3 STIRRUPS @ 16" O.C.	16" BEARING
C	6", 8", 12"	10'-9" TO 14'-0"	24" DEEP	2-#5 T & B W/ #3 STIRRUPS @ 16" O.C.	24" BEARING
D	6", 8", 12"	14'-9" TO _'-_"	32" DEEP	2-#5 T & B W/ #3 STIRRUPS @ 16" O.C.	32" BEARING
E	4"	LESS THAN 6'-6"	L 4X4X3/8	N/A	8" BEARING
E	4"	6'-7" TO 12'-0"	L 6X4X3/8	N/A	8" BEARING

3 TYPICAL CMU DETAILS
N.T.S.

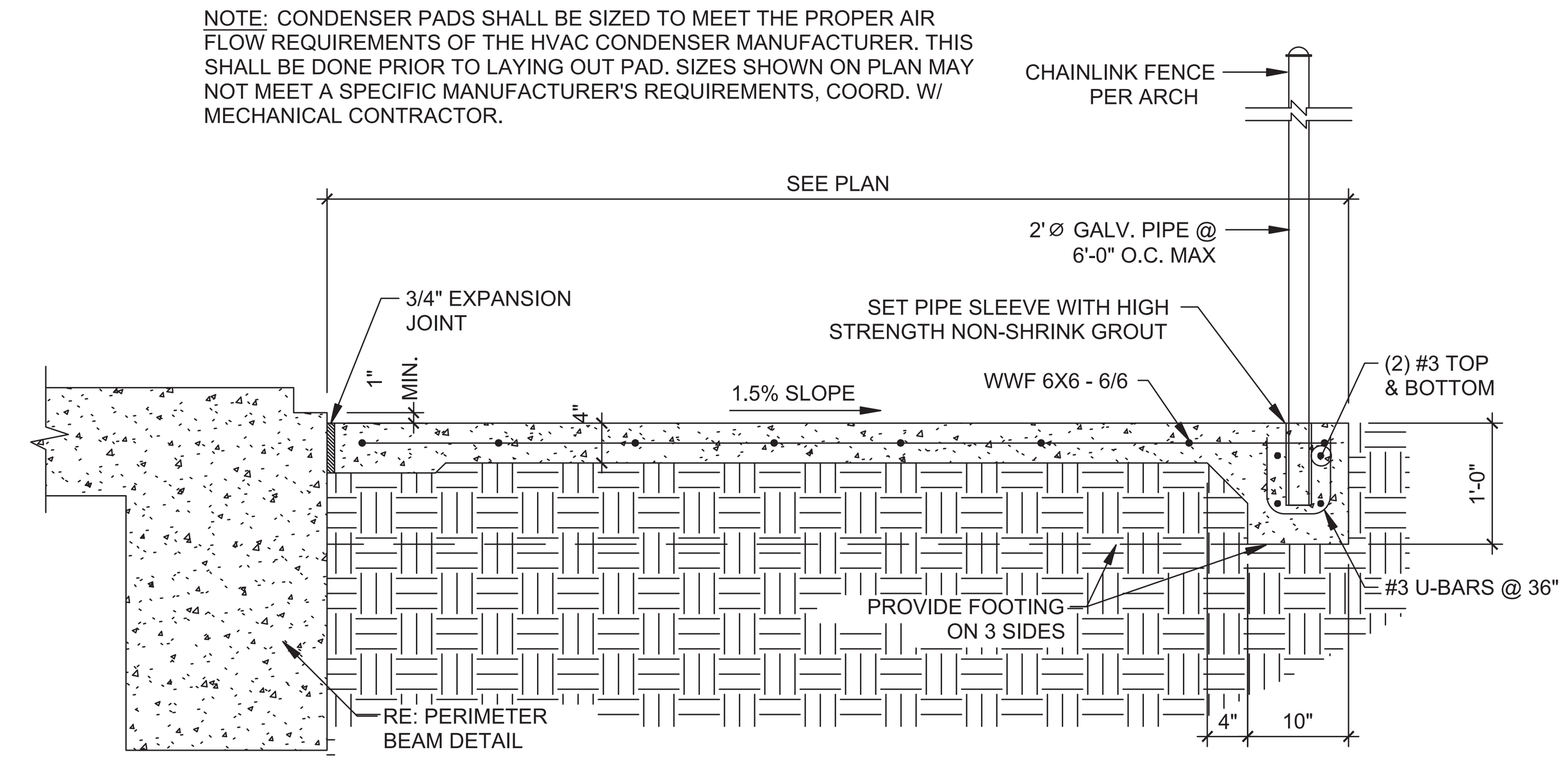


CMU WALL ELEVATION AT LINTELS

NOTE: THIS DETAIL APPLIES TO LINTELS IN LOAD-BEARING CMU WALLS THAT ARE 16" DEEP OR GREATER

2 CMU WALL ELEVATION @ LINTELS
N.T.S.

NOTE: CONDENSER PADS SHALL BE SIZED TO MEET THE PROPER AIR FLOW REQUIREMENTS OF THE HVAC CONDENSER MANUFACTURER. THIS SHALL BE DONE PRIOR TO LAYING OUT PAD. SIZES SHOWN ON PLAN MAY NOT MEET A SPECIFIC MANUFACTURER'S REQUIREMENTS, COORD. W/ MECHANICAL CONTRACTOR.



1 HVAC PAD SECTION
3/4" = 1'-0"

BURNS ARCHITECTURE, LLC

BURNS ARCHITECTURE,LLC
P.O. BOX 2639
GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date

NOTE: DO NOT SCALE DRAWING

CONSTRUCTION DOCUMENTS

STATE OF TEXAS
ZACHERY K. PARKER
144556
LICENSED
PROFESSIONAL ENGINEER
06/02/2024

GLS PROJECT #1540079

GLS
ARCHITECTURE · ENGINEERING · INTERIORS
LANDSCAPE · SURVEYING

Project Number	JCCCAC-23
Date	3/28/2024
Scale	AS NOTED

STRUCTURAL DETAILS

S2.21

20

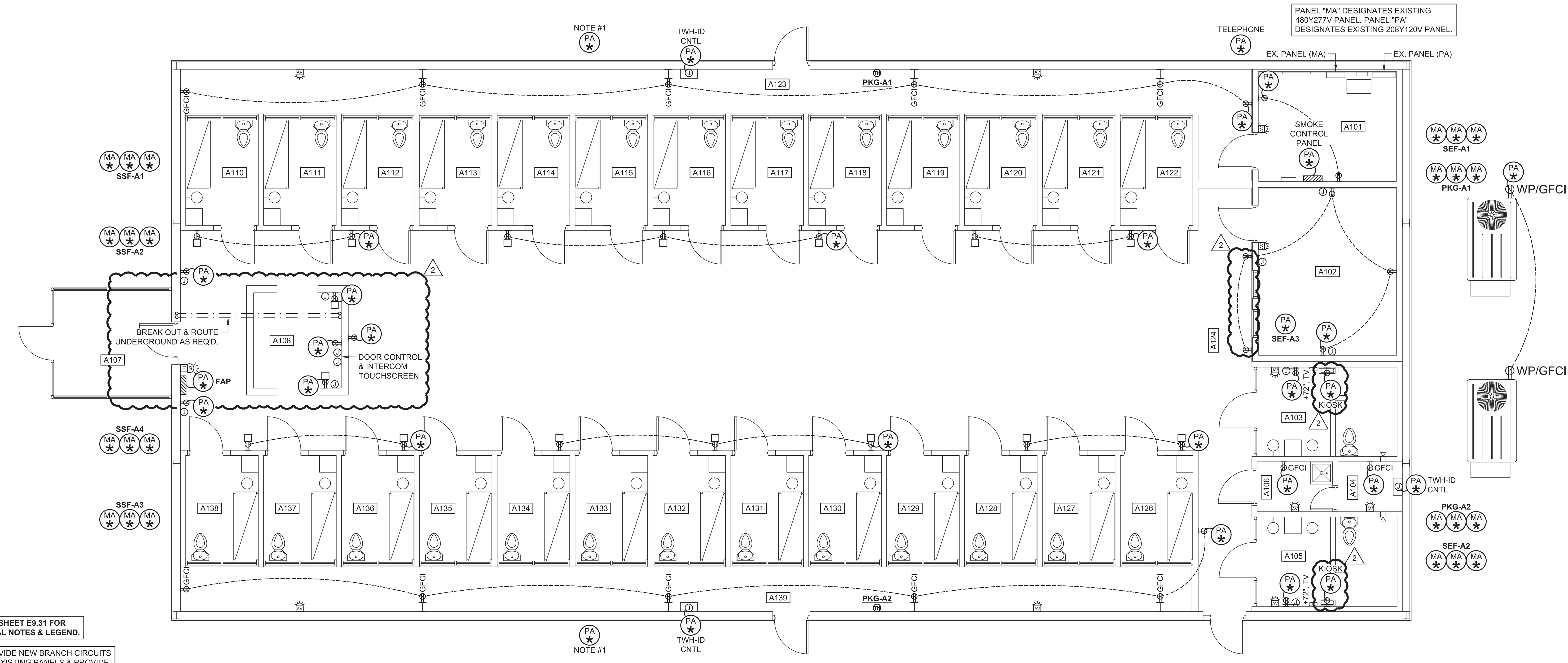
19

18

17

DEMO ALL ABANDONED ELECTRICAL ITEMS & EXISTING ELECTRICAL ITEMS NOT IN USE AT THE END OF THE PROJECT (EXCLUDING SPARE CONDUITS & BRANCH CIRCUITS), INCLUDING, BUT NOT LIMITED TO, CONDUIT/CONDUCTORS, ELECTRICAL BOXES, & LOW VOLTAGE WIRING. SEE ELECTRICAL DEMOLITION NOTES.

16 DEMO NOTES
N.T.S.



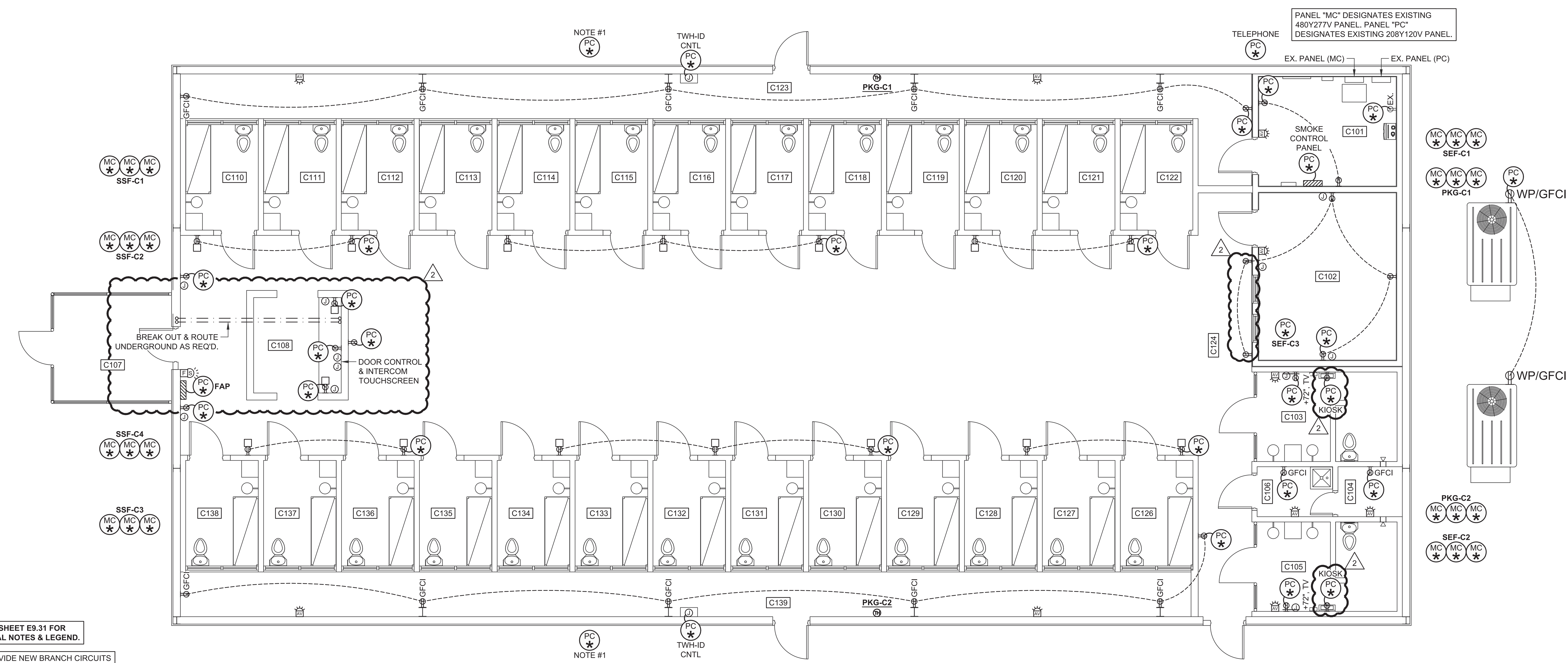
REFER TO SHEET E9.31 FOR ELECTRICAL NOTES & LEGEND.

PROVIDE NEW BRANCH CIRCUITS TO EXISTING PANELS & PROVIDE NEW CIRCUIT BREAKERS.

NOTE #1: PLUMBING FIXTURES WITH SENSORS WILL HAVE ONE OR MORE CONDUITS IN J-BOXES FOR THE FIXTURE TRANSFORMERS. COORDINATE LOCATIONS & QUANTITY REQUIRED WITH THE PLUMBING DRAWINGS; COORDINATE WITH THE PLUMBER. (PLUMBER SHALL PROVIDE THE FIXTURE MANUFACTURER'S OPTIONAL TRANSFORMERS.) INSTALL TRANSFORMERS & L.V. WIRING TO THE FIXTURE SENSORS TO MAKE A COMPLETE WORKING SYSTEM. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

0 2'-8" 5'-4" 10'-8"
SCALE: 3/16" = 1'-0"

3 BUILDING "A" POWER PLAN



REFER TO SHEET E9.31 FOR ELECTRICAL NOTES & LEGEND.

PROVIDE NEW BRANCH CIRCUITS TO EXISTING PANELS & PROVIDE NEW CIRCUIT BREAKERS.

NOTE #1: PLUMBING FIXTURES WITH SENSORS WILL HAVE ONE OR MORE CONDUITS IN J-BOXES FOR THE FIXTURE TRANSFORMERS. COORDINATE LOCATIONS & QUANTITY REQUIRED WITH THE PLUMBING DRAWINGS; COORDINATE WITH THE PLUMBER. (PLUMBER SHALL PROVIDE THE FIXTURE MANUFACTURER'S OPTIONAL TRANSFORMERS.) INSTALL TRANSFORMERS & L.V. WIRING TO THE FIXTURE SENSORS TO MAKE A COMPLETE WORKING SYSTEM. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

0 2'-8" 5'-4" 10'-8"
SCALE: 3/16" = 1'-0"

1 BUILDING "C" POWER PLAN
3/16"=1'-0"

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P.O. BOX 2639
GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	ADDENDUM	4-11-24
2	ADDENDUM	7-30-24

NOTE: DO NOT SCALE DRAWING
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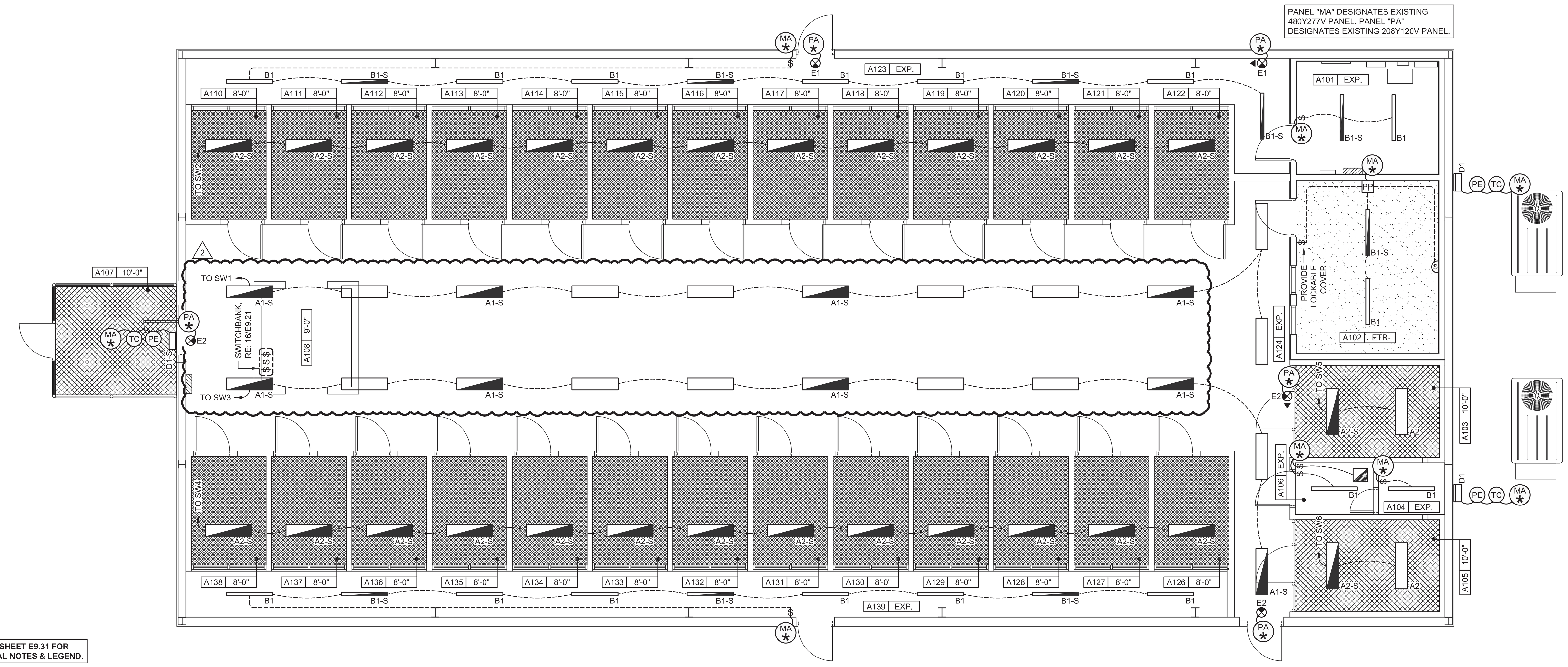
STATE OF TEXAS
EDDIE L. MORGAN
51663
LICENSED PROFESSIONAL ENGINEER
07/30/2024

GLS PROJECT #154079
GLS
ARCHITECTURE - ENGINEERING - INTERIORS
LANDSCAPE - SURVEYING
1609 S. CHESTNUT ST. STE. 202 - LUFKIN, TEXAS 75901 - (936) 637-4900
4077 CROSS PARK DR. STE. 100 - BRYAN, TEXAS 77802 - (979) 776-9700
455 RICE ROAD STE. 107 - TYLER, TEXAS 75703 - (903) 581-3805

Project Number	JCCCAC-23
Date	3-28-24
Scale	3/16"=1'-0"

POWER PLANS

E9.11



REFER TO SHEET E9.31 FOR ELECTRICAL NOTES & LEGEND.

ALL LIGHTING FIXTURES ARE TYPE "A1" UNLESS NOTED OTHERWISE.

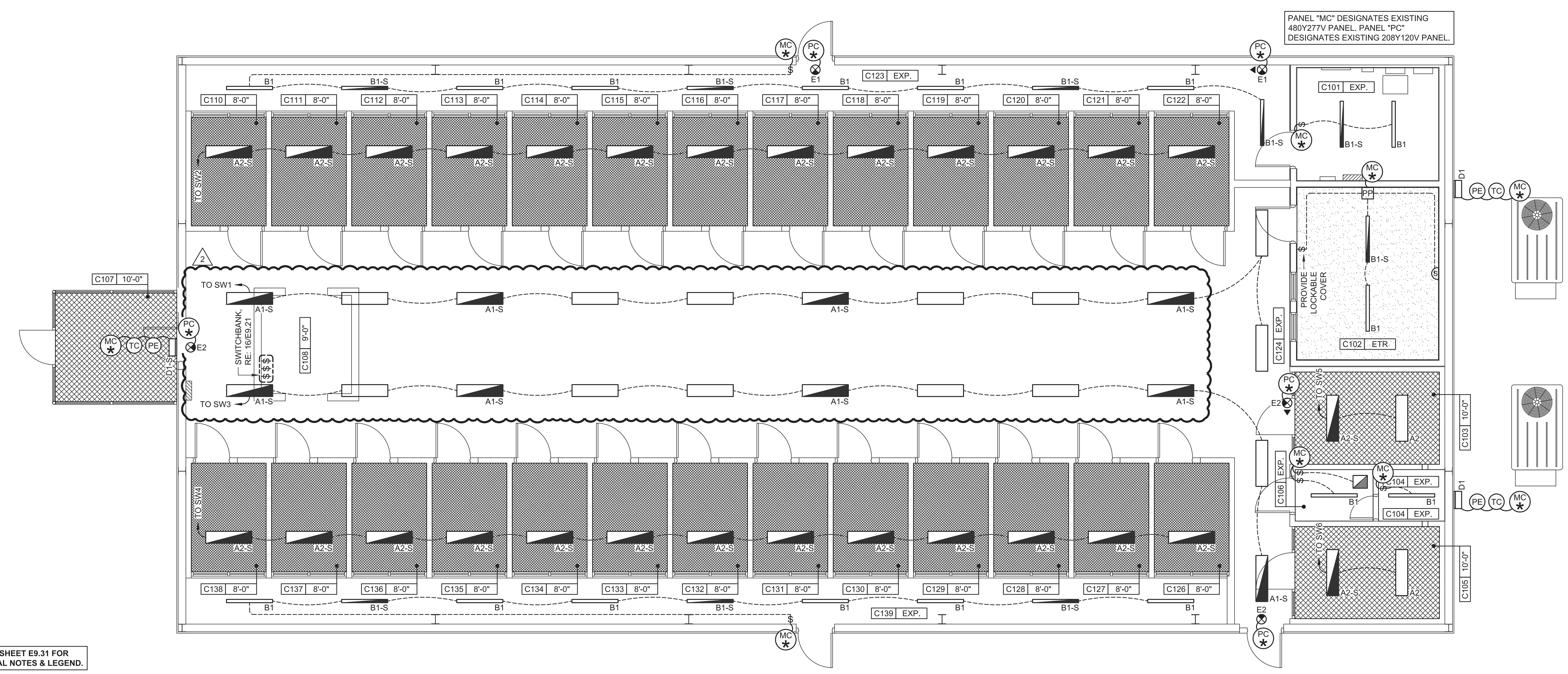
PROVIDE NEW BRANCH CIRCUITS TO EXISTING PANELS & PROVIDE NEW CIRCUIT BREAKERS.

PROVIDE POWER FOR LIGHTING FROM TWO PANEL "MA" CIRCUITS (277V), ONE CIRCUIT SHALL POWER CELL LIGHTING (A2-S FIXTURES) & ANOTHER CIRCUIT SHALL POWER ALL OTHER LIGHT LOADS.

0 2'-8" 5'-4" 10'-8"

SCALE: 3/16" = 1'-0"

3 BUILDING "A" REFLECTED CEILING PLAN



REFER TO SHEET E9.31 FOR ELECTRICAL NOTES & LEGEND.

ALL LIGHTING FIXTURES ARE TYPE "A1" UNLESS NOTED OTHERWISE.

PROVIDE NEW BRANCH CIRCUITS TO EXISTING PANELS & PROVIDE NEW CIRCUIT BREAKERS.

PROVIDE POWER FOR LIGHTING FROM TWO PANEL "MC" CIRCUITS (277V), ONE CIRCUIT SHALL POWER CELL LIGHTING (A2-S FIXTURES) & ANOTHER CIRCUIT SHALL POWER ALL OTHER LIGHT LOADS.

0 2'-8" 5'-4" 10'-8"

SCALE: 3/16" = 1'-0"

1 BUILDING "C" REFLECTED CEILING PLAN
3/16"=1'-0"

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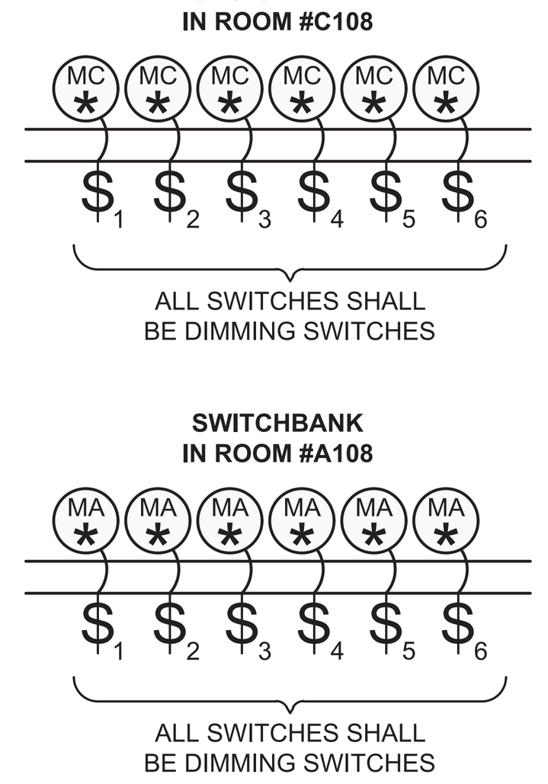

16 SWITCHBANK DETAIL
N.T.S.

BURNS ARCHITECTURE, LLC

BURNS ARCHITECTURE,LLC
P.O. BOX 2639
GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	ADDENDUM	4-11-24
2	ADDENDUM	7-30-24

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

STATE OF TEXAS
EDDIE L. MORGAN
51663
LICENSED PROFESSIONAL ENGINEER
07/30/2024

GLS
ARCHITECTURE - ENGINEERING - INTERIORS LANDSCAPE - SURVEYING

Project Number	JCCCAC-23
Date	3-28-24
Scale	3/16"=1'-0"

REFLECTED CEILING PLANS

E9.21

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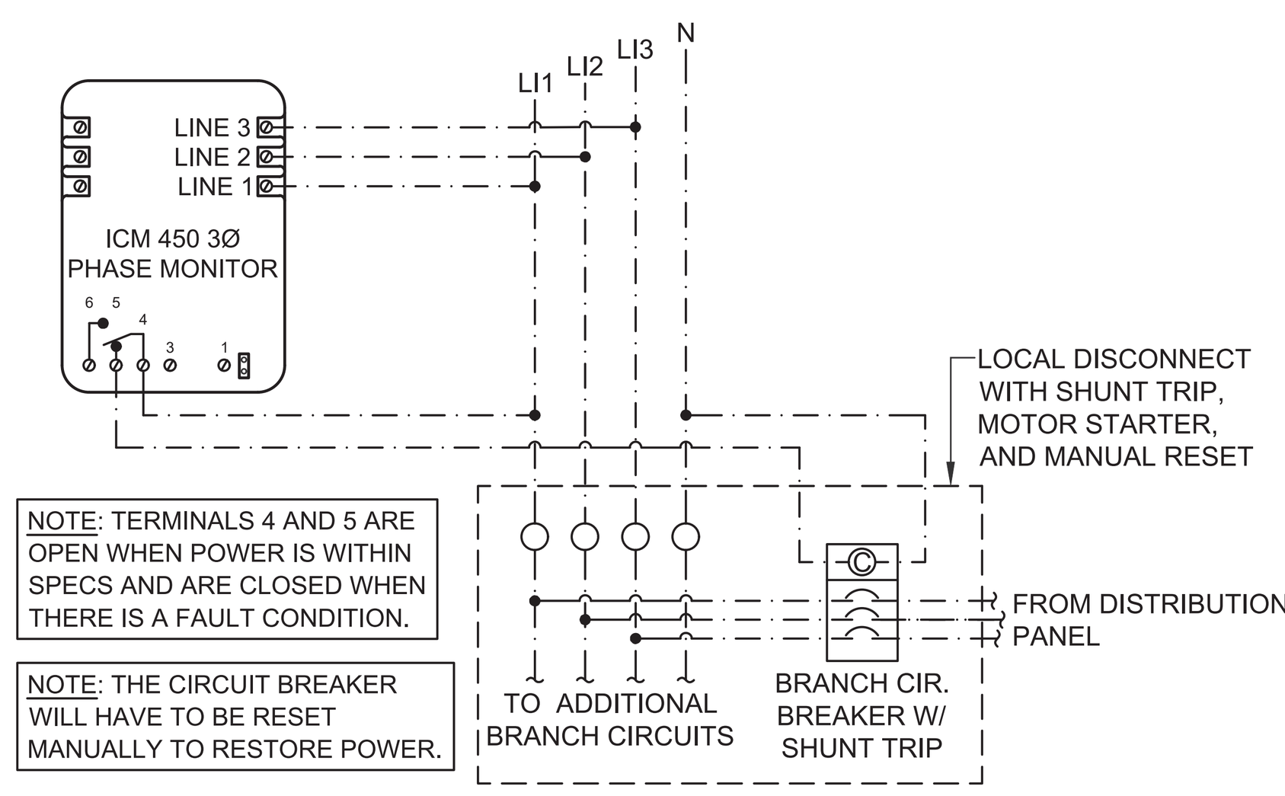
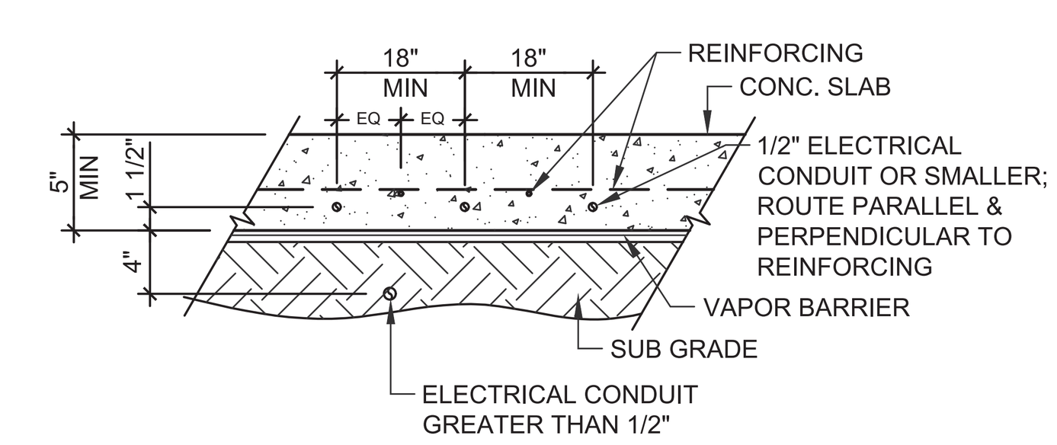


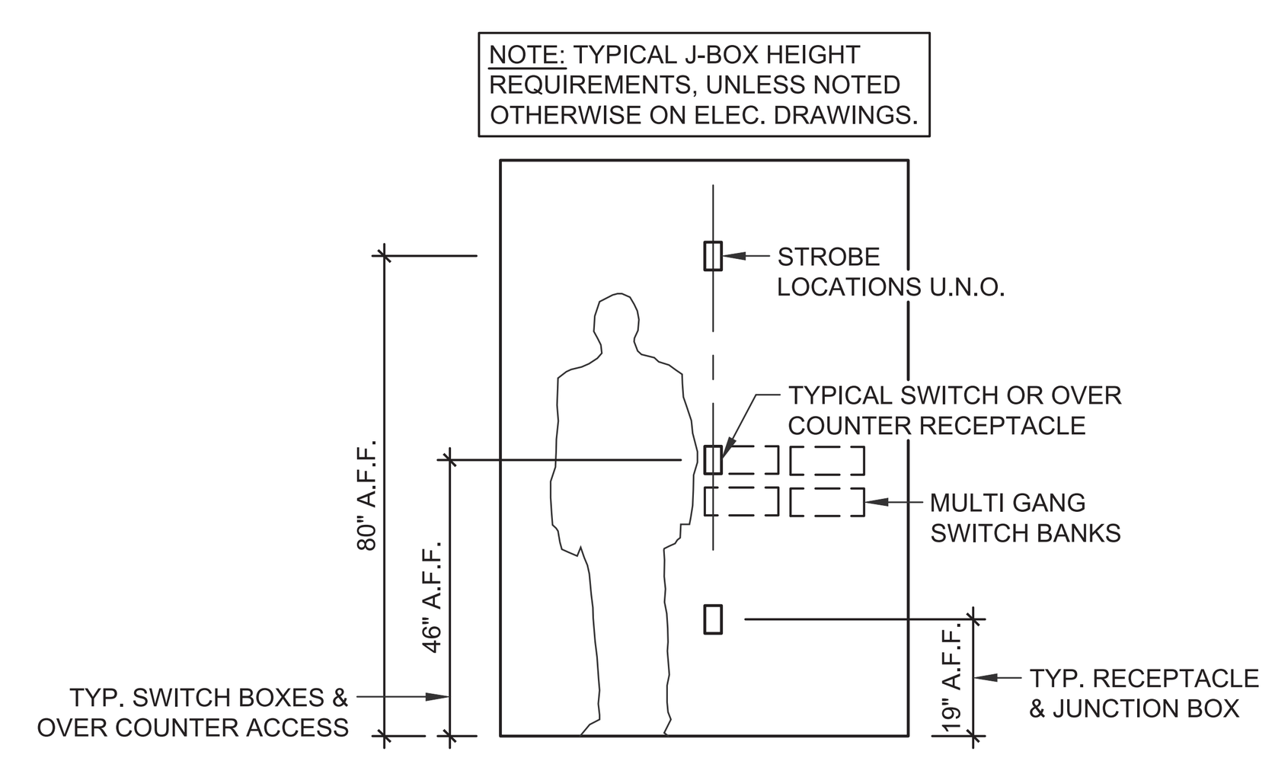
SET-UP PARAMETERS		
PARAMETER	SETTING (RANGE)	DEFAULT
LINE VOLTAGE	NAME PLATE VOLTAGE (190-630V)	208V
DELAY ON BREAK	4 MINUTES (0-10 MINUTES)	0.1 MINUTE
FAULT INTERROGATION	15 SECS. (0-15 SECS.)	15 SECS.
% OVER/UNDER VOLTAGE	15% (2-25%)	20%
% PHASE UNBALANCE	10% (2-20%)	20%
RESET MODE	AUTO (0-10 TIMES/ AUTO)	AUTO
CONTROL MODE	ON (ON, OFF)	ON

PROVIDE FOR ALL 3-PHASE LOADS (EXCEPT PACKAGE UNITS).

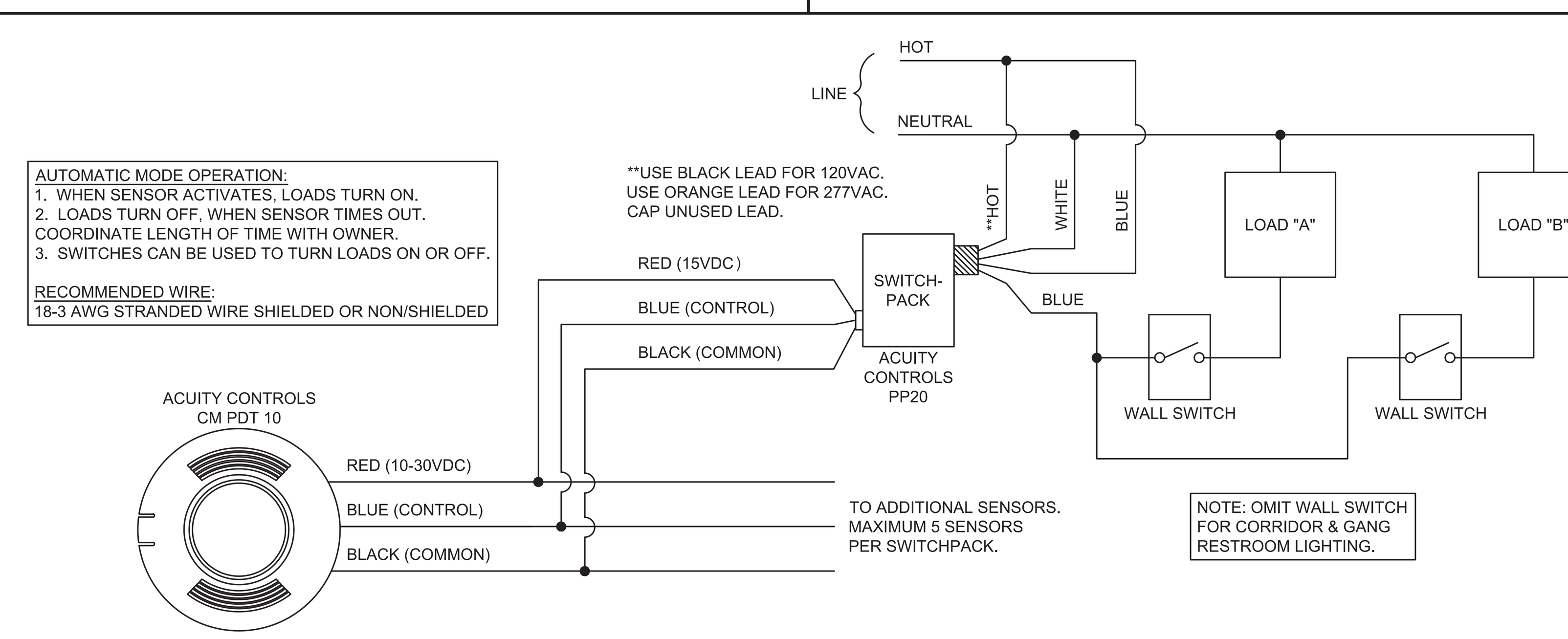
14 3-PHASE MONITOR WIRING DIAGRAM
N.T.S.



13 SLAB CONDUIT STANDARD
N.T.S.



12 TYPICAL J-BOX MOUNT HEIGHT DETAIL
N.T.S.



6 CEILING SENSOR WIRING DIAGRAM
N.T.S.

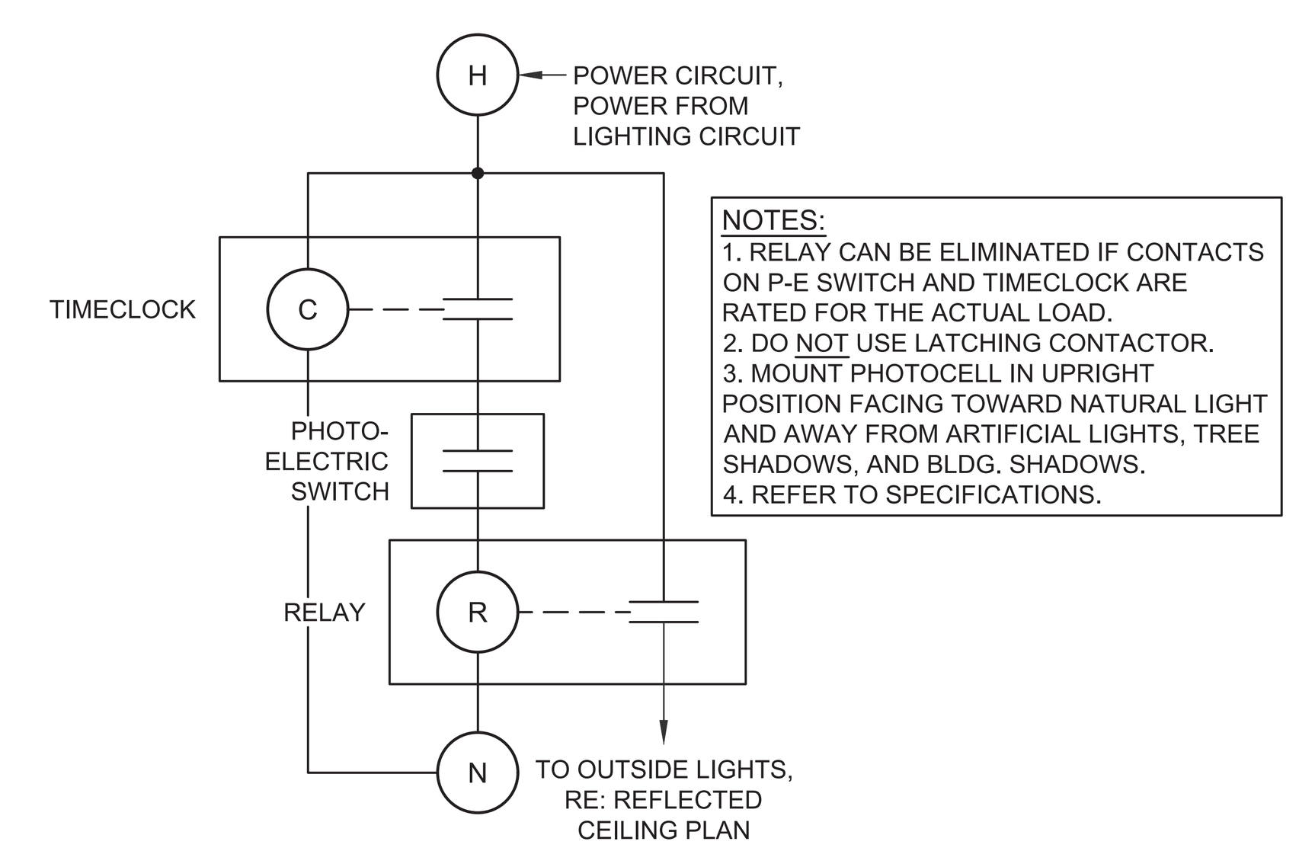
MARK	TYPE	MOUNTING	MANUFACTURER CATALOG NO.	LAMPS TYPE	REMARKS
A1	1x4 MINIMUM SECURITY LED, 3 1/2" DEEP	SURFACE MOUNT (PROVIDE SUSPENDED SLOT CHANNEL 10' A.F.F, ORIENT ALONG LONG AXIS OF FIXTURE)	COPPER METALUX FMS-N12-4-LD4-1HI-40-UNV-80-86-ED1D-1, 18 GA. STEEL DOOR, 1 LED MODULE, HIGH OUTPUT	43.2W LED, 4000K, 4450 LUMENS (2)	CLEAR TEMPERED GLASS LENS, 0-10V DIMMING TO 1%, 5 YEAR WARRANTY
A1-S	1x4 MINIMUM SECURITY LED, EMERGENCY BATTERY, 3 1/2" DEEP	SURFACE MOUNT (PROVIDE SUSPENDED SLOT CHANNEL 10' A.F.F, ORIENT ALONG LONG AXIS OF FIXTURE)	COPPER METALUX FMS-N12-4-LD4-1HI-40-UNV-80-86-ED1D-1-EL10W, 18 GA. STEEL DOOR, 1 LED MODULE, HIGH OUTPUT	43.2W LED, 4000K, 4450 LUMENS	CLEAR TEMPERED GLASS LENS, 0-10V DIMMING TO 1%, 5 YEAR WARRANTY, 10W EMERGENCY BATTERY PACK
A2	1x4 LED PANEL	SUSPENDED (1' CLEAR ABOVE PERFORATED METAL CEILING)	COPPER METALUX 14CGTX-80HE-L840-HCD, UNV VOLTAGE, 1%-100% DIMMABLE	61.9W LED, 4000K, 7000 LUMENS, 80 CRI	5 YEAR WARRANTY, 3-1/2" DEEP, PROVIDE SUSPENSION MOUNTING KIT
A2-S	1x4 LED PANEL EMERGENCY BATTERY	SUSPENDED (1' CLEAR ABOVE PERFORATED METAL CEILING)	COPPER METALUX 14CGTX-80HE-EL14W-L840-HCD, UNV VOLTAGE, 1%-100% DIMMABLE	61.9W LED, 4000K, 7000 LUMENS, 80 CRI	5 YEAR WARRANTY, 3-1/2" DEEP, PROVIDE SUSPENSION MOUNTING KIT, 14W EMERGENCY BATTERY PACK
B1	4' STRIP LED	WALL OR SURFACE MOUNTED	COOPER METALUX 4SNLED-LD5-47SL-LW-UNV (277V IN USE)-L840-HCD (1%-100%DIMMING)-1-WG/SNF-4FT (WIRE GUARD)	40W LED, 4000K, 4700 LUMENS, 80 CRI	5-YEAR WARRANTY, 0-10V DIMMING (1%-100%), PROVIDE WITH WIRE GUARD
B1-S	4' STRIP LED, EMERGENCY BATTERY	WALL OR SURFACE MOUNTED (2)	COOPER METALUX 4SNLED-LD5-47SL-LW-UNV (277V IN USE)-EL14W-L840-HCD (1%-100% DIMMING)-1-WG/SNF-4FT (WIRE GUARD), WITH EMERGENCY BATTERY PACK	40W LED, 4000K, 4700 LUMENS, 80 CRI	5-YEAR WARRANTY, 0-10V DIMMING (1%-100%), 14W EMERGENCY BATTERY, PROVIDE WITH WIRE GUARD
D1	EXTERIOR LED WALL PACK	WALL MOUNTED	COOPER LUMARK WPMLED20B, 4000K, 80 CRI, 120-277V	80W LED, 4000K, 9800 LUMENS	WITH INTEGRAL PHOTO-CONTROL
D1-S	EXTERIOR LED WALL PACK, EMERGENCY BATTERY	WALL MOUNTED	COOPER LUMARK WPMLED20B, 4000K, 80 CRI, 120-277V, EMERGENCY BATTERY PACK	80W LED, 4000K, 9800 LUMENS	WITH INTEGRAL PHOTO-CONTROL, PROVIDE SEPARATELY MOUNTED COMPATIBLE (PER LIGHT FIXTURE MFGR.) 14W EMERGENCY BATTERY
E1	LED EMERGENCY EXIT SIGN WITH BATTERY BACKUP, STEEL HOUSING	WALL OR CEILING MOUNTED	EELP LIGHTING STXE2RWEMSD	3.8W LED LAMP CONT. ON	DIRECTION ARROWS SHADED PORTION INDICATES LIGHTED FACE
E2	LED EMERGENCY EXIT SIGN WITH BATTERY BACKUP, 14 GA. STEEL HOUSING & POLYCARBONATE FACEPLATE	WALL MOUNTED	EELP LIGHTING VSXE-1-R-W-W-EM-SD	5W LED LAMP CONT. ON	DIRECTION ARROWS SHADED PORTION INDICATES LIGHTED FACE
(S)	MOTION SENSOR	WALL MOUNTED	ACUITY LWS (H) PDT		
PP	SENSOR POWER PACK	CEILING MOUNTED	ACUITY PP20		
$	LIGHT SWITCH				
$D	DIMMING SWITCH				ON/OFF & PRE-SETS, 1,000 VA (MIN.), SWITCH SHALL BE FULLY COMPATIBLE W/ LIGHTING PROVIDED
	CEILING MOUNTED EXHAUST FAN				REFERENCE MECHANICAL DWGS.

EMERGENCY DRIVER NOTE: APPLICABLE TO FIXTURES ABOVE INDICATED BY "_-S". IN ADDITION TO A STANDARD AC DRIVER, PROVIDE AN EMERGENCY DRIVER WITH 90 MIN. Ni-CAD BATTERY PACK. PROVIDE POWER TO EMERGENCY DRIVER FROM THE SAME BRANCH CIRCUIT AS THE STANDARD DRIVER. PROVIDE AN INDICATING LIGHT VISIBLE FROM THE ROOM TO INDICATE THE EMERGENCY DRIVER IS POWERED.

FOR FIXTURES MARKED "_-S": WIRE THE EMERG. DRIVER TO SWITCH THE BACKUP LAMP ON AND OFF W/ THE FIXTURE. THE BATTERY PACK WILL POWER THE LIGHT ONLY UPON LOSS OF POWER TO THE BRANCH CIRCUIT. TO FACILITATE TESTING AND MAINTENANCE OF THE BATTERY PACKS, MARK THE BRANCH CIRCUIT BREAKER "EB" TO INDICATE THE PRESENCE OF AN EMERGENCY DRIVER ON THAT CIRCUIT.

LED LIGHTING: PROVIDE A TRANSFORMER/DRIVER THAT MEETS THE MANUFACTURER'S REQUIREMENTS. VERIFY WITH THE MANUFACTURER THE MINIMUM AND MAXIMUM NUMBER OF FIXTURES THAT CAN BE POWERED FROM A SINGLE TRANSFORMER/DRIVER SO AS TO PROVIDE STABLE, FLICKER-FREE OPERATION AND LONG LIFE.

8 LIGHTING SCHEDULE
N.T.S.



7 TIMECLOCK/PHOTO-ELECTRIC DETAIL
N.T.S.

1. ELECTRICAL TO CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE (N.E.C.) AND APPLICABLE ENERGY CODE.

2. ELECTRICAL CONTRACTOR TO SUPPLY CUT SHEETS FOR PROPOSED CONSTRUCTION FOR ACTUAL EQUIPMENT USED AND SUBMIT TO THE ENGINEER FOR APPROVAL.

3. PROVIDE ELECTRICAL LIGHT SWITCH AND RECEPTACLES AT LOCATIONS AS SHOWN ON THE PLANS. UNLESS OTHERWISE NOTED ON THE PLANS, THE HEIGHT OF WALL SWITCHES AND RECEPTACLES SHALL COMPLY WITH ALL APPLICABLE CODE REQUIRED ACCESSIBILITY REQUIREMENTS. PROVIDE STAINLESS STEEL COVERS FOR LIGHT SWITCHES, RECEPTACLES, AND COVER PLATES. (U.N.O.)

4. BUILDING WIRING TO BE MINIMUM 12-GAUGE GROUNDED COPPER WIRING INSTALLED IN METALLIC CONDUIT (EMT).

5. ALL CONDUIT TO EQUIPMENT IN PUBLIC AREAS SHALL BE IN WALLS.

6. USE MULTIPLE GANG J-BOX AND COVER PLATE WHENEVER POWER RECEPTACLES AND/OR SWITCHES ARE IN CLOSE PROXIMITY TO EACH OTHER.

7. COMPUTER/DATA/COMMUNICATIONS/CABLE TERMINALS SHALL NOT BE COMBINED WITH ADJACENT POWER RECEPTACLES INTO A COMMON J-BOX.

8. FIXTURES, RECEPTACLES, EQUIPMENT, ETC., WILL BE WIRED TO CIRCUITS AS SHOWN ON DRAWINGS. PROPOSED MODIFICATIONS TO THE DRAWINGS TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

9. WIRE SIZES SHOWN ARE BASED ON ESTIMATED LENGTHS. FOR BRANCH CIRCUITS EXCEEDING 75 FEET ACTUAL LENGTH, VERIFY THAT THE VOLTAGE DROP DOES NOT EXCEED 3% PER N.E.C. RECOMMENDATIONS. AMPACITY OF MULTIPLE CONDUCTORS IN A SINGLE CONDUIT SHALL BE ADJUSTED PER N.E.C. RECOMMENDATIONS. IF CONDUCTOR SIZE IS INCREASED, INCREASE GROUND WIRE AS REQUIRED BY CURRENT N.E.C. WIRE SIZES SHALL BE ADJUSTED PER N.E.C. FOR HIGH TEMPERATURE (EX: ROOFTOP LOCATIONS). REFERENCE N.E.C. 310.15(C) "ADJUSTMENT FACTORS".

10. UNLESS OTHERWISE NOTED, SWITCHES, RECEPTACLES, J-BOXES, ETC., ARE DIAGRAMMATICALLY SHOWN ON THE THE PLANS TO CONVEY THE APPROXIMATE LOCATIONS FOR INSTALLATION. EVEN IF SHOWN BACK TO BACK ON THE PLANS, ALL BOXES ON EITHER SIDE OF A WALL OR PARTITION MUST BE SEPARATED HORIZONTALLY BY AT LEAST 6 INCHES. UNLESS SHOWN ON THE PLANS, REFER TO NOTES, LEGENDS, ADA REQUIREMENTS, ETC. FOR CORRECT MOUNTING HEIGHTS.

11. REFER TO THE ARCHITECTURAL DRAWINGS, CIVIL DRAWINGS, AND DEMOLITION DRAWINGS FOR PERTINENT INFORMATION RELATED TO THE PROJECT {ELECTRICAL/PLUMBING/MECHANICAL} WORK.

12. COAXIAL CABLE TO TELEVISION LOCATIONS IS IN CONTRACT. COORDINATE ENTRY INTO BUILDING WITH CIVIL DRAWINGS.

13. EACH MOTION SENSOR WILL HAVE A CONDUIT IN WALL AND J-BOX.

14. ALL WIRES AND CABLES WILL BE SUPPORTED AS REQUIRED BY THE CURRENT VERSION OF THE N.E.C., WIRES AND CABLES **WILL NOT** BE SUPPORTED BY THE CEILING GRID. **NO EXCEPTIONS.**

15. ALL INDIVIDUAL RECEPTACLES SERVED BY DEDICATED COMPUTER PANELS OR DESIGNATED COMPUTER CIRCUITS SHALL BE ISOLATED GROUND RECEPTACLES. COLOR IS TO BE SUBMITTED FOR APPROVAL BY ARCHITECT. ISOLATED GROUND SYMBOL (TRIANGLE) DESIGNATION TO BE ENGRAVED ON THE FACE OF RECEPTACLES. EACH BRANCH CIRCUIT SERVING COMPUTER RECEPTACLES SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR. OR ALL CIRCUITS WITH SENSITIVE ELECTRONIC EQUIPMENT (EXAMPLES: COMPUTERS AND PRINTERS) ARE TO BE POWERED FROM A QUALITY UPS (UNINTERRUPTIBLE POWER SUPPLY). NOTE: PROVISION OF UPS'S ARE NOT IN THE SCOPE OF THE PROJECT.

16. WHEN ROUTING UNDERGROUND CONDUITS, THE TOP OF THE CONDUIT IS TO BE AT 12" MINIMUM BELOW FINISHED FLOOR ELEVATION AND SHALL PENETRATE FOUNDATION BEAMS AT APPROXIMATELY THE MID-DEPTH OF THE BEAM. WHERE CONDUIT INTERSECTS FOUNDATION BEAMS, THE ANGLE BETWEEN THE LONGITUDINAL AXIS OF THE CONDUIT AND THE LONGITUDINAL AXIS OF THE FOUNDATION BEAM IS TO BE IDEALLY 90 DEGREES BUT NOT LESS THAN 45 DEGREES. ALL VAPOR BARRIERS SHALL BE SEALED TO THE CONDUIT AT THE PENETRATIONS.

17. ALL OPENINGS AROUND ELECTRICAL PENETRATIONS INTO OR THROUGH FIRE-RATED WALLS, PARTITIONS, FLOORS, OR CEILINGS SHALL BE FIRE-STOPPED USING U.L. APPROVED MATERIALS AND METHODS TO MAINTAIN THE FIRE RESISTANCE RATING IN ACCORDANCE WITH N.E.C. 300.21 AND APPLICABLE CODES.

18. ALL ABOVE COUNTER RECEPTACLES SHALL BE MOUNTED ABOVE BACK SPLASH, RE: INTERIOR PLANS.

19. CONTRACTOR SHALL COORDINATE ALL WALL MOUNTED ITEMS WITH INTERIOR ELEVATIONS. PENETRATIONS AND CUTOUTS IN ACOUSTICAL WALL PANELS SHALL NOT BE ALLOWED. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ALL DAMAGED ACOUSTICAL WALL PANELS.

20. CONTRACTOR TO PROVIDE AND INSTALL LOCAL DISCONNECT AND CONNECT TO HVAC SINGLE POINT ELECTRICAL CONNECTION, RE: MECHANICAL SCHEDULES. [IF DISCONNECT IS PROVIDED INTEGRAL WITH EQUIPMENT, PROVIDE POWER AS REQUIRED; NO NEED FOR SEPARATE DISCONNECT.]

21. COORDINATE WITH MILLWORK FOR LOCATION OF RECEPTACLES.

22. WHERE 120V EXHAUST FANS ARE USED IN CONJUNCTION WITH 277V LIGHTING, ELECTRICIAN SHALL PROVIDE AND INSTALL 277V RELAY (RIB2421C OR EQUAL) TO POWER EXHAUST FAN FROM 120V CIRCUIT.

23. WHEN TRENCHING IS REQUIRED, REFER TO SPECIFICATION SECTIONS AND GEOTECH REPORT REQUIREMENTS FOR UTILITY TRENCH BACKFILL.

24. CONTRACTOR SHALL PROVIDE LABELING ON ALL JUNCTION BOXES AND COVER PLATES IDENTIFYING BRANCH CIRCUIT. PROVIDE ADDITIONAL LABELING IN ACCORDANCE WITH N.E.C. AND A.H.J. REQUIREMENTS.

25. IN AREAS WHERE ELECTRICAL SUPPORTS, DEVICES, AND CONDUITS WILL BE EXPOSED TO PUBLIC VIEW, COORDINATE WITH OTHER DISCIPLINES AND THE PAINTER. ALL ELECTRICAL SUPPORTS, DEVICES, AND CONDUITS SHALL BE INSTALLED ON TIME FOR THE PAINTER TO COMPLETE WORK COINCIDENT WITH OTHER PAINTING REQUIREMENTS IN THE AREA.

DEMOLITION ELECTRICAL NOTES

1. PRIOR TO THE DEMOLITION OF WORK BY ANY TRADE, PROVIDE A QUALIFIED ELECTRICIAN TO DISCONNECT ALL SOURCES OF POWER SERVING EQUIPMENT, LIGHT FIXTURES, AND OUTLETS WITHIN THE AREA OF DEMOLITION. VERIFY BY TESTING THAT POWER HAS BEEN DISCONNECTED. THE ELECTRICIAN SHALL REMAIN ON SITE DURING DEMOLITION TO DISCONNECT AND TEST ALL ELECTRICAL WORK THAT BECOMES ACCESSIBLE DURING THE COURSE OF DEMOLITION.

2. ALL DEMOLITION ITEMS SHALL BECOME THE CONTRACTORS PROPERTY AND SHALL BE REMOVED FROM THE SITE. HAZARDOUS MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH FEDERAL REGULATIONS AND THE CONTRACT DOCUMENTS.

3. THE DISPOSAL OF LAMPS AND BALLASTS SHALL BE IN ACCORDANCE WITH EPA STANDARDS AND GUIDELINES.

4. WHERE EQUIPMENT, WIRING DEVICES, AND/OR LIGHT FIXTURES ARE SCHEDULED FOR DEMOLITION, REMOVE THE ASSOCIATED WIRE AND RACEWAY BACK TO THE CIRCUIT BREAKER SERVING THE EQUIPMENT, UNLESS SPECIFICALLY NOTED OTHERWISE.

5. WHERE CEILINGS OR WALLS ARE SCHEDULED FOR DEMOLITION ON THE ARCHITECTURAL DRAWINGS, DISCONNECT AND REMOVE ALL WIRING DEVICES, LIGHT FIXTURES, AND SPEAKERS ASSOCIATED WITH THOSE WALLS AND CEILINGS.

6. IDENTIFY CONDUITS AND WIRE PASSING THROUGH THE AREA OF DEMOLITION AND SERVING LOADS OUTSIDE THE AREA THAT WILL REMAIN. MARK AND PROTECT THESE CONDUITS DURING DEMOLITION.

7. THE ELECTRICAL SERVICE TO AREAS NOT WITHIN THE DEMOLITION SCOPE OF WORK SHALL NOT LOSE POWER UNLESS SCHEDULED AND AGREED TO BY THE OWNER.

2 ELECTRICAL NOTES
N.T.S.

	110 DUPLEX RECEPTACLE WITH 1 GANG BOX
	COMBINATION POWER & USB-S OUTLET
	110 QUADRAPLEX RECEPTACLE WITH 2 GANG BOX
220	220 RECEPTACLE WITH 1 GANG BOX, TYPE AS MARKED
	EQUIPMENT SERVICE DISCONNECT, NON-FUSED, LOCKABLE, U.N.O.
(R)	CONTROL RELAY
(TC)	TIMECLOCK
(PE)	PHOTOELECTRIC
AC	J-BOX MOUNTED AT 10" ABOVE COUNTER, UNLESS NOTED OTHERWISE. COORDINATE J-BOX HEIGHT WITH MILLWORK.
WP	WEATHERPROOF / WATERPROOF WITH GFCI
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
	CONDUIT UNDER SLAB OR IN SLAB
UGE	CONDUIT UNDERGROUND
UMDC	UNDERGROUND MULTI-DUCT CONDUIT
(J)	1 GANG JUNCTION BOX - 1"Ø EMPTY CONDUIT TO 12" ABOVE CEILING
(J) TV	1 GANG JUNCTION BOX FOR CABLE TV- 1"Ø EMPTY CONDUIT TO 12" ABOVE CEILING
	DATA ONLY WALL OUTLET FOR NETWORK
(S)	CEILING SPEAKER SUPPORTED BY GRID (REFER TO REFLECTED CEILING PLAN)
	FIRE ALARM, AUDIO/VISUAL, @ 80" A.F.F. WALL MOUNTED
	FIRE ALARM, VISUAL, @ 80" A.F.F. WALL MOUNTED
F	FIRE ALARM PULL STATION @ 48" A.F.F. WALL MOUNTED
S	SMOKE DETECTOR, WALL MOUNTED
	WALL MOUNTED SPEAKER
(C)	WALL MOUNTED CLOCK @ 8'-0" A.F.F.

1 ELECTRICAL LEGEND
N.T.S.

BURNS ARCHITECTURE, LLC
ARCHITECTS • ADVISORS • CONSULTANTS

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P.O. BOX 2639
GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
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NOTE: DO NOT SCALE DRAWING
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STATE OF TEXAS
EDDIE L. MORGAN
51663
LICENSED
PROFESSIONAL ENGINEER
07/30/2024

GLS PROJECT #154079
GLS
ARCHITECTURE · ENGINEERING · INTERIORS
LANDSCAPE · SURVEYING
1609 S. CHESTNUT ST. STE. 202 · LUFKIN, TEXAS 75901 · (936) 637-4900
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Project Number JCCCAC-23
Date 3-28-24
Scale N.T.S.
ELECTRICAL DETAILS

E9.31

DEMO THE EXISTING METAL DUCT DROP IN ROOM #C101. CAP ROOF PENETRATION WATER TIGHT. PRIOR TO COMMENCING WORK, COORDINATE WITH THE ARCHITECT & PROVIDE/INSTALL AS REQUIRED.

DEMO ALL EXISTING ROOF VENTILATORS INCLUDING THE ORIGINAL SMOKE REMOVAL SYSTEM (INTAKE) RIDGE VENTILATORS. CAP ROOF CURBS WATER TIGHT. PRIOR TO COMMENCING WORK, COORDINATE WITH ARCHITECT & PROVIDE/INSTALL AS REQUIRED.

DEMO THE EXISTING AIR HANDLING UNIT & ALL ASSOCIATED ITEMS INCLUDING THE ELECTRIC DUCT HEATER, DUCTWORK, HYDRONIC PIPING, ELECTRICAL, CONTROLS, ETC. PRIOR TO COMMENCING WORK, COORDINATE WITH THE OWNER ABOUT ITEMS TO BE SALVAGED & RELOCATE SALVAGED ITEMS ON SITE PER OWNER'S INSTRUCTIONS. SEAL BUILDING PENETRATIONS WATER TIGHT. PRIOR TO COMMENCING WORK, COORDINATE WITH ARCHITECT & PROVIDE/INSTALL AS REQUIRED.

DEMO ALL EXISTING SIDEWALL LOUVERS & SIDEWALL SMOKE EXHAUST FANS. FILL IN OPENINGS BY DUPLICATING/MATCHING ADJACENT WALL CONSTRUCTION & MATERIALS. PRIOR TO COMMENCING WORK, COORDINATE WITH THE OWNER ABOUT ITEMS TO BE SALVAGED & RELOCATE SALVAGED ITEMS ON SITE PER OWNER'S INSTRUCTIONS. PRIOR TO COMMENCING WORK, COORDINATE WITH ARCHITECT & PROVIDE/INSTALL AS REQUIRED.

(20) DEMO NOTES

N.T.S.

1. ALL MECHANICAL SYSTEMS SHALL CONFORM TO THE CURRENT EDITION OF THE MECHANICAL CODE AND APPLICABLE ENERGY CODE.

2. ALL DUCT WORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE CURRENT VERSION OF SMACNA AND ASHRAE STANDARDS.

3. ALL SQUARE AND RECTANGULAR ELBOWS SHALL HAVE AIRFOIL TURNING VANES.

4. INTERNALLY LINE ALL SUPPLY/RETURN EXPOSED DUCTS AND ALL EXTERIOR DUCTWORK PER SPEC REQUIREMENTS.

5. WRAP ALL EXHAUST DUCTS TO PREVENT CONDENSATION FROM COLLECTING ON THE DUCTWORK WITH 1" FSK INSULATION.

6. FLEX DUCT SHALL BE INSULATED PER SPEC REQUIREMENTS. SUPPORT FLEX DUCT TO PREVENT EXCESS SAGGING. TOTAL LENGTH OF ANY SECTION OF FLEX DUCT SHALL NOT EXCEED 6 FEET.

7. THE DIMENSIONS SHOWN FOR INTERNALLY LINED DUCTWORK INDICATES THE INSIDE CLEAR DIMENSION. ACTUAL DIMENSIONS FOR THE DUCTWORK MUST BE ADJUSTED TO A LARGER SIZE TO ACCOMMODATE THE THICKNESS OF THE DUCT LINER, TYPICALLY 3" LARGER FOR 1-1/2" LINER.

8. ALL EXHAUST LOUVERS SHALL HAVE 1/8" GALVANIZED WIRE MESH INSECT SCREEN.

9. MINIMUM WALL LOUVER SIZES ARE INDICATED BY THE AIR DEVICE TAG, UNLESS NOTED TO BE LARGER ON THE ARCHITECTURAL DRAWINGS.

10. PROVIDE FLEXIBLE DUCT CONNECTIONS AT ALL AIR HANDLING UNITS AND IN-LINE EXHAUST FANS.

11. EXHAUST DISCHARGE AND PLUMBING VENTS SHALL TERMINATE NO CLOSER THAN A HORIZONTAL DISTANCE OF 10 FEET FROM OUTSIDE AIR INTAKES. WHERE THE HORIZONTAL DISTANCE IS LESS THAN 10 FEET, INTAKES SHALL BE LOCATED A MIN. VERTICAL DISTANCE OF 3 FEET BELOW EXHAUST VENTS.

12. CONDENSATE DRAINS AT AIR HANDLING UNITS SHALL BE ROUTED TO THE NEAREST HUB DRAIN OR FLOOR DRAIN. PROVIDE A P-TRAP AT EACH UNIT. ALL A/C CONDENSATE PIPING SHALL BE INSULATED TO PREVENT SWEATING.

13. ORIENTATION AND LOCATIONS OF HVAC UNITS AS SHOWN ON THE PLANS ARE TO CONVEY THE DESIRE TO OPTIMIZE AIRFLOW TO EACH UNIT AND THE NEED FOR SERVICE ACCESS AND CLEARANCES. FINAL POSITIONING OF EACH UNIT IS THE CONTRACTOR'S RESPONSIBILITY TO MEET THE MANUFACTURER'S CLEARANCE REQUIREMENTS AS WELL AS THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND LOCAL CODES.

14. COORDINATE THE LOCATION OF EACH AIR HANDLING UNIT TO ENSURE PROPER CLEARANCE FOR CHANGING FILTERS AND MAINTAINING THE UNIT.

15. FOR ALL SUPPLY AIR DIFFUSERS WITH NECK MOUNTED OPPOSED BLADE DAMPER AND ALL REGISTERS: DURING THE AIR BALANCING PROCESS, LEAVE THE NECK MOUNTED DAMPER FULLY OPEN AND BALANCE THE AIR FLOW USING THE DAMPER LOCATED AT THE MAIN DUCT TAP.

16. INSTALL (2) TWO-POSITION MOTORIZED DAMPERS AND A BALANCING DAMPER IN THE OUTSIDE AIR DUCT OF EACH AIR HANDLING UNIT OR FURNACE WITH CO2 MONITOR CONTROL. INTERLOCK ONE MOTORIZED DAMPER TO THE BLOWER FAN AND THE OTHER MOTORIZED DAMPER TO THE CO2 MONITOR. MOTORIZED DAMPER INTERLOCKED TO THE CO2 MONITOR TO HAVE ADJUSTABLE MECHANICAL STOP FOR LOW SETTING PER MECHANICAL SCHEDULES. HVAC CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ANY AND ALL ANCILLARY ITEMS NECESSARY TO CREATE A FULLY FUNCTIONAL SYSTEM INCLUDING BUT NOT LIMITED TO CIRCUIT BREAKERS, 24V TRANSFORMERS, AND INTERCONNECTING WIRING/CONDUIT/TERMINATIONS AS REQUIRED.

17. ALL GAS FLUE VENTS SHALL BE CONSTRUCTED USING ANSI TYPE "B" DOUBLE-WALLED VENT PIPE. INSTALLATION OF VENT PIPES SHALL BE IN ACCORDANCE WITH STANDARD GAS CODE. VENT CAPS SHALL BE ANSI APPROVED.

18. ALL FLUE PIPES, FLASHING, CAPS, ETC. ABOVE THE ROOF LINE SHALL BE PAINTED WITH AN APPROVED COATING AS SPECIFIED IN SPEC. COLOR SHALL MATCH THE ROOF.

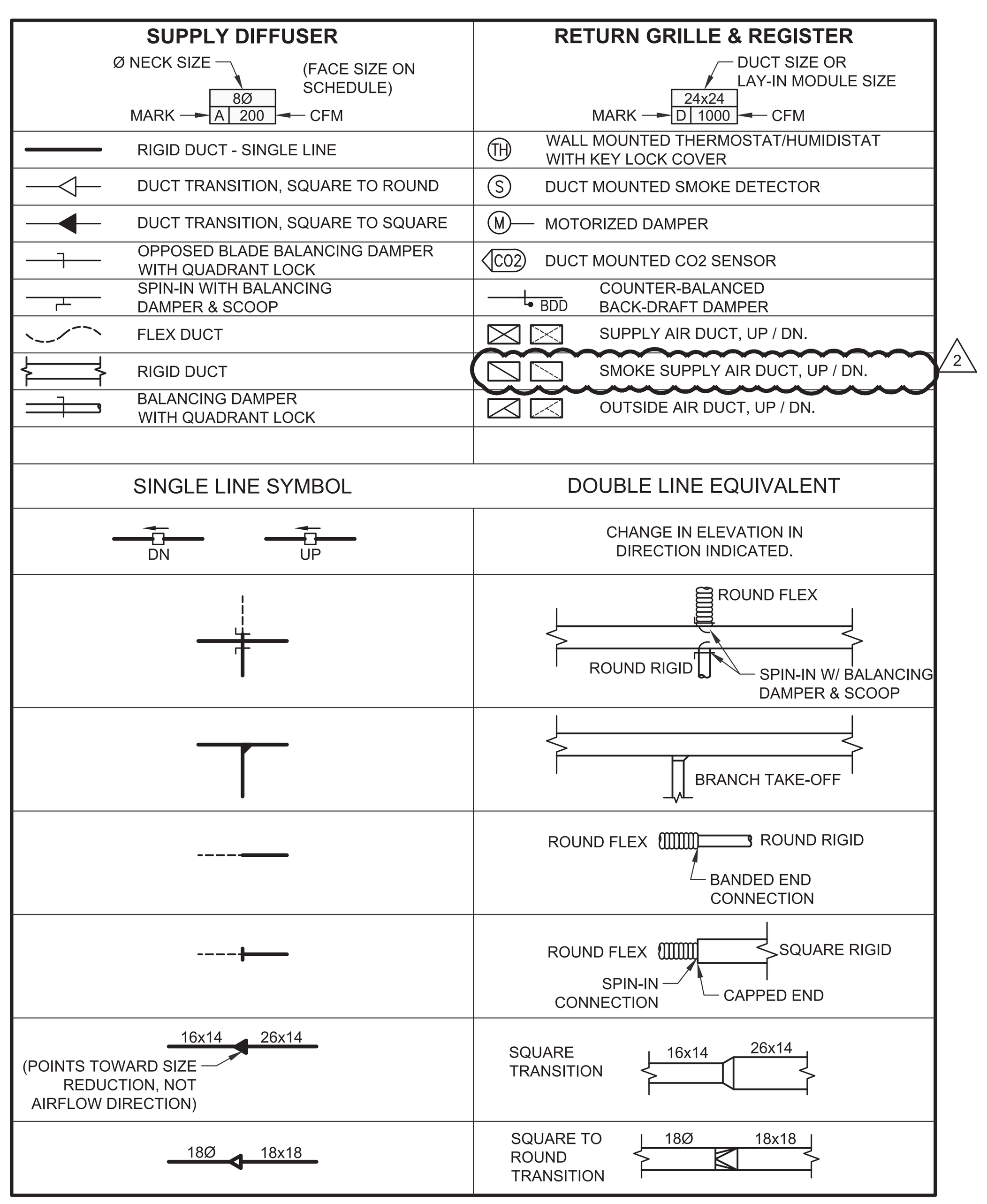
19. REFER TO THE ARCHITECTURAL DRAWINGS, CIVIL DRAWINGS AND DEMOLITION DRAWINGS FOR PERTINENT INFORMATION RELATED TO THE PROJECT {ELECTRICAL/PLUMBING/MECHANICAL} WORK.

20. IF THERMOSTATS/TEMPERATURE SENSORS ARE LOCATED ON HOT/COLD WALLS (EXTERIOR WALLS, MECHANICAL ROOMS, ELECTRICAL ROOMS, ETC.) PROVIDE INSULATED MOUNTING PLATE.

21. IN AREAS WHERE MECHANICAL EQUIPMENT IS SUSPENDED OR DUCT SUPPORTS, DUCTWORK, GAS PIPING, CONDENSATE PIPING, HYDRONIC PIPING, FIRE LINES, OR OTHER ANCILLARY ITEMS WILL BE EXPOSED TO PUBLIC VIEW, COORDINATE WITH OTHER DISCIPLINES AND THE PAINTER. ALL MECHANICAL ITEMS SHALL BE INSTALLED ON TIME FOR THE PAINTER TO COMPLETE WORK COINCIDENT WITH OTHER PAINTING REQUIREMENTS IN THE AREA.

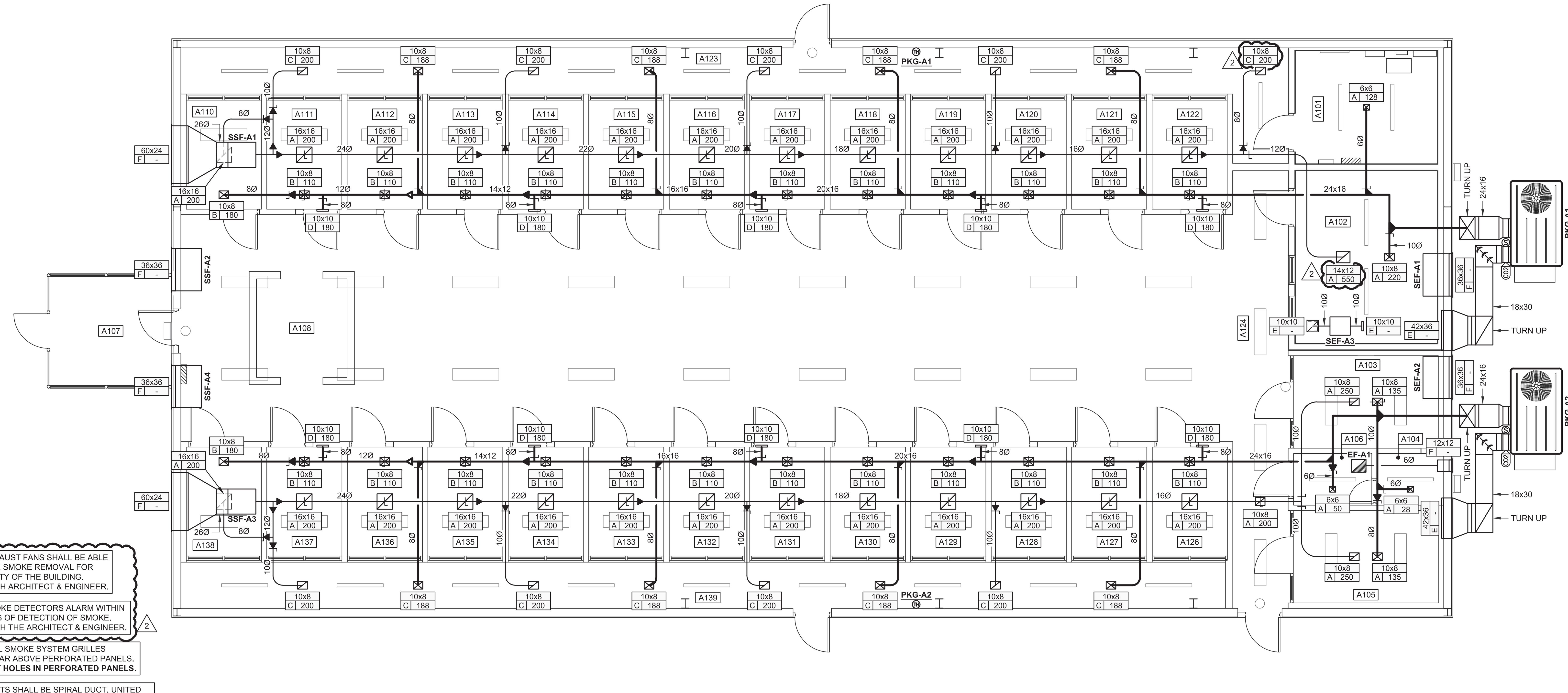
(18) MECHANICAL NOTES

N.T.S.



(16) MECHANICAL LEGEND

N.T.S.



VERIFY EXHAUST FANS SHALL BE ABLE TO PROVIDE SMOKE REMOVAL FOR THE ENTIRETY OF THE BUILDING. COORD. WITH ARCHITECT & ENGINEER.

VERIFY SMOKE DETECTORS ALARM WITHIN 60 SECONDS OF DETECTION OF SMOKE. COORD. WITH THE ARCHITECT & ENGINEER. (2)

MOUNT CELL SMOKE SYSTEM GRILLES 1/8"-1/4" CLEAR ABOVE PERFORATED PANELS. **DO NOT CUT HOLES IN PERFORATED PANELS**.

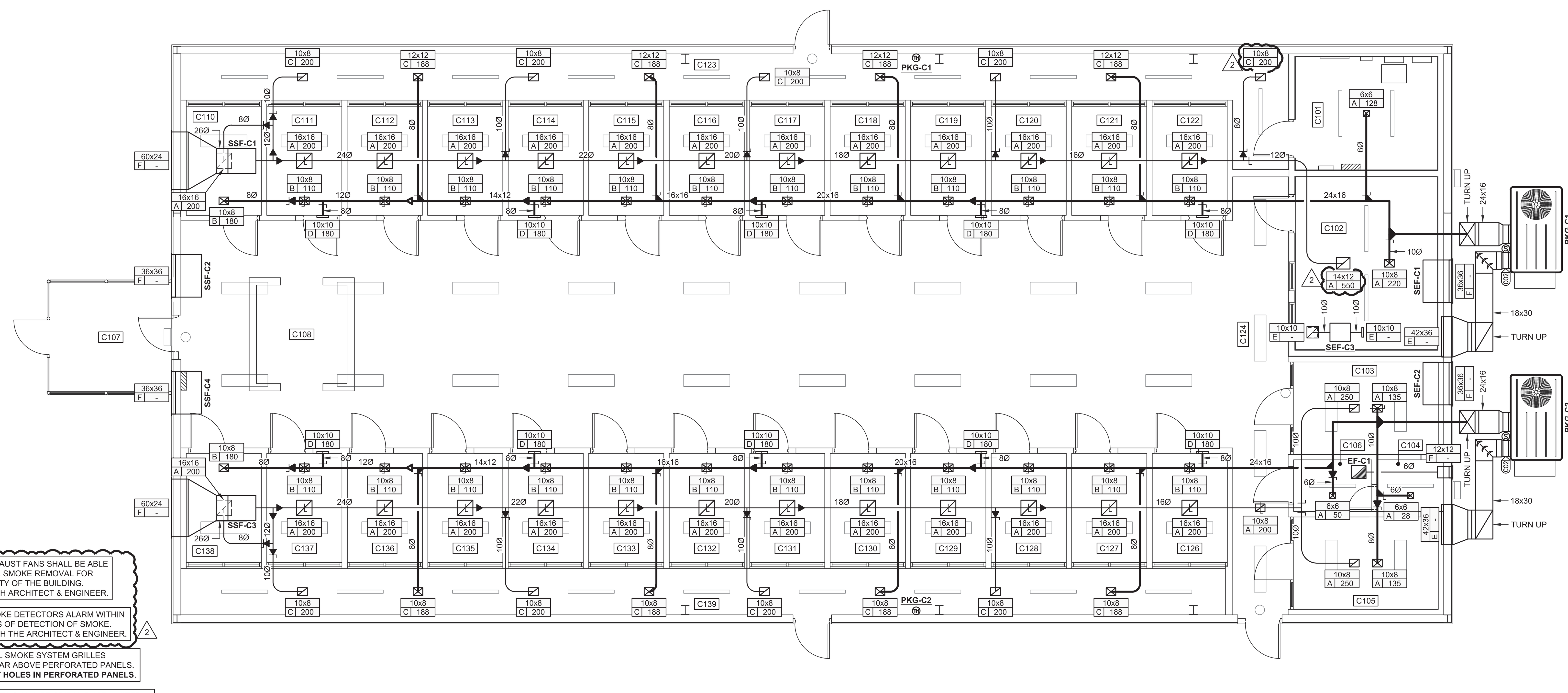
ROUND DUCTS SHALL BE SPIRAL DUCT. UNITED MCGILL ACOUST-K27 SPIRAL LOCK SEAM DUCT WITH 1" INSULATION. DOUBLE WALL WITH PERFORATED INNER WALL OR APPROVED EQUAL.

VERIFY EXISTING INTERFERENCES AT SIDEWALL FAN LOCATIONS. IF REQUIRED, CREATE FRAMED OPENING(S). COORDINATE WITH ARCHITECT & ENGINEER PRIOR TO COMMENCING WORK.

0 2'-8" 5'-4" 10'-8"

SCALE: 3/16" = 1'-0"

(3) BUILDING "A" MECHANICAL PLAN



VERIFY EXHAUST FANS SHALL BE ABLE TO PROVIDE SMOKE REMOVAL FOR THE ENTIRETY OF THE BUILDING. COORD. WITH ARCHITECT & ENGINEER.

VERIFY SMOKE DETECTORS ALARM WITHIN 60 SECONDS OF DETECTION OF SMOKE. COORD. WITH THE ARCHITECT & ENGINEER. (2)

MOUNT CELL SMOKE SYSTEM GRILLES 1/8"-1/4" CLEAR ABOVE PERFORATED PANELS. **DO NOT CUT HOLES IN PERFORATED PANELS**.

ROUND DUCTS SHALL BE SPIRAL DUCT. UNITED MCGILL ACOUST-K27 SPIRAL LOCK SEAM DUCT WITH 1" INSULATION. DOUBLE WALL WITH PERFORATED INNER WALL OR APPROVED EQUAL.

VERIFY EXISTING INTERFERENCES AT SIDEWALL FAN LOCATIONS. IF REQUIRED, CREATE FRAMED OPENING(S). COORDINATE WITH ARCHITECT & ENGINEER PRIOR TO COMMENCING WORK.

0 2'-8" 5'-4" 10'-8"

SCALE: 3/16" = 1'-0"

(1) BUILDING "C" MECHANICAL PLAN

3/16"=1'-0"

BURNS ARCHITECTURE, LLC — ARCHITECTS • ADVISORS • CONSULTANTS

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JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	ADDENDUM	4-11-24
2	ADDENDUM	7-30-24

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

STATE OF TEXAS — EDDIE L. MORGAN — 51663 — LICENSED PROFESSIONAL ENGINEER
07/30/2024

GLS PROJECT #154079
GLS
ARCHITECTURE - ENGINEERING - INTERIORS
LANDSCAPE - SURVEYING
1609 S. CHESTNUT ST. STE. 202 - LUFKIN, TEXAS 75901 - (936) 637-4900
4077 CROSS PARK DR. STE. 100 - BRYAN, TEXAS 77802 - (979) 776-9700
455 RICE ROAD STE. 107 - TYLER, TEXAS 75703 - (903) 581-3805

Project Number	JCCCAC-23
Date	3-28-24
Scale	3/16"=1'-0"

MECHANICAL PLANS & DETAILS

M7.11

CEILING EXHAUST FAN SCHEDULE	
UNIT TAG	EF-A1, EF-C1
PRIMARY AREA SERVED	A: A106 JANITOR C: C106 JANITOR
GREENHECK MODEL NO. (OR APPROVED EQUAL)	SP-A70
FAN TYPE	CEILING EXHAUST
DRIVE	DIRECT
CFM	50
EXTERNAL STATIC (I.W.C.)	0.25
VOLTS/PH/HZ	**120/1/60**
MOTOR SIZE (WATTS)	12
SONES	<0.3
CONTROL INTERLOCK	WALL SWITCH
APPLICABLE NOTES	1-4

NOTES:

1) PROVIDE FLEX CONNECTION ON DUCTED INLET AND OUTLET OF FAN CABINET.

2) PROVIDE HANGING SPRING ISOLATORS. PROVIDE GRAVITY DAMPER ON DISCHARGE.

3) PROVIDE FACTORY INSTALLED THERMAL OVERLOAD PROTECTION AND VIBRATION ISOLATION FOR FAN MOTOR. PROVIDE A DISCONNECT SWITCH INTEGRAL TO THE FAN AND MOTOR STARTER AS REQUIRED.

4). VERIFY BRANCH CIRCUIT VOLTAGE & PROVIDE/ INSTALL STEP-DOWN TRANSFORMER AS REQUIRED.

20 CEILING EXHAUST FAN SCHEDULE
N.T.S.

IN-LINE SMOKE EXHAUST FAN SCHEDULE	
UNIT TAG	SEF-A3, SEF-C3
PRIMARY AREA SERVED	SEF-A3: A102 MULTI-PURPOSE SEF-C3: C102 MULTI-PURPOSE
GREENHECK MODEL NO. (OR APPROVED EQUAL)	BSQ-120
FAN TYPE	INLINE SMOKE EXHAUST
WEIGHT (LBS)	88
DRIVE/RPM	DIRECT
CFM	600
EXTERNAL STATIC (I.W.C.)	0.25
VOLTS/PH/HZ	**120/1/60**
MOTOR SIZE (HP)	1/4
MCA/MOCPD	6A/15A
SONES	13.0
CONTROL INTERLOCK	FIRE ALARM/SMOKE CONTROL
APPLICABLE NOTES	1-5

NOTES:

1) PROVIDE FLEX CONNECTION ON DUCTED INLET AND OUTLET OF FAN CABINET.

2) PROVIDE HANGING SPRING ISOLATORS. PROVIDE GRAVITY DAMPER ON DISCHARGE.

3) PROVIDE A DISCONNECT SWITCH INTEGRAL TO THE FAN.

4) FAN SHALL INTERLOCK WITH FIRE ALARM SYSTEM PANEL. COORDINATE WITH SMOKE REMOVAL CONTROLS DESIGNER.

5) VERIFY BRANCH CIRCUIT VOLTAGE & PROVIDE/ INSTALL STEP-DOWN TRANSFORMER AS REQUIRED.

18 IN-LINE SMOKE EXHAUST FAN SCHEDULE
N.T.S.

WALL-MTD SMOKE EXHAUST FAN SCHEDULE	
UNIT TAG	SEF-A1,A2 SEF-C1,C2
PRIMARY AREA SERVED	SEF-A1,A2: BLDG "A" SMOKE EXHAUST SEF-C1,C2: BLDG "C" SMOKE EXHAUST
GREENHECK MODEL NO. (OR APPROVED EQUAL)	SBE-3H36
FAN TYPE	WALL EXHAUSTER
DRIVE/RPM	BELT/974 RPM
CFM	14,000
EXTERNAL STATIC (I.W.C.)	0.75
VOLTS/PH/HZ	**480/3/60**
MOTOR SIZE (WATTS)	3 H. P.
SONES	33.0
CONTROL INTERLOCK	FIRE ALARM/SMOKE CONTROL
APPLICABLE NOTES	1-6

NOTES:

1) VERIFY THAT VOLTAGE MATCHES BRANCH CIRCUIT VOLTAGE AS SHOWN IN PROJECT DRAWINGS.

2) FAN SHALL INTERLOCK WITH FIRE ALARM SYSTEM PANEL. COORDINATE WITH SMOKE REMOVAL CONTROLS DESIGNER.

3) FOR 3-PHASE MOTORS, PROVIDE COMBINATION STARTER WITH OVERLOADS.

4) PROVIDE A NEMA 3R DISCONNECT AT THE FAN. DO NOT RUN THE POWER CONDUIT THROUGH THE DUCT.

5) PROVIDE WALL COLLAR, WIRE GUARD, GRAVITY DAMPER, AND CLOSURE ANGLES (INTERIOR MTD). PROVIDE FACTORY MOUNTED NEMA 1 DISCONNECT SWITCH, UL LISTED MOTOR, AND MOTOR STARTER AS REQUIRED.

6) MOUNT FAN ON INTERIOR SIDE OF WALL, FLUSH TO EXTERIOR.

17 WALL MOUNTED SMOKE EXHAUST FAN SCHEDULE
N.T.S.

WALL-MTD SMOKE SUPPLY FAN SCHEDULE	
UNIT TAG	SSF-A2, SSF-A4, SSF-C2, SSF-C4
PRIMARY AREA SERVED	SSF-A2: HALF-BLDG (PLAN NORTH) SSF-A4: HALF-BLDG (PLAN SOUTH) SSF-C2: HALF-BLDG (PLAN NORTH) SSF-C4: HALF-BLDG (PLAN SOUTH)
GREENHECK MODEL NO. (OR APPROVED EQUAL)	SBS-3H30
FAN TYPE	WALL EXHAUSTER
DRIVE/RPM	BELT/937 RPM
CFM	9,000
EXTERNAL STATIC (I.W.C.)	0.75
VOLTS/PH/HZ	**480/3/60**
MOTOR SIZE (WATTS)	3 H. P.
SONES	26.0
CONTROL INTERLOCK	FIRE ALARM/SMOKE CONTROL
APPLICABLE NOTES	1-6

NOTES:

1) VERIFY THAT VOLTAGE MATCHES BRANCH CIRCUIT VOLTAGE AS SHOWN IN PROJECT DRAWINGS.

2) FAN SHALL INTERLOCK WITH FIRE ALARM SYSTEM PANEL. COORDINATE WITH SMOKE REMOVAL CONTROLS DESIGNER.

3) FOR 3-PHASE MOTORS, PROVIDE COMBINATION STARTER WITH OVERLOADS.

4) PROVIDE A NEMA 3R DISCONNECT AT THE FAN. DO NOT RUN THE POWER CONDUIT THROUGH THE DUCT.

5) PROVIDE WALL COLLAR, WIRE GUARD, GRAVITY DAMPER, AND CLOSURE ANGLES (INTERIOR MTD). PROVIDE FACTORY MOUNTED NEMA 1 DISCONNECT SWITCH, UL LISTED MOTOR, AND MOTOR STARTER AS REQUIRED.

6) MOUNT FAN ON INTERIOR SIDE OF WALL, FLUSH TO EXTERIOR.

16 WALL MOUNTED SMOKE SUPPLY FAN SCHEDULE
N.T.S.

IN-LINE SMOKE SUPPLY FAN SCHEDULE	
UNIT TAG	SSF-A1, SSF-A3, SSF-C1, SSF-C3
PRIMARY AREA SERVED	SFF-A1: A100 MECH/ELEC A102 MULTI-PURPOSE A1110-A122 CELLS A123 CHASE SFF-A3: A103 DAYROOM A104 CHASE A105 DAYROOM A106 JANITOR A139 CHASE SFF-C1: C100 MECH/ELEC C102 MULTI-PURPOSE C1110-C122 CELLS C123 CHASE SFF-C3: C103 DAYROOM C104 CHASE C105 DAYROOM C106 JANITOR C139 CHASE
GREENHECK MODEL NO. (OR APPROVED EQUAL)	QEID-16-100
FAN TYPE	INLINE SMOKE SUPPLY
WEIGHT (LBS)	228
DRIVE/RPM	VFD/1,770
CFM	4,300
EXTERNAL STATIC (I.W.C.)	1.5
VOLTS/PH/HZ	**480/3/60**
MOTOR SIZE (HP)	2
MCA/MOCPD	4.2A/15A
SONES	37.0
CONTROL INTERLOCK	FIRE ALARM/SMOKE CONTROL
APPLICABLE NOTES	1-8

NOTES:

1) PROVIDE FLEX CONNECTION ON DUCTED INLET AND OUTLET OF FAN CABINET.

2) PROVIDE HANGING SPRING ISOLATORS. PROVIDE GRAVITY DAMPER ON DISCHARGE.

3) PROVIDE A DISCONNECT SWITCH INTEGRAL TO THE FAN.

4) FAN SHALL INTERLOCK WITH FIRE ALARM SYSTEM PANEL. COORDINATE WITH SMOKE REMOVAL CONTROLS DESIGNER.

5) PROVIDE COMBINATION STARTER WITH OVERLOADS.

6) VERIFY THAT VOLTAGE MATCHES BRANCH CIRCUIT VOLTAGE AS SHOWN IN PROJECT DRAWINGS.

7) FAN MOTORS EXCEEDING 5 HP SHALL FULLY COMPLY WITH POWER REQUIREMENTS OF IECC 2015.

8) PROVIDE VFD, VFD-DUTY MOTOR, DISCONNECT SWITCH, AND MANUAL BYPASS. VFD TO BE EQUAL TO "FRANKLIN CONTROL SYSTEMS" MODEL Q-LINK IN NEMA-1 ENCLOSURE WITH H-O-A KEYPAD, H-O-A RUN AND FAULT ALARMS, AUXILIARY INPUT (RUN COMMAND CONTACT), MOTOR STATUS OUTPUT, FAULT ALARM OUTPUT SIGNAL, FIREMAN'S OVERRIDE, EMERGENCY SHUTDOWN, DAMPER CONTROL OUTPUT AND LIMIT SWITCH CLOSED LOOP SIGNAL, AND AUXILIARY INPUT (STOP COMMAND CONTACT). **SET VFD SO THAT THE FAN IS NOT ALLOWED TO OPERATE IN THE "SHADED" AREA OF THE MFGR'S FAN CURVE.**

14 IN-LINE SMOKE SUPPLY FAN SCHEDULE
N.T.S.

PACKAGED A/C UNIT SCHEDULE		
UNIT TAG NO.		PKG-A1, PKG-A2, PKG-C1, PKG-C2
AREA SERVED		BUILDINGS A & C
MAKE/MODEL NO. (OR APPROVED EQUAL)		TRANE "PRECEDENT" YHJ120F4
NOMINAL TONS		10
UNIT WEIGHT (LBS)		1,155
MIN. EER @ ARI 210/240 CONDITIONS		12.4
AIRFLOW ORIENTATION		HORIZONTAL
SUPPLY FAN REQ'MENTS	SUPPLY CFM	3,500
	EXTERNAL STATIC (I.W.C.)*	1.5
	FAN H.P. (B.H.P.)	2.75
	FAN MOTOR TYPE	VFD
	FAN DRIVE	DIRECT
	SPEED CONTROL	VARIABLE SPEED
	FILTER TYPE	2" PLEATED
DESIGN CONDITIONS	OUTDOOR DB/WB (F)	101/77
	COIL ENT. DB/WB (F)	80/68
	LOW O.A. CFM	1,100
	HIGH O.A. CFM	1,300
	INDOOR DB/WB (F)	75/63
MIN. COOLING CAPACITY	TOTAL NET BTUH	113,000
	SENSIBLE NET BTUH	84,750
HEATING REQ'MENTS	TYPE	NAT. GAS
	INPUT (BTUH)	105,000/150,000
	OUTPUT (BTUH)	84,000/120,000
	THERMAL EFFICIENCY	80.0%
COOLING SECTION REQ'MENTS	REFRIGERANT	R410A
	COMPRESSOR QTY.	2
	MIN. STEPS OF CAPACITY**	3
	NO. CONDENSER FANS/FLA	1/1.4A
ELECTRICAL REQ'MENTS	VOLTS/PH/HZ	460/3/60
	MIN. CIRCUIT AMPACITY	29.0
	MAX CIR. PROT. RATING	40
APPLICABLE NOTES		1 THRU 11

NOTES:

ALL EQUIPMENT MUST COMPLY WITH ALL 2023 DEPARTMENT OF ENERGY (D.O.E.) EFFICIENCY REGULATIONS AND ENVIRONMENTAL PROTECTION AGENCY (E.P.A.) MANDATES AND ASSOCIATED STANDARDS.

*EXTERNAL STATIC PRESSURE INCLUDES THE HEATING SECTION, THE R/A FILTER (DIRTY), AND THE SUPPLY AND RETURN DUCTWORK, GRILLES, ETC.

**TWO-STAGE COOLING SHALL CONSIST OF FULLY INDEPENDENT REFRIGERANT CIRCUITS.

1) PROVIDE SINGLE-POINT ELECTRICAL CONNECTION INCLUDING FUSED DISCONNECT OR HVACR CIRC. BREAKER MOUNTED ON UNIT, INTEGRAL STARTERS, AND CONTROLS.

2) PKG UNIT SHALL INTERLOCK WITH FIRE ALARM SYSTEM PANEL. COORDINATE WITH SMOKE REMOVAL CONTROLS DESIGNER.

3) PROVIDE THE FOLLOWING:
- **FACTORY INSTALLED HOT GAS REHEAT**
- LOUVERED GRILLE FOR HAIL AND VANDALISM PROTECTION
- HIGH AND LOW-PRESSURE SAFETY PROTECTION
- DRAIN PAN OVERFLOW SWITCH
- FACTORY INSTALLED NON-POWERED GFCI SERVICE OUTLET
- BAROMETRIC RELIEF DAMPER WITH EXHAUST HOOD
- ECONOMIZER (TYPICALLY, AN ECONOMIZER IS REQUIRED BY CODE & TO PROVIDE THE REQUIRED BAROMETRIC RELIEF. U.N.O. DISABLE THE ECONOMIZER FUNCTION.)
- SMOKE DETECTOR IN THE RETURN DUCT
- 14" (MIN) GALVANIZED CHANNEL SUPPORT MANUFACTURER'S, OR APPROVED EQUAL)

4) PROVIDE ONE SPARE SET OF FAN BELTS AND FILTERS.

5) PROVIDE PLEATED FILTERS REQUIRED AT THE THICKNESS SHOWN. EFFICIENCY AND PRESSURE DROP PER SPECIFICATIONS.

6) PROVIDE INTEGRAL, FACTORY INSTALLED 3-PHASE VOLTAGE MONITOR AT POWER CONNECTIONS, ICM CORPORATION, MODEL ICM 450 (800/365-5525), OR EQUAL. INTERFACE WITH THERMOSTAT CONTROLS TO STOP THE UNIT IF THERE IS A PHASE LOSS CONDITION.

7) PROVIDE FIELD-INSTALLED CO2 SENSING OPTION TO OPEN OUTSIDE AIR DAMPERS BASED ON CO2 PPM.

8) PROVIDE TWO MOTORIZED OUTSIDE AIR DAMPERS. INTERFACE OUTSIDE AIR DAMPERS TO OPEN UPON CO2 LEVELS ABOVE 800 PPM (ADJUSTABLE). RE: MECH. NOTES AND DETAIL.

9) THE THERMOSTATS SHALL BE HONEYWELL VISION PRO MODEL TH8321WF1001 WIFI-CAPABLE THERMOSTATS. COORDINATE WITH DATA INSTALLER & OWNER.

10) THE EQUIPMENT MANUFACTURER WILL BE RESPONSIBLE FOR ANY MODIFICATION OF THE EQUIPMENT AS NECESSARY TO MEET THE REQUIRED PERFORMANCE AND THE STATED WARRANTY WHEN INSTALLED PER THE PROJECT DRAWINGS AND SPECIFICATIONS.

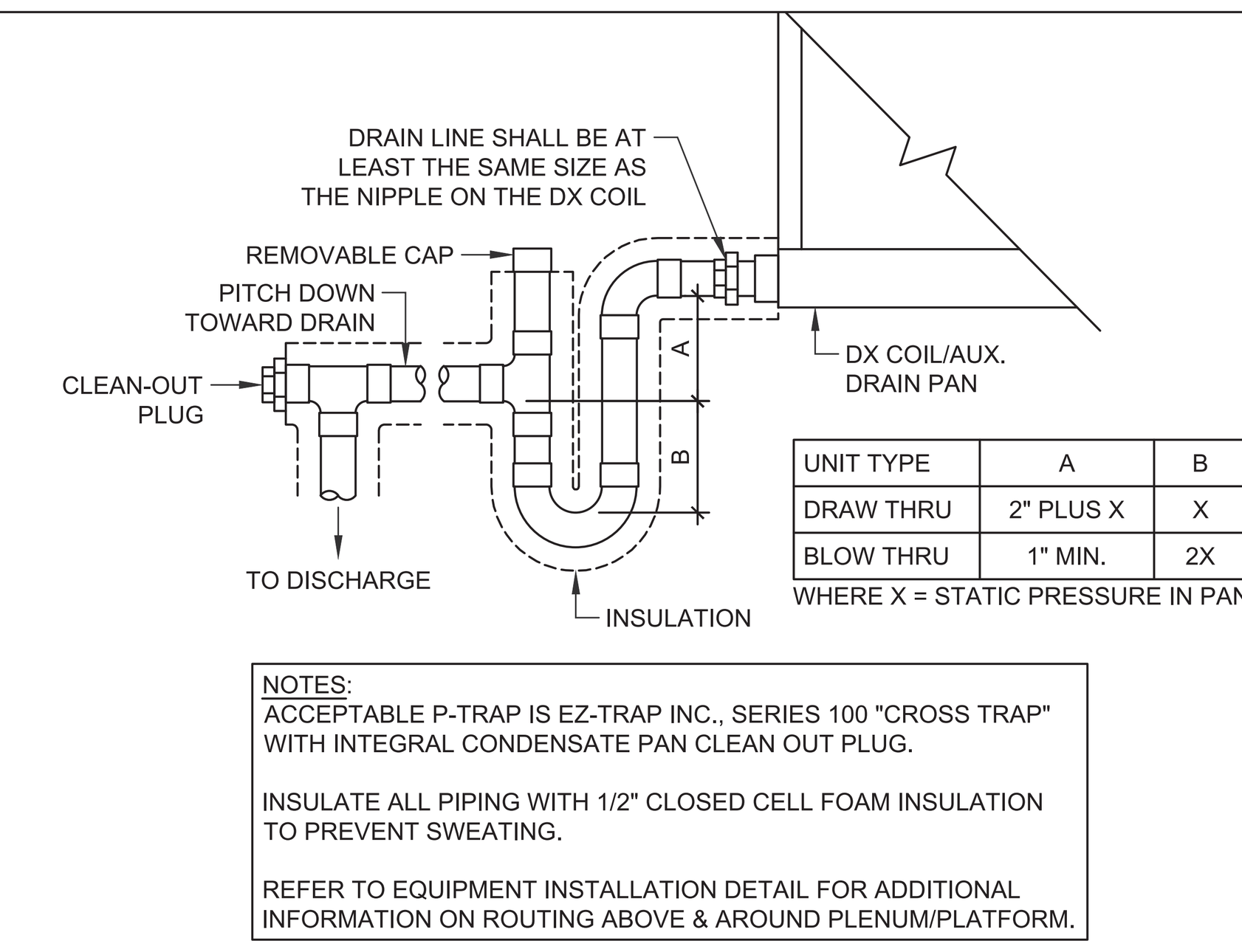
11) INCLUDE ASSISTANCE WITH THE MANUFACTURER'S SERVICE TECHNICIAN AT STARTUP & UP TO 8 HOURS OF

12 PACKAGED A/C UNIT SCHEDULE
N.T.S.

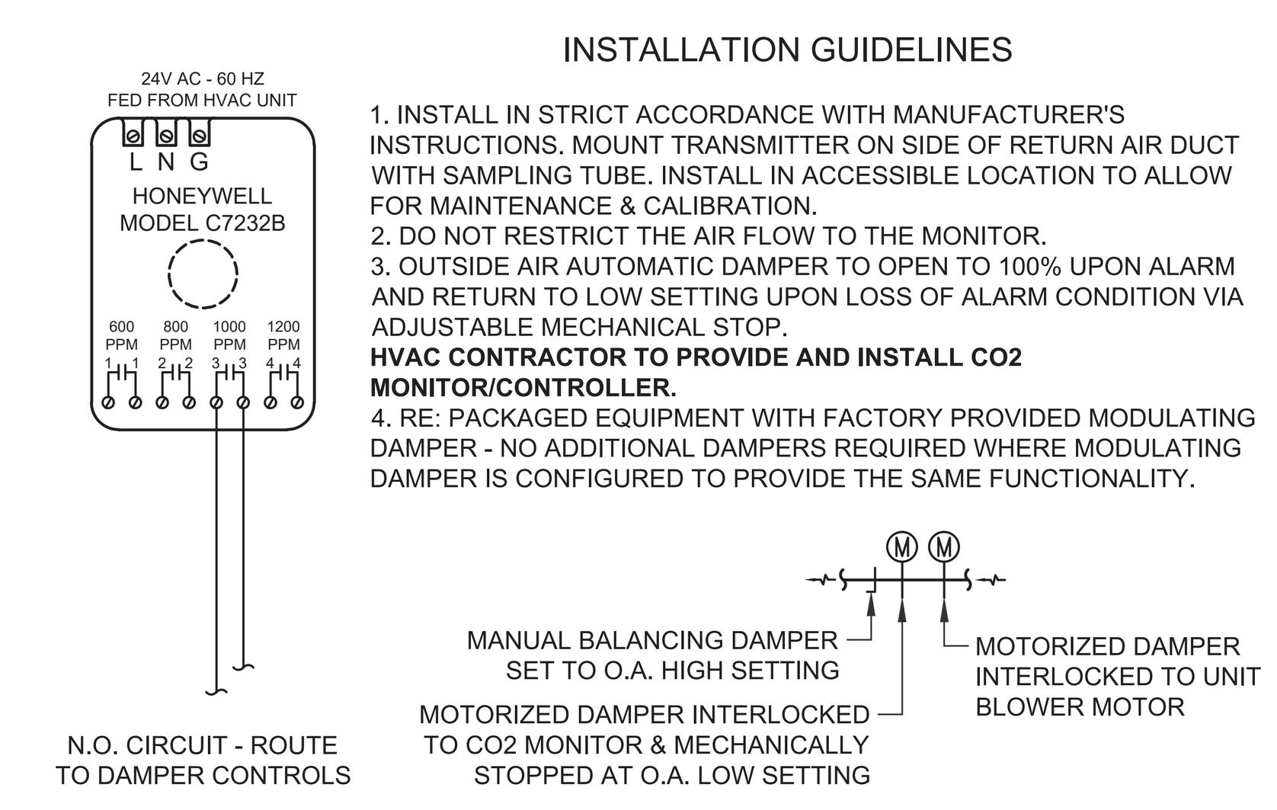
AIR DEVICE SCHEDULE

Mark	Model	Use	Construction	Color	Remarks
A	TITUS 250	SUPPLY	SURFACE MOUNTED DIFFUSER	PER ARCHITECT	CONFIGURED FOR FOUR WAY DISCHARGE PATTERN. PROVIDE AG-35 OPPOSED BLADE DAMPER.
B	TITUS 250	SUPPLY	SURFACE MOUNTED DIFFUSER	PER ARCHITECT	CONFIGURED FOR THREE WAY DISCHARGE PATTERN. PROVIDE AG-35 OPPOSED BLADE DAMPER.
C	TITUS 250	SUPPLY	SURFACE MOUNTED DIFFUSER	PER ARCHITECT	CONFIGURED FOR TWO WAY DISCHARGE PATTERN. PROVIDE AG-35 OPPOSED BLADE DAMPER.
D	TITUS 272FS	SUPPLY	SURFACE MOUNTED STEEL FRAMED GRILLE	WHITE	DOUBLE DEFLECTION GRILLE WITH ADJUSTABLE BLADES. PROVIDE WITH AG-35 OPPOSED BLADE DAMPER. SIZE AS INDICATED ON PLANS.
E	TITUS 33RL	SUPPLY/ RETURN	SURFACE MOUNTED STEEL GRILLE	WHITE	PROVIDE AG-35 OPPOSED BLADE DAMPER, SIZE AS INDICATED ON PLANS, (BLADES PARALLEL TO THE LONG DIMENSION)
F	RUSKIN ELF375DX	INTAKE/ EXHAUST	EXTRUDED ALUMINUM 4" DEEP FRAME WITH INTEGRAL FLANGE	PER ARCHITECT	STATIONARY LOUVER, DRAINABLE BLADES, WITH 1/8" MESH BIRD SCREEN, PROVIDE FLANGED FRAME & SECURITY BARRIER TITUS SG-BG-FM (OR EQUAL SUBMIT). PROVIDE MFGR'S. RECOMMENDED SECONDARY ISOLATION LOUVER W/ MOTORIZED DAMPERS; COORD. W/ SMOKE EVAC. SYSTEM DESIGNER.
-	TITUS TRM	FRAME	ALUMINUM	WHITE	USE WITH LAY-IN TYPE DIFFUSERS AND GRILLES WHERE INSTALLED IN HARD CEILINGS

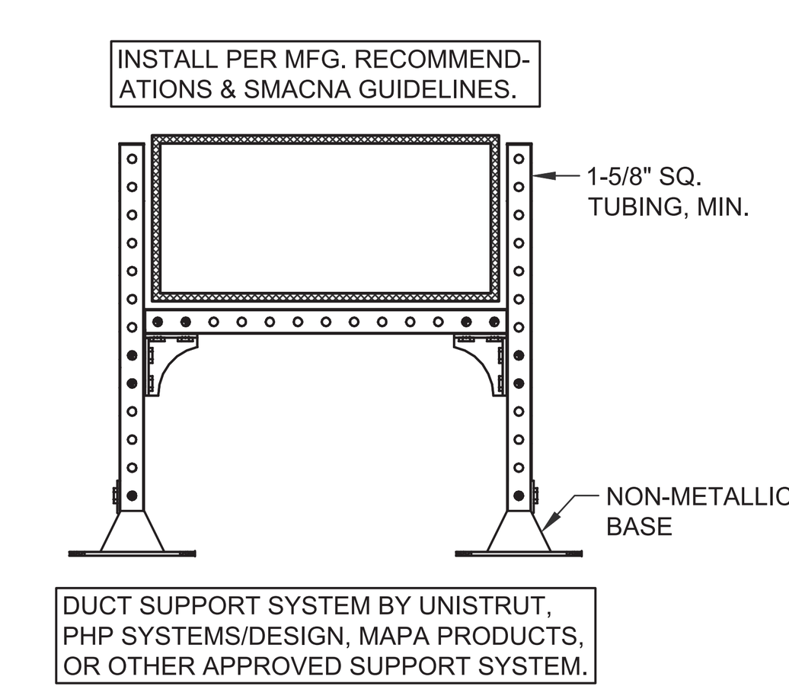
11 AIR DEVICE SCHEDULE
N.T.S.



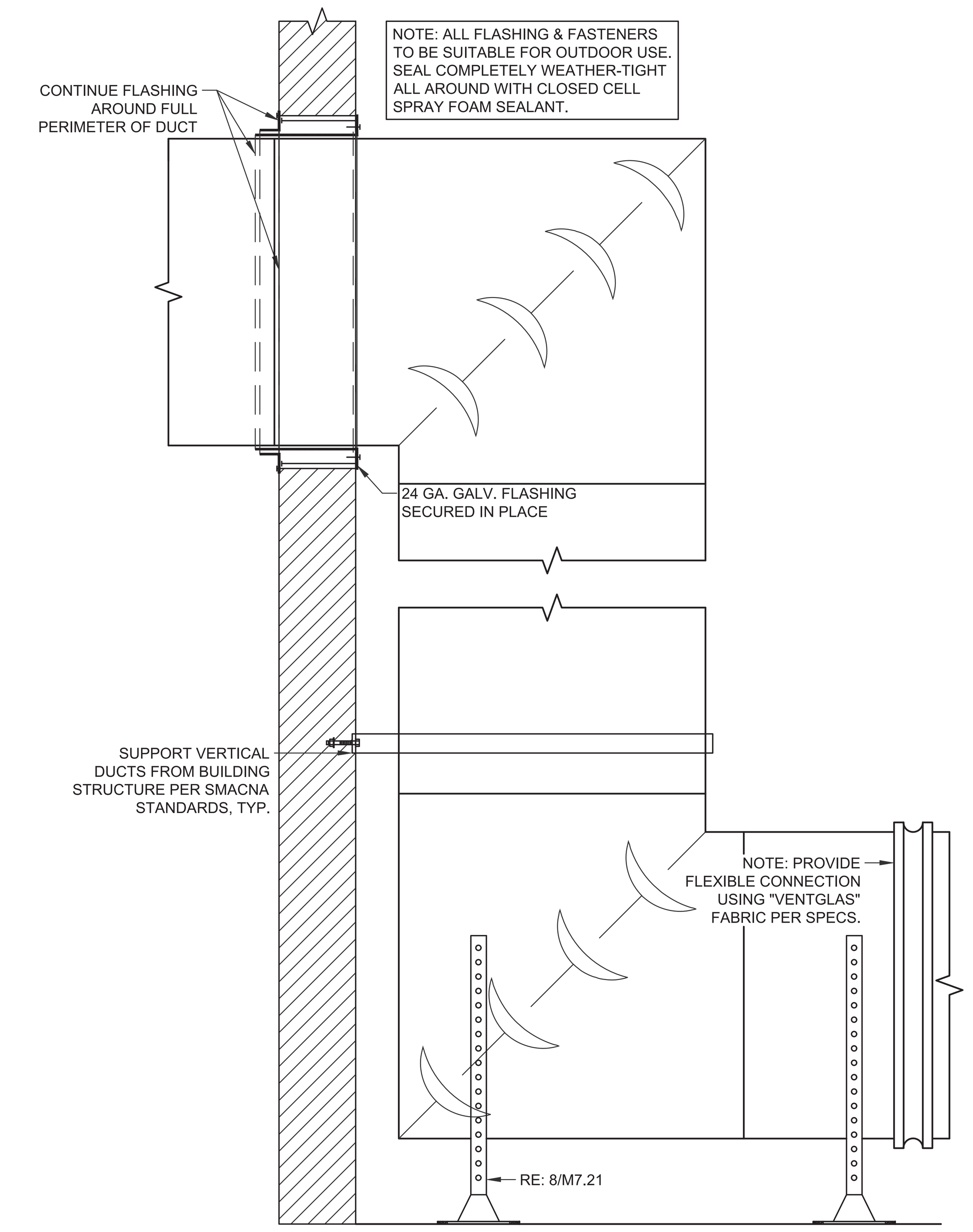
10 CONDENSATE DRAIN DETAIL
N.T.S.



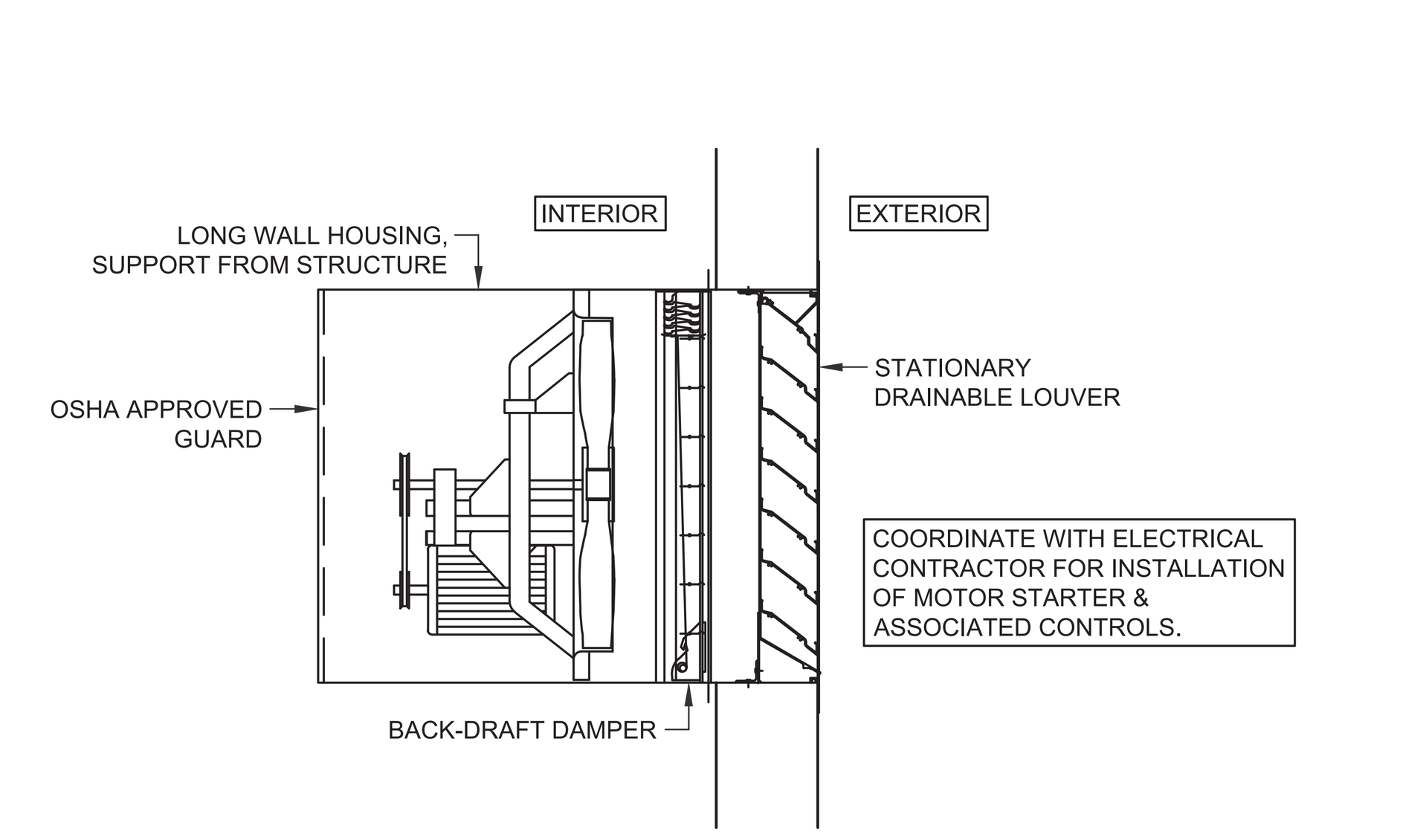
9 DUCT MOUNTED CO2 MONITOR/CONTROLLER WIRING DIAGRAM
N.T.S.



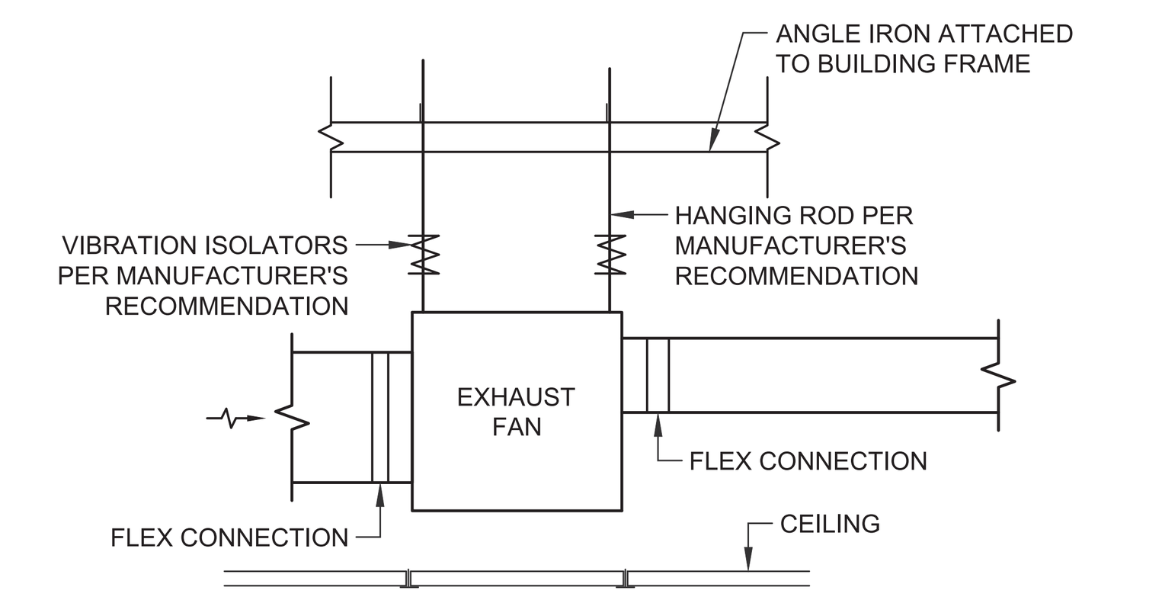
8 DUCT SUPPORT DETAIL
N.T.S.



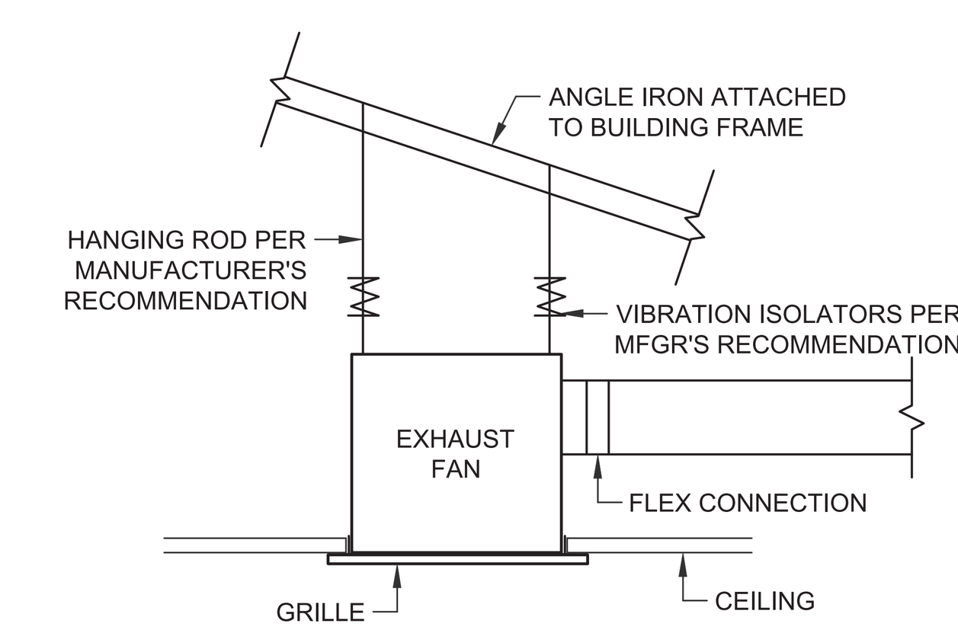
6 DUCT PENETRATION DETAIL
N.T.S.



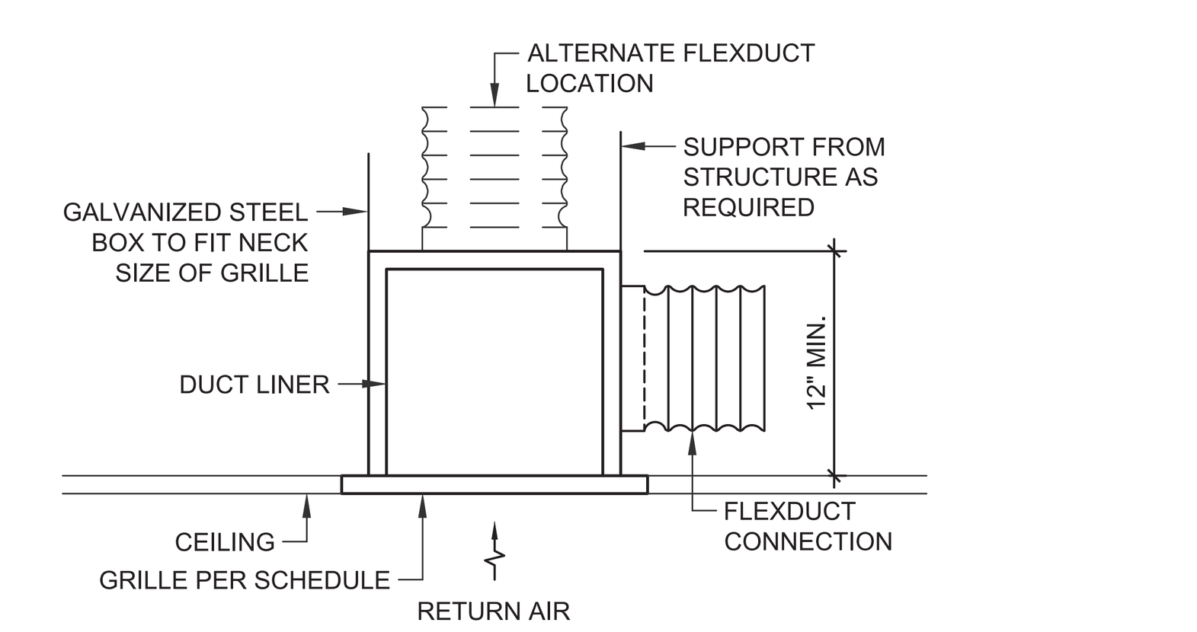
5 SIDEWALL EXHAUST/SUPPLY FAN DETAIL
N.T.S.



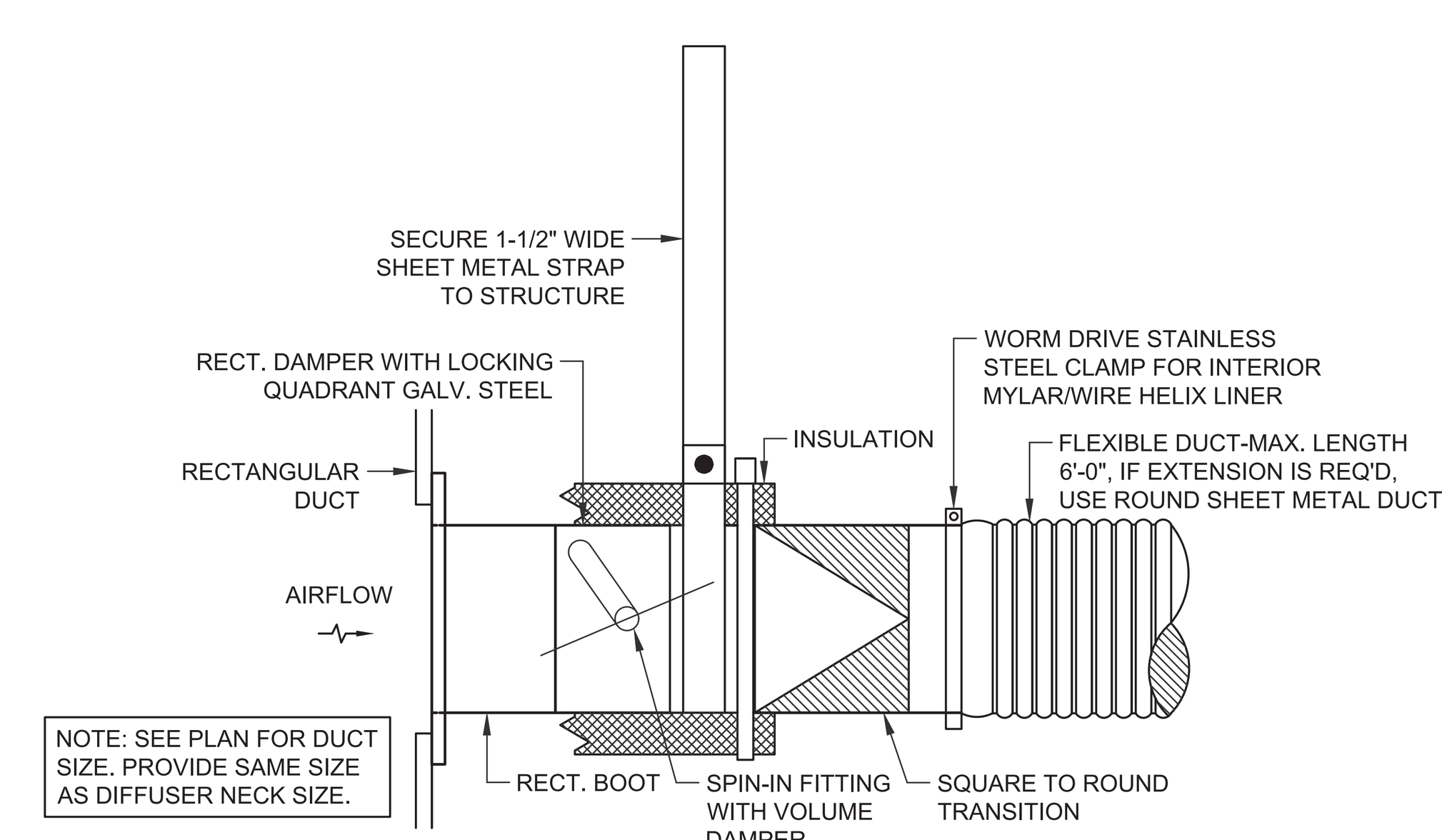
4 IN-LINE EXHAUST FAN DETAIL
N.T.S.



3 CEILING EXHAUST FAN DETAIL
N.T.S.



2 RETURN AIR ASSEMBLY DETAIL
N.T.S.



1 DUCT CONNECTION DETAIL
N.T.S.

BURNS ARCHITECTURE, LLC
ARCHITECTS • ADVISORS • CONSULTANTS

BURNS ARCHITECTURE LLC
P.O. BOX 2639
GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	ADDENDUM	4-11-24
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NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

STATE OF TEXAS
EDDIE L. MORGAN
51663
LICENSED
08/01/2024

GLS
ARCHITECTURE • ENGINEERING • INTERIORS
LANDSCAPE • SURVEYING

Project Number	JCCCAC-23
Date	3-28-24
Scale	N.T.S.

MECHANICAL DETAILS & SCHEDULES

M7.21

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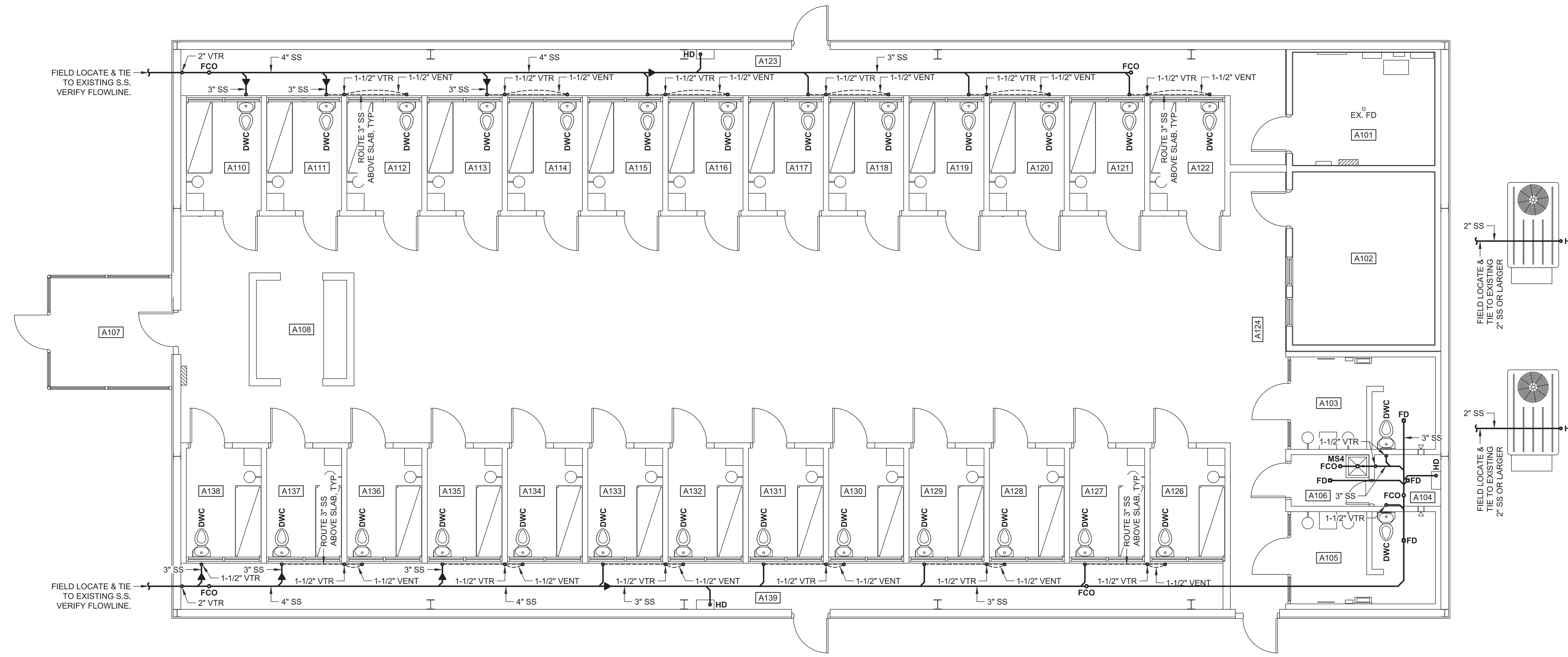
DEMO THE EXISTING WATER TANK IN ROOM #A101 & ALL ASSOCIATED ITEMS INCLUDING PIPING, ELECTRICAL, ETC.

DEMO THE EXISTING BOILER & ALL ASSOCIATED ITEMS INCLUDING THE PIPING, ELECTRICAL, CONTROLS, METAL DUCT, ETC., IN ROOM #A101. CAP ROOF PENETRATION WATER TIGHT. PRIOR TO COMMENCING WORK, COORDINATE WITH THE OWNER ABOUT ITEMS TO BE SALVAGED & RELOCATE SALVAGED ITEMS ON SITE PER OWNER'S INSTRUCTIONS. PRIOR TO COMMENCING WORK, COORDINATE WITH ARCHITECT & PROVIDE/INSTALL AS REQUIRED.

16 DEMO NOTES
N.T.S.

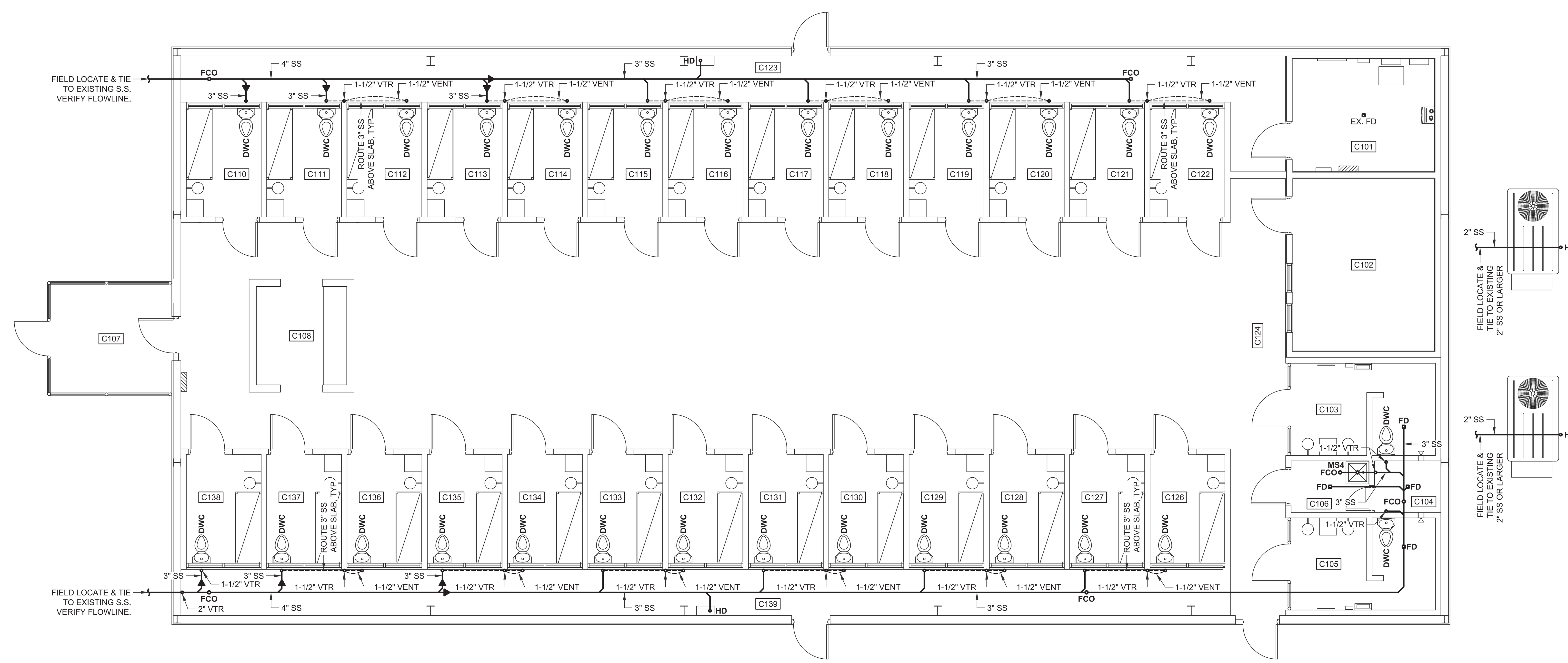


REFER TO SHEET P8.31 FOR PLUMBING NOTES & LEGEND.

CONCEAL VENT PIPING RISERS IN CHASE BEHIND CELL WALLS.

FOR ALL SANITARY SEWER SHOWN, BREAK-OUT FLOOR AS REQUIRED IN NON-CONTINUOUS MANNER SO AS TO MAINTAIN SLAB INTEGRITY, UNLESS NOTED OTHERWISE. REFER TO 6/P8.31 FOR BREAK-OUT DETAIL.

3 BUILDING "A" SANITARY SEWER PLAN



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1 BUILDING "C" SANITARY SEWER PLAN
3/16"=1'-0"

BURNS ARCHITECTURE, LLC
BURNS ARCHITECTURE,LLC
P.O. BOX 2639
GALVESTON, TX 77553

JEFFERSON COUNTY
CORRECTIONAL CENTER - BUILDINGS A & C
BEAUMONT, TX

No.	Revision	Date
1	ADDENDUM	4-11-24
2	ADDENDUM	7-30-24

NOTE: DO NOT SCALE DRAWING
CONSTRUCTION DOCUMENTS

STATE OF TEXAS
EDDIE L. MORGAN
51663
LICENSED PROFESSIONAL ENGINEER
08/01/2024

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ARCHITECTURE - ENGINEERING - INTERIORS LANDSCAPE - SURVEYING

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SANITARY SEWER PLANS

P8.11

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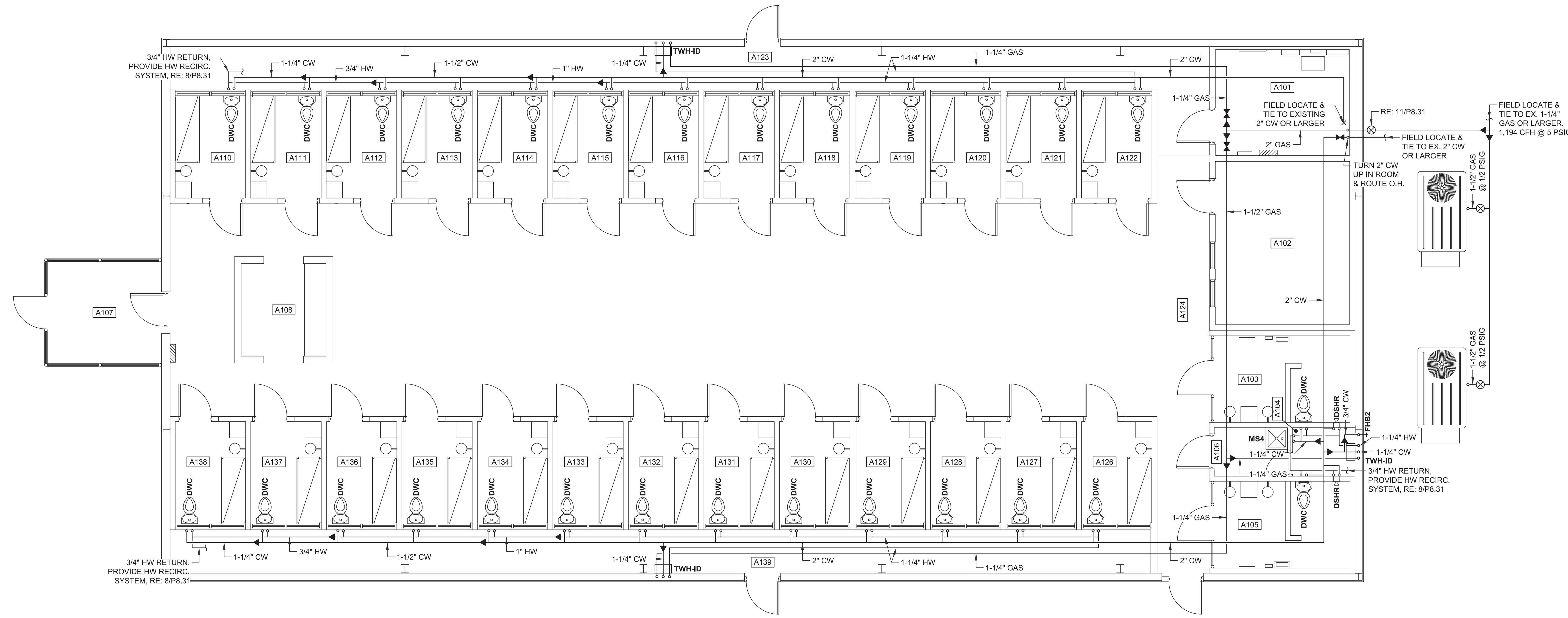


INSTALL 1/4 TURN FULL-PORT SHUT-OFF VALVES AT EACH FIXTURE.

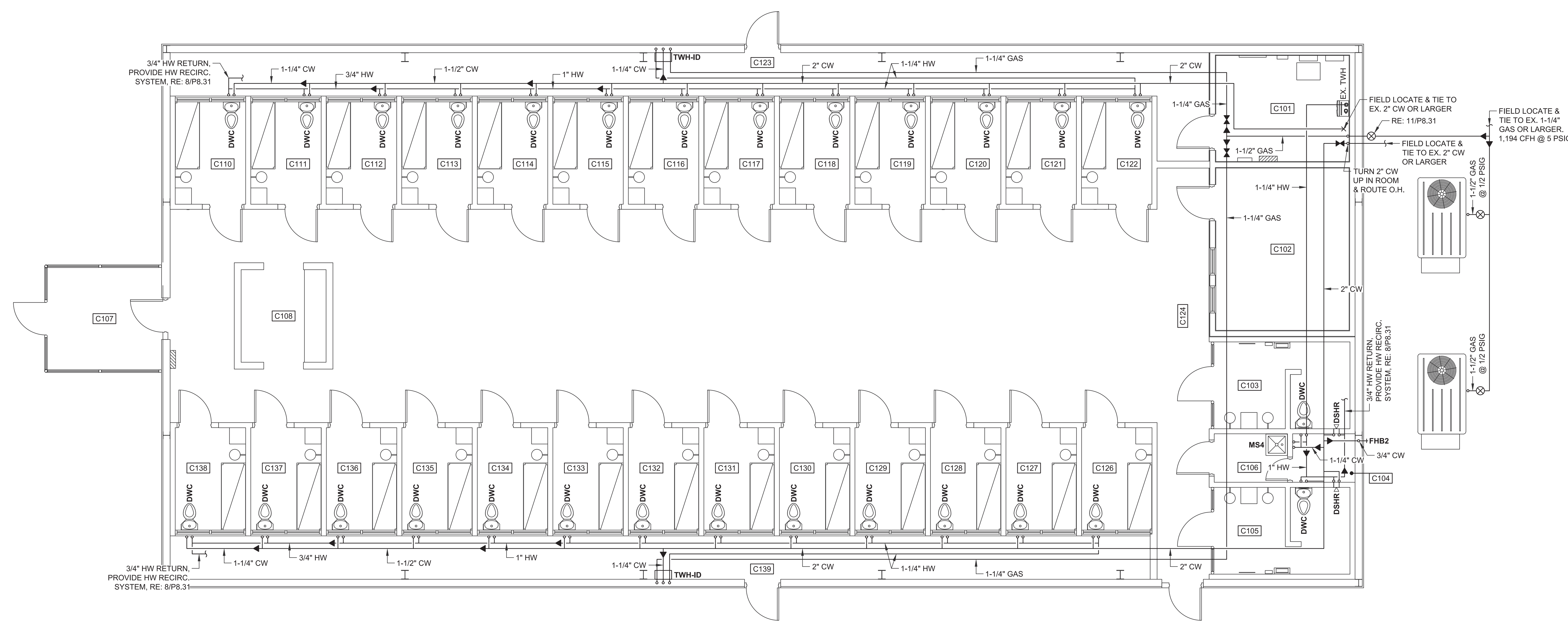
REFER TO SHEET P8.31 FOR PLUMBING NOTES & LEGEND.

PIPE SIZES SHOWN ARE BASED ON COPPER MATERIAL. PEX MATERIAL IS ALLOWED; SEE PLUMBING NOTES, SPECS., & "COPPER/PEX EQUIVALENT PIPE SIZES" DRAWING DETAIL.

0 2'-8" 5'-4" 10'-8"

SCALE: 3/16" = 1'-0"

3 BUILDING "A" HOT/COLD WATER & GAS PLAN



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3/16"=1'-0"

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ARCHITECTS • ADVISORS • CONSULTANTS

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HOT/COLD WATER & GAS PLANS

P8.21

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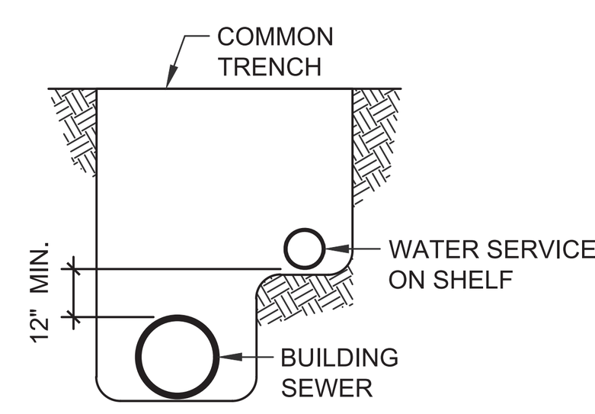

10 WATER/SEWER CLEARANCES
N.T.S.

MARK	FIXTURE	MANUFACTURER & MODEL	W	CW	HW
DWC	DETENTION LAV-TOILET COMBY.	ACORN 1415-CT-2-BP-MVC2-TF-1.6GPF-MVCFV-PH-LW1-OF-CO1-FTE-FVT-PC-SW, 15" LAV-TOILET COMBY WITH LAVATORY MULTI-SIDED BOWL, 14 GAGE TYPE 304 S.S. PROVIDE AIR CONTROL PNEUMATICALLY OPERATED PUSHBUTTON VALVE, LAV METERING VALVE SHALL BE SET TO 30 SECONDS (ADJUSTABLE), CONCEALED BLOWOUT JET TYPE, CABINET INTERIOR IS SOUND DEADENED WITH FIRE-RESISTANT MATERIAL, WITHSTAND 5000 LBS WITHOUT PERMANENT DAMAGE, WALL SLEEVES SHALL HAVE BARS @ 8" CENTERS (MAX), ACORN ELECTRONIC TIME-TROL MVCFV-TF, MVC2-TF	4"	1"	1/2"
MS4	MOP SINK	STERN WILLIAMS HL-1900, 32"x32"x12" SERVICE BASIN, 6" DROP AT THRESHOLD & S.S. CAP OF ONE PIECE-20 GA. 302 S.S. CAST INTEGRAL ON THRESHOLD, FAUCET (T-15-VB) W/ VACUUM BREAKER, ADJUSTABLE TOP BRACE, 3/4" HOSE THREAD ON SPOUT W/ BUCKET HOOK, INLETS ON 8" CENTERS & POLISHED CHROME FINISH, PROVIDE 36" HOSE & WALL HOOK (T-35) & 24" LONG S.S. MOP HANGER WITH 3 RUBBER SPRING LOADED GRIPS (T-40).	3"	3/4"	3/4"
DSHR	DETENTION WALL SHOWER	ACORN 1741-MVC1-TF-2.5GPM-PZZ-RD-SW, FABRICATED FROM 14 GAGE, TYPE 304 S.S. VALVE SHALL BE AIR-CONTROL, METERING, NON-HOLD OPEN TYPE, METERING SHALL BE SET TO 3 MINUTES (ADJUSTABLE), 2.5 GPM FLOW CONTROL & CAN BE REMOTELY LOCATED UP TO 10 FT FROM OPERATING PUSHBUTTON, WALL SLEEVES SHALL HAVE BARS @ 8" CENTERS (MAX), ACORN ELECTRONIC TIME-TROL MVC1-TF	3"	1/2"	1/2"
FD	FLOOR DRAIN	WADE 1100-A-VP CAST IRON FLOOR DRAIN WITH -VP VANDAL PROOF TOP, WITH ADJUSTABLE STRAINER, P-TRAP & TRAP GUARD TG33-WADE BY PROSET SYSTEMS OR EQUAL	3"	-	-
HD	HUB DRAIN	HUB DRAIN WITH P-TRAP & TRAP GUARD BY PROSET SYSTEMS OR EQUAL, SIZE NOTED ON PLANS	2"	-	-
FCO	FLOOR CLEANOUT	ZURN MODEL ZN1400-G-VP, GALVANIZED CAST IRON WITH ADJUSTABLE NEO-LOCK OR WADE 8130, -VP VANDAL-PROOF SCREWS	3" U.N.O.	-	-
FHB2	FREEZELESS HOSE BIBB WITH BOX	WOODFORD B65 FREEZELESS, ANTI-SIPHON, AUTO-DRAIN HOSE BIBB IN RECESSED BOX, WITH KEY HANDLE, BRASS BOX & DOOR	-	3/4"	-
TWH-IN	INDOOR COMMERCIAL CONDENSING TANKLESS WATER HEATER (48" A.F.F. TO BOTTOM OF UNIT) ACCEPTABLE MANUFACTURER'S ARE NORITZ & RINNAI (OR PRE-APPROVED EQUAL)	RINNAI SENSEI SUPER-HIGH-EFFICIENT CU199iN, INDOOR ONLY, 199,000 BTU/H, CONDENSING, 120 VAC, 60HZ, SCALE SHIELD WITH CARTRIDGE (INSULATE), 97% EFFICIENT, SAFETY DEVICES, FACTORY ISOLATION VALVE KIT, FACTORY PIPE COVER, QUICK CONNECT CORD, REMOTE CONTROLLER (COORDINATE LOCATION PER PROJECT DRAWINGS), WARRANTY: 8 YEAR HEAT EXCHANGER (COMMERCIAL USE) & 5 YEAR PARTS & COMPONENTS	1/2"	3/4"	3/4"

4 PLUMBING SCHEDULE
N.T.S.

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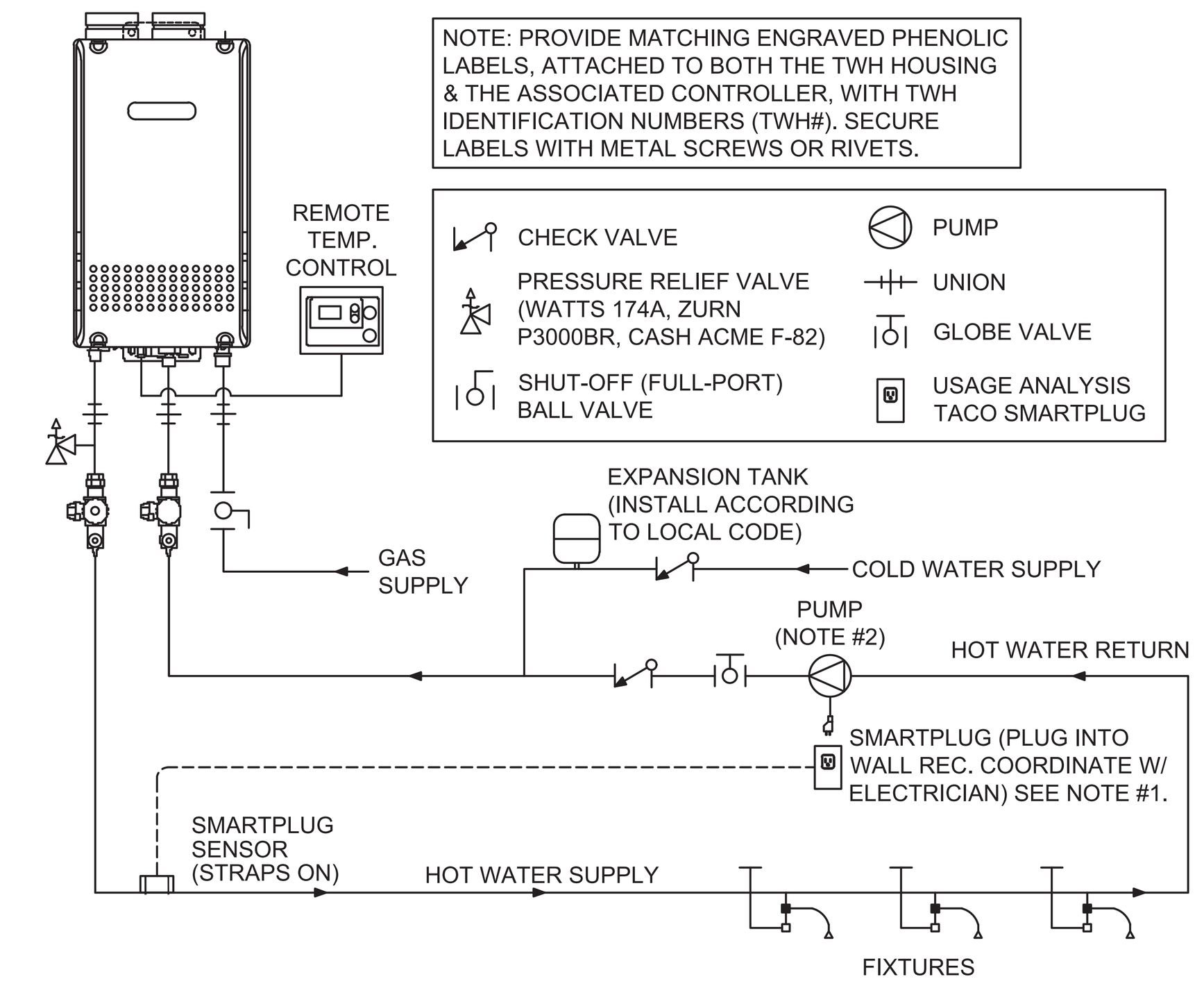
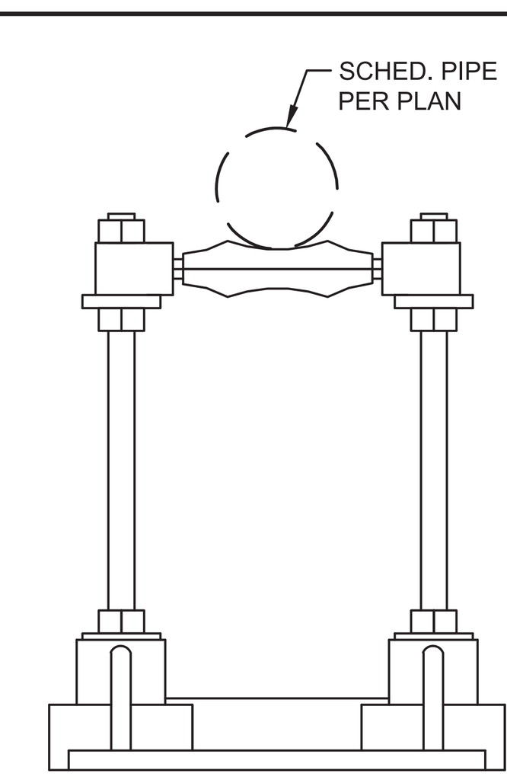


NOTES:
1. USE SMART "USAGE ANALYSIS" DEVICE (TACO "SMARTPLUG", OR EQUAL, WITH WIRED SENSOR) TO CONTROL THE PUMP.
2. SIZE THE PUMP TO PROVIDE A MAXIMUM OF 2 GPM THROUGH THE SYSTEM AT 10 FEET OF HEAD PLUS PIPING LOSSES. (LOCATE INDOOR ADJACENT TO TWH).
3. SET TWH TEMPERATURE TO 140°F. SET CONTROLLER TEMPERATURE TO 130°F (FOR LEGIONNAIRE'S DISEASE CONTROL).

8 TANKLESS WATER HEATER WITH RECIRCULATION DETAIL
N.T.S.

18



1. FOR LINES UP TO 2-1/2" O.D. USE SS8-R BY PHP SYSTEMS/DESIGN.
2. FOR LINES 3" & UP, USE PIPING TECHNOLOGY & PRODUCTS INC. FIG. 240 ADJUSTABLE ROLLER STAND.
3. CONTRACTOR TO PROVIDE ISOLATION PADS ON A FLAT ROOF WITH SLOPE OF 2 TO 12.

13 PIPE SUPPORT DETAIL
N.T.S.

1. ALL MATERIALS AND INSTALLATION SHALL CONFORM TO APPLICABLE PLUMBING CODES, ENERGY CODES, AND LOCAL ORDINANCES.

2. ALL FIXTURES SHALL COMPLY WITH TEXAS DEPARTMENT OF HEALTH WATER SAVING PERFORMANCE STANDARDS.

3. THE DRAWINGS SHOW THE GENERAL ARRANGEMENT OF THE SYSTEMS - CONTRACTOR SHALL VERIFY CONDITIONS PRIOR TO START OF JOB.

4. WATER PIPING INSIDE THE BUILDING SHALL BE TYPE "L" COPPER WATER TUBE - USE LEAD-FREE SOLDER. ALTERNATE: HIGH DENSITY CROSS-LINKED POLYETHYLENE PEX PIPING MAY BE USED IN LIEU OF TYPE "L" COPPER, RE: SPECIFICATION SECTIONS. INSTALLATION TRAINING CERTIFICATION FROM MANUFACTURER REQUIRED BEFORE PERFORMING WORK. CHECK WITH THE LOCAL AUTHORITY PRIOR TO USE. WATER PIPING OUTSIDE SHALL BE SCHEDULE 40 ASTM 1785 PVC.

5. PROVIDE APPROVED WATER HAMMER ARRESTOR AT WATER CONNECTION TO FIXTURES PER MANUFACTURER'S RECOMMENDATIONS.

6. ALL WATER PIPING IN THE ABOVE CEILING SPACE, WALLS, OR OTHER NON-CONDITIONED SPACE, SHALL BE INSULATED PER SPECIFICATIONS.

7. EXTEND UTILITIES 5 FEET BEYOND THE BUILDING LINE.

8. IF THE SUPPLY WATER PRESSURE IS GREATER THAN 80 P.S.I., PROVIDE A PRESSURE REDUCING VALVE. COORDINATE WITH WATER SUPPLY ENTITY TO VERIFY WATER PRESSURE.

9. WATER PIPING SHALL BE HYDROSTATICALLY TESTED TO 100 PSI WITH NO PRESSURE DROP IN 12 HOURS.

10. ALL WATER PIPING SHALL BE FLUSHED AT A VELOCITY OF 3 FT/SEC. AND DISINFECTED BY THE CONTRACTOR PER THE PLUMBING CODE.

11. PROVIDE HUB DRAIN OR FLOOR DRAIN FOR EACH HVAC EQUIPMENT UNIT AS INDICATED ON PLANS OF SCHEDULE 40 PVC PIPE.

12. ALL FLOOR DRAIN TRAPS AND HUB DRAIN TRAPS SHALL HAVE A PROSETS SYSTEMS, OR PRE-APPROVED EQUAL, TRAP GUARD.

13. UNLESS NOTED OTHERWISE, ALL SANITARY SEWER AND VENT PIPING SHALL BE SCHEDULE 40 PVC, ASTM D-2665.

14. DWV PIPING SHALL BE TESTED PER APPLICABLE PLUMBING CODE TO A MINIMUM OF 10 FEET WATER HEAD FOR 30 MINUTES. BLEED OFF ALL AIR FROM PIPE STANDS.

15. ALL VENT STACKS AND ROOF JACKS ABOVE THE ROOF LINE SHALL BE PAINTED WITH AN APPROVED COATING AS SPECIFIED IN SPEC. 9901. COLOR SHALL MATCH THE ROOF.

16. **FOR ALL FLOOR DRAINS:** SET TOP OF FLOOR DRAIN AT 1/2" BELOW THE FINISHED FLOOR. REFER TO FOUNDATION DETAILS FOR SLOPING REQUIREMENTS.

17. REFER TO "ACCESSIBILITY INFORMATION" ON ARCHITECTURAL SHEETS, FOR REQUIRED MOUNTING HEIGHTS OF PLUMBING FIXTURES.

18. REFER TO THE ARCHITECTURAL DRAWINGS, CIVIL DRAWINGS, AND DEMOLITION DRAWINGS FOR PERTINENT INFORMATION RELATED TO THE PROJECT {ELECTRICAL/PLUMBING/MECHANICAL} WORK.

19. SEWER, WATER, AND GAS PIPING SHOWN DIAGRAMMATICALLY. CONCEAL ALL ABOVE GRADE PIPE IN WALLS, BETWEEN FLOORS, AND/OR ABOVE CEILING IN THE ROOM WHERE FIXTURES ARE LOCATED (INSTALL GAS LINES IN VENTED SPACE). INSTALL IN ACCORDANCE WITH 2015 IECC REQUIREMENTS.

20. WHEN ROUTING UNDERGROUND PIPING, THE TOP OF THE PIPING IS TO BE AT 12" MINIMUM BELOW FINISHED FLOOR ELEVATION (UNLESS MAINTAINING SANITARY SEWER SLOPE REQUIRES OTHERWISE) AND SHALL PENETRATE FOUNDATION BEAMS AT APPROXIMATELY THE MID-DEPTH OF THE BEAM. WHERE PIPING INTERSECTS FOUNDATION BEAMS, THE ANGLE BETWEEN THE LONGITUDINAL AXIS OF THE PIPING AND THE LONGITUDINAL AXIS OF THE FOUNDATION BEAM IS TO BE IDEALLY 90 DEGREES BUT NOT LESS THAN 45 DEGREES. ALL VAPOR BARRIERS SHALL BE SEALED TO THE PIPING AT THE PENETRATIONS.

21. WHEN TRENCHING IS REQUIRED, REFER TO SPECIFICATION SECTIONS AND GEOTECH REPORT REQUIREMENTS FOR UTILITY TRENCH BACKFILL.

22. IN AREAS WHERE PLUMBING AND ANCILLARY ITEMS WILL BE EXPOSED TO PUBLIC VIEW, COORDINATE WITH OTHER DISCIPLINES AND THE PAINTER. ALL PLUMBING ITEMS SHALL BE INSTALLED ON TIME FOR THE PAINTER TO COMPLETE WORK COINCIDENT WITH OTHER PAINTING REQUIREMENTS IN THE AREA.

NATURAL GAS NOTES

1. ALL MATERIALS AND INSTALLATION SHALL CONFORM TO APPLICABLE GAS CODE AND LOCAL ORDINANCES.

2. GAS PIPING SHALL BE ASTM A53 SCHEDULE 40 BLACK IRON PIPE WITH ASME B16 FITTINGS. THE INSTALLED SYSTEM SHALL BE TESTED PER STANDARD GAS CODE. REPAIR LEAKS AND DEFECTS AND RETEST AS NECESSARY.

3. INSTALL ALL "HORIZONTAL" GAS PIPING AT A UNIFORM GRADE OF 0.1 PERCENT SLOPE UPWARD TOWARDS RISERS.

4. BURIED GAS PIPE OUTSIDE BUILDING MAY BE POLYETHYLENE (SDR 11, P.E. 2406/ ASTM D-2513, 1248, D3350) WITH HEAT-FUSION JOINTS, OR COATED AND MILL WRAPPED BLACK IRON.

5. SERVICE LINE RISERS SHALL BE BLACK IRON PIPE OR PE PIPE WITH A STEEL PIPE CASING. EXPOSED METAL SHALL BE COATED WITH AN OIL-BASED RUST INHIBITING PRIMER AND GRAY ALKYD-ENAMEL EXTERIOR USE TOP-COAT.

6. ALL GAS SERVICE REGULATORS AND GAS STOPS SHALL BE AGA/ISA LISTED AND STAMPED. ATMOSPHERIC VENTS SHALL HAVE CORROSION RESISTANT SCREEN.

7. ALL GAS FLUE VENTS SHALL BE CONSTRUCTED USING ANSI TYPE "B" DOUBLE-WALLED VENT PIPE. INSTALLATION OF VENT PIPES SHALL BE IN ACCORDANCE WITH STANDARD GAS CODE. VENT CAPS SHALL BE ANSI APPROVED.

8. ALL FLUE PIPES, FLASHING, CAPS, ETC., ABOVE THE ROOF LINE SHALL BE PAINTED WITH AN APPROVED COATING AS SPECIFIED IN SPEC 09901. COLOR SHALL MATCH THE ROOF.

DO NOT USE AN OPEN FLAME OF ANY KIND TO TEST FOR LEAKS

2 PLUMBING NOTES
N.T.S.

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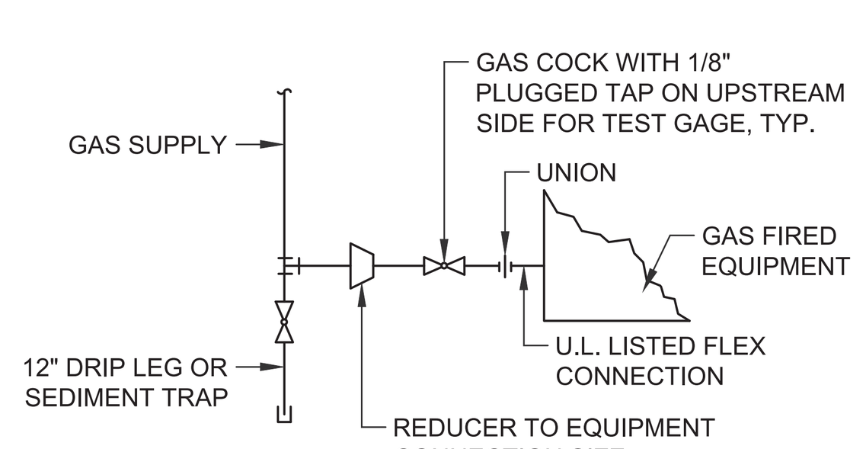

12 GAS CONNECTION DETAIL
N.T.S.

EQUIVALENT PIPE SIZES	
COPPER	PEX
1/2"	3/4"
3/4"	1"
1"	1-1/4"
1-1/4"	1-1/2"
1-1/2"	2"
2"	3"

NOTES:

1) COPPER OR PEX TUBING MAY BE USED FOR DOMESTIC WATER SUPPLIES.

2) 1/2" PEX MAY BE USED FOR LAVATORIES & SINKS WHERE FLOW RATE IS 4 GPM OR LESS.

3) RE: PEX - INSTALLATION TRAINING CERTIFICATE(S) REQUIRED FROM MANUFACTURER. CHECK WITH LOCAL AUTHORITIES PRIOR TO USE.

4) SEE ALSO PLUMBING NOTES & SPECS.

7 COPPER/PEX EQUIVALENT PIPE SIZES
N.T.S.

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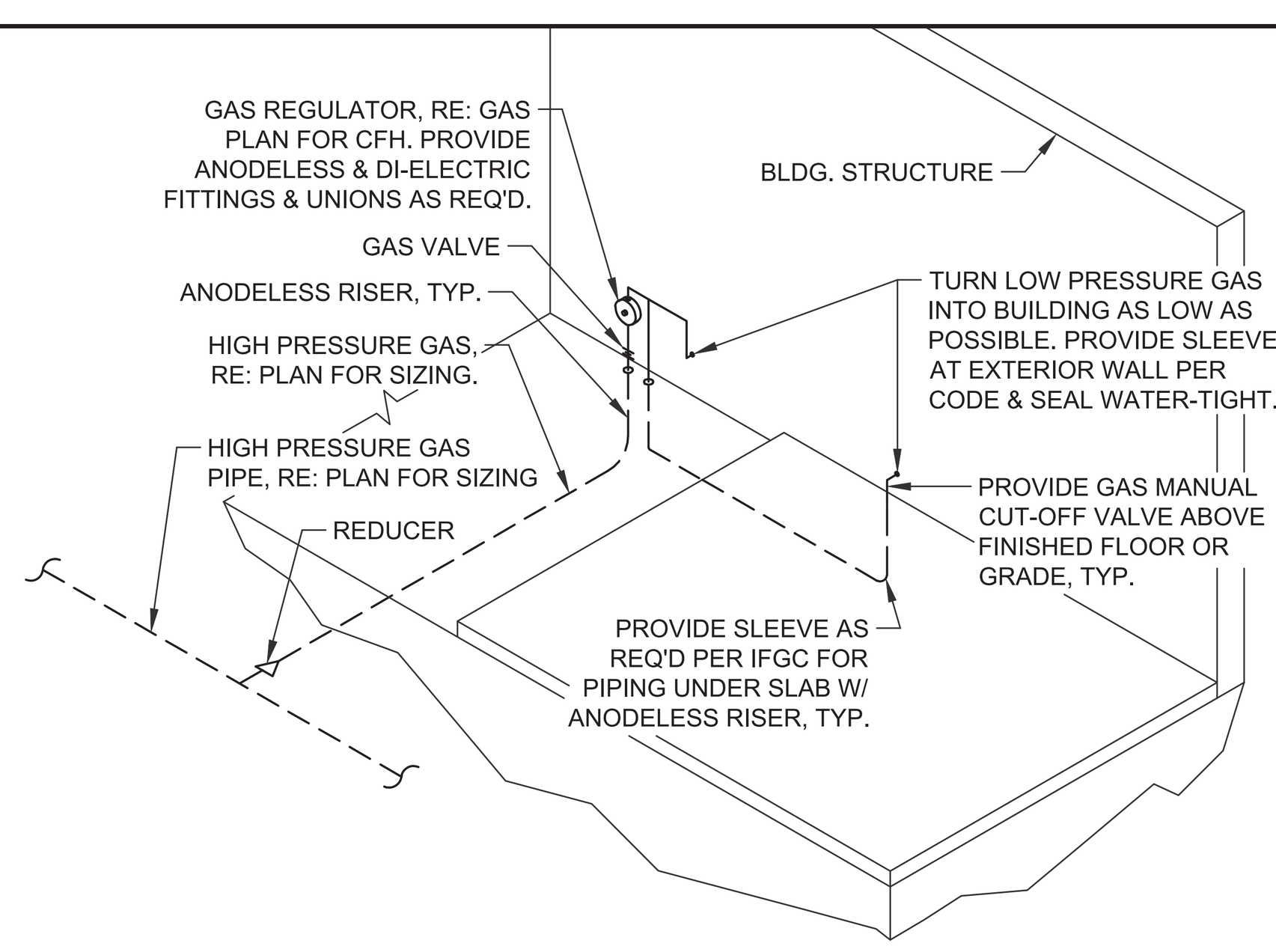
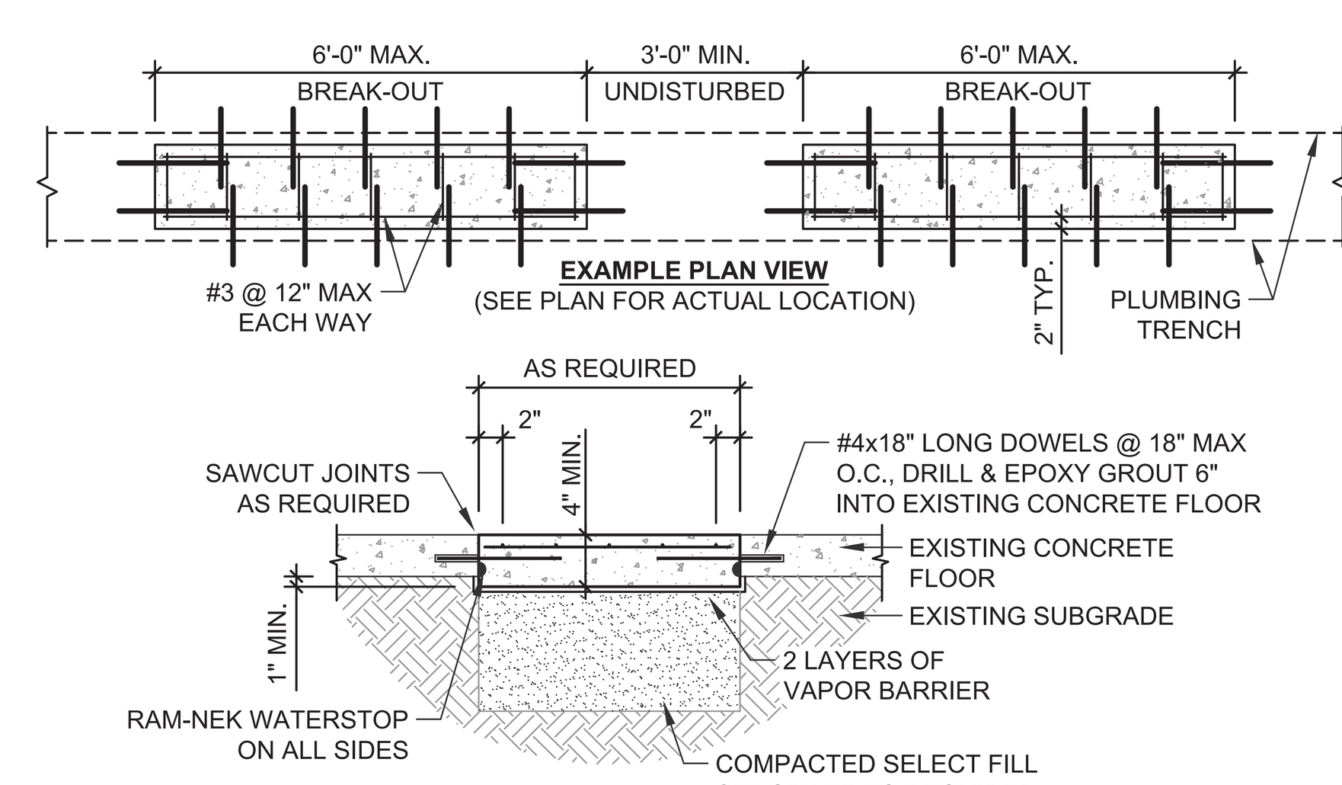


11 TYPICAL GAS ROUTING DETAIL
N.T.S.



NOTE: DO NOT DEMO GRADE BEAMS. PASS BENEATH GRADE BEAMS AS REQUIRED.

6 CONCRETE FLOOR PATCH DETAIL
N.T.S.

(elbow symbols)	ELBOW UP / ELBOW DOWN	O FD	FLOOR DRAIN
(valve symbol)	1/4 TURN, FULL-PORT BALL VALVE, UL LISTED FOR SERVICE	O HD	HUB DRAIN
		O FCO	FLOOR CLEAN OUT
— 3/4 CW — SIZE OF PIPE IN INCHES; PIPE SYSTEM TYPE	SS SANITARY SEWER CW COLD WATER HW HOT WATER GAS GAS LINE	⊣ WCO	WALL CLEAN OUT
		O VTR	VENT TO ROOF
		- - - - - - -	SANITARY VENT PIPING
		—— – – ——	AC CONDENSATE DRAIN LINE

1 PLUMBING LEGEND
N.T.S.

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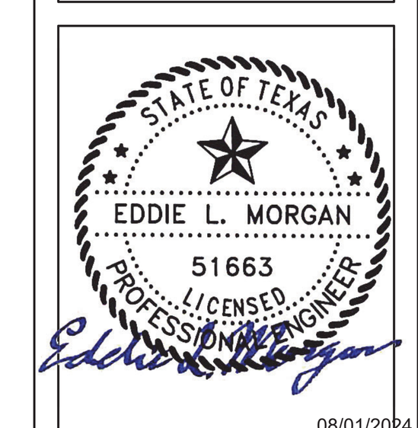

08/01/2024

GLS PROJECT #154079

GLS
ARCHITECTURE - ENGINEERING - INTERIORS
LANDSCAPE - SURVEYING
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4077 CROSS PARK DR. STE. 100 - BRYAN, TEXAS 77802 - (979) 776-9700
455 RICE ROAD STE. 107 - TYLER, TEXAS 75703 - (903) 581-3805

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