ADDENDUM NO. 2

February 20, 2025

PORTER COUNTY SHERIFF'S OFFICE AND JAIL FACILITY RENOVATIONS

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications, and the Drawings dated January 8, 2025 by DLZ. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Page ADD 2-1 through ADD 2-2 and attached Addendum No. 2 from DLZ dated February 19, 2025 and consisting of 3 pages, Questions and Clarifications Sheet, Revised Specification Sections: 00 00 02 - Table of Contents, 09 67 25 - Seamless Shower Coatings, 10 56 26 - Mobile Storage Shelving, 11 19 03 - Security Barriers, 23 73 13.13 - Indoor, Basic Air-Handling Units, 23 81 26 - Split-System Air-Conditioners, and 15 drawings.

A. <u>SPECIFICATION SECTION 01 12 00 - MULTIPLE CONTRACT SUMMARY</u>
Under 3.03 - Bid Categories

B. <u>BID CATEGORY NO. 2 - METAL STUDS, DRYWALL, CEILINGS</u>

1. Revise:

<u>Clarification No. 7:</u>
The **Bid Category No. 2 Contractor** is to include in his bid, 40 man-hours for replacement of stained or damaged ceiling tile to be performed by a skilled carpenter at the direction of the Construction Manager throughout the duration of the project. At the end of the project, unused hours will be converted into a dollar amount and returned to the Owner as a deduct Change Order.

E. BID CATEGORY NO. 5 - PLUMBING

1. Add:

Clarification No. 11:
All work associated with the underground rodding shown on the Plumbing Plans will be tracked under T&M and paid through the allowance.

F. BID CATEGORY NO. 6 - MECHANICAL

1. Revise:

Clarification No. 10:
The **Bid Category No. 6 Contractor** is responsible to temporarily support all HVAC related items throughout when ceilings are removed. When the new ceilings are installed, the HVAC items are to be reinstalled or replaced per the contract documents.

G. BID CATEGORY NO. 7 - ELECTRICAL

1. Add:

Clarification No. 12:
The **Bid Category No. 7 Contractor** shall be responsible for the installation of the Static Uninterruptible Power Supply, as specified in Specification Section 26 33 53 and shown on the drawings. The materials for the Static Uninterruptible Power Supply has been procured by Porter County.

B. SPECIFICATION SECTION 01 21 00 - ALLOWANCES
Under 3.02 - Contingency Allowance

1. Revise:

E.	Bid Category No. 5	Plumbing	$165,000

ADDENDUM NO. 2

PROJECT: **PORTER COUNTY SHERIFF'S OFFICE AND JAIL FACILITY RENOVATIONS**
2755 State Road 49
Valparaiso, IN 46383

TO: All Prospective Bidders and others to whom Plans and Specifications for the above referenced Project have been issued.

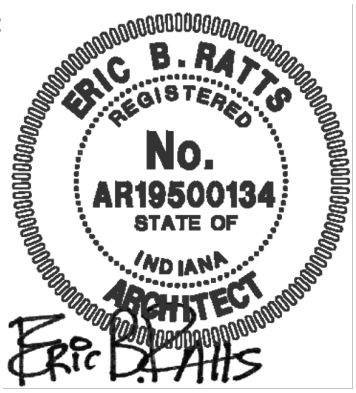
OWNER: **PORTER COUNTY BOARD OF COMMISSIONERS**
155 Indiana Avenue
Valparaiso, IN 46383

ARCHITECT **DLZ INDIANA, LLC**
138 N. Delaware Street
Indianapolis, Indiana 46204

DATE: February 19th, 2025

The items included in this Addendum are to become a part of the original Contract Documents including Drawings and Project Manual dated January 08, 2025, as if included herein. Only these items are to be altered. The remainder of the original Drawings and Project Manual remain valid in their entirety. Bidders must acknowledge receipt of this Addendum in the space provided on the Proposal Form. Failure to do so may subject the Bidder to disqualification.

CERTIFIED BY:



Eric B. Ratts, AIA
Vice President
State of Indiana No. 19500134

PROJECT MANUAL

ITEM NO. 1. 000002 - TABLE OF CONTENTS
- a. Added SECTION 230548 - VIBRATION CONTROLS FOR HVAC (spec section added in addendum 1)
- b. Replace the TABLE OF CONTENTS in all project manuals.

ITEM NO. 2. 096725 - SEAMLESS SHOWER COATINGS
- a. Part 2.1,A: Replace "5132" with "5130"
- b. Replace entire specification with the attached.

ITEM NO. 3. 105626 - MOBILE STORAGE SHELVING
- a. Part 2.1,A.1: Replace "Wheelhouse" with "Mechanical Assist System"
- b. Replace entire specification with the attached.

ITEM NO. 4. SECTION 111903 - SECURITY BARRIERS
- a. Part 2.1,G.1.a: Add Color: Black.
- b. Part 2.2,K.1.a: Add Color: Black.
- c. Replace entire specification with the attached.

ITEM NO. 5. SECTION 237313.13 - INDOOR, BASIC AIR-HANDLING UNITS
- a. Added Daikin Applied to list of acceptable manufacturers.
- b. Replace entire specification with the attached.

ITEM NO. 6. SECTION 238126 - SPLIT-SYSTEM AIR-CONDITIONERS
- a. Added Daikin Applied to list of acceptable manufacturers.
- b. Replace entire specification with the attached.

DRAWINGS

ITEM NO. 1. M0.1 – GENERAL INFORMATION
- a. Adjusted keynote 230013.
- b. Added keynote 230021.

ITEM NO. 2. M2.1A – FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA A
- a. Indicated existing diffuser and grille tags for reference on air terminal schedule.
- b. Added existing exhaust ductwork serving EF-3.
- c. Removed unnecessary ductwork from exhaust ductwork serving evidence storage.

ITEM NO. 3. M2.1B – FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA B
- a. Indicated existing diffuser and grille tags for reference on air terminal schedule.

ITEM NO. 4. M2.1C – FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA C
- a. Indicated existing diffuser and grille tags for reference on air terminal schedule.
- b. Relocated chillers to be placed on existing housing pads.
- c. Added keynote 230021 for CH-1 and CH-2.
- d. Adjusted keynote 230013.
- e. Indicated existing fence and extension of fencing as shown.

ITEM NO. 5. M2.1D – FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA D
- a. Indicated existing diffuser and grille tags for reference on air terminal schedule.
- b. Added existing diffusers and grille in toilet C123 and Janitor C123A.
- c. Added existing exhaust ductwork serving EF-3.

ITEM NO. 6. M2.1E – FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA E
- a. Indicated existing diffuser and grille tags for reference on air terminal schedule.

ITEM NO. 7. M5.3 – MECHANICAL DETAILS – 3
- a. Added drawing in its entirety.

ITEM NO. 8. M6.2 – MECHANICAL EQUIPMENT SCHEDULES II
- a. Adjusted exhaust fan schedule for EF-23.

ATTACHMENTS:

OTHER
1. Questions and Clarifications

PROJECT MANUAL
1. 000002 - TABLE OF CONTENTS
2. 096725 - SEAMLESS SHOWER COATINGS
3. 105626 - MOBILE STORAGE SHELVING
4. 111903 - SECURITY BARRIERS
5. 237313.13 - INDOOR, BASIC AIR-HANDLING UNITS
6. 238126 - SPLIT-SYSTEM AIR-CONDITIONERS

DRAWINGS
1. M0.1 GENERAL INFORMATION
2. M2.1A FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA A
3. M2.1B FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA B
4. M2.1C FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA C
5. M2.1D FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA D
6. M2.1E FIRST FLOOR MECHANICAL INSTALLATION PLAN – AREA E
7. M5.3 MECHANICAL DETAILS - 3
8. M6.2 MECHANICAL EQUIPMENT SCHEDULES II

EXISTING KITCHEN DRAWINGS
1. FS.1 KITCHEN EQUIPMENT PLAN
2. FS.2 KITCHEN EQUIPMENT PLAN
3. FS.3 KITCHEN EQUIPMENT PLAN
4. FS.4 KITCHEN MECHANICAL PLAN
5. FS.5 KITCHEN MECHANICAL PLAN
6. FS.6 KITCHEN ELECTRICAL PLAN
7. FS.7 KITCHEN ELECTRICAL PLAN

END OF ADDENDUM No. 2

Questions and Clarifications

ITEM NO. 1.

Question:

1. Note 22306 on page MD2.1C Says to remove the chillers and says nothing for the pads. Note 230013 on page M2.1C Says to Provide New housekeeping pad for the Chiller. That note is at each chiller on the drawing (see attachment). Please Clarify if Each chiller will need a new Pad or if we are expected to reuse the 2 existing pads and extend them if necessary and pour 1 new pad for Chiller #3.
2. Is Fabric and Stone Required in the New Yard Area?
3. Please Provide Fencing Detail

Answer:

1. CH-1 and CH-2 will reuse the existing pad, which will be expanded as necessary to fit the new equipment. CH-3 will have a new pad. Keynote 230021 will be added for CH-1 and CH-2 to indicate housing pad to be resized.
2. Stone pavement detail provided on M5.3 in addendum.
3. Fencing details provided on M5.3 in addendum.

ITEM NO. 2.

Question:

1. Please provide a detail for installation of security grilles. welded, security fasteners, supports to structure, etc. If security grilles do need supported by structure or welded there are a few areas the ceilings are specifically called to be removed that will need to be.
2. Please clarify design intent of exhaust line on drawing M2.1A that does not appear on MD2.1A.
3. Multiple grilles are not tagged, but state to reference air terminal schedule.
4. Multiple fans have moved on the roof plans, but schedule and sheet notes state to reuse curbs/provide curb adapters. Please advise.
5. In the pre-bid we discussed more direction for duct cleaning. Have we seen anything else on this?

Answer:

1. Security grilles to be installed as per manufacturer recommendations. Indicated ceiling for exhaust grilles in showers is called out to be replaced as necessary for new construction.
2. Exhaust line on M2.1A is new ductwork to exhaust fumes from evidence storage.
3. Existing grilles have been tagged.
4. Fans are to be replaced in place and in kind. Exhaust fan locations on M2.3 will be adjusted to match in this addendum.
5. Spec section 230130.52 contains direction on duct cleaning.

ITEM NO. 3.

Question: Can you please confirm for item # 13 in division 114000, that we are to provide only, a complete new Hood system, which will be installed by others? This item is not shown on the FS drawings or equipment schedule.

Answer: The Specification calls out the written specification of ROOF TOP UNITS. There is no indication of a full hood system replacement. These units are to be purchased, delivered and turned over to the HVAC contractor for installation.

ITEM NO. 4.

Question: Item # 1-states we are to remove all existing items, store, reset or dispose of. Drawing FS 4 shows existing items to be removed and stored, however an equipment schedule is needed to clearly define what this equipment is. The written specs for item 1 reference items not being reused to be disposed of and that we are responsible for re setting the equipment that is being reused. FS1 floor plan does not show any existing equipment being reused and FS 4 does not identify what needs to be reset or disposed of. Further information on the existing is needed in order to price accurately.

Answer: FS-4 Is the only existing plan available. The Pre-bid meeting would have resolved many of these questions. The existing plans are adequate to assess the current items. The FS-1 indicates the items that are new. The difference will be where there is indication on FS-1 of new items. See attached existing Food Service drawings which are provided for reference only.

VOLUME 1 OF 2: DIVISIONS 00 – 01

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (BY CM)

DIVISION 01 – GENERAL REQUIREMENTS (BY CM)

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING

DIVISION 25 – INTEGRATED AUTOMATION (NOT USED)
DIVISION 26 – ELECTRICAL

DIVISION 27 – COMMUNICATIONS (NOT USED)

DIVISION 28 – SAFETY AND SECURITY

END OF SECTION 000002

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SECTION 096725 - SEAMLESS SHOWER COATINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Seamless resinous coatings for wall, ceiling and flooring applications.

a. Work includes surface preparation for resinous shower coatings.

B. Related Sections:

1. Section 079200 "Joint Sealants" for sealants installed at resinous systems' joints.

1.3 REFERENCE STANDARDS

A. ICRI No. 03732 | Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays, CSP 1-9.

B. ASTM F 2170 | Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in situ Probes.

C. SSPC Painting Volume 1 and 2.

D. PDCA Standards 1-24.

E. EPA Method 24.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meeting. Prior to the installation of the specified system, a meeting shall be held at the project site with the manufacturer's representative, the installer, the engineer/architect, construction manager, general contractor, and the Owner. General Contractor to document meeting discussions and furnish a copy to each participant. Meeting topics to include, but not be limited to:

1. Planned start and completion timing for each mobilization.

2. Safety procedures.
3. Coordination of other trades in the area.
4. Existing and new slab conditions.
5. To discuss required testing.
6. Existing substrate conditions.
7. Surface preparation.
8. Required environmental conditions.
9. Installation sequencing and cure times.
10. Protection of completed work.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include product installation, application guide and SDS.
2. Provide pertinent Detail Drawings including terminations, keyways, cove etc.

B. Samples:

1. Submit Samples for each resinous system specified herein, provide, when requested, a sample applied to a rigid backing, minimum size 3-inches x 3-inches.

1.6 QUALITY ASSURANCE

A. References: Cited Standards are incorporated herein by reference and govern the work:

1. Pamphlet No. 03732, International Concrete Repair Institute (Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings and Polymer Overlays.

B. Single Source Responsibility: Obtain primary resinous wall, floor and ceiling materials including hardening agents, finish or sealing coats from a single manufacturer with not less than five (5) years of successful experience in manufacturing and installing the principal materials described in this section. Provide secondary materials only of type and from a source recommended by the manufacturer of the primary material.

C. Installer Qualifications: An authorized representative who is trained and approved by manufacturer. Provide the following proof of experience.

1. Letter of training from the Approved Material manufacturer stating that contractor has been an approved installer for a minimum of five (5) years and has been successful in the installation of the manufacturers Approved Materials on ten (10) projects of similar complexity and size as this project.

2. List of ten (10) projects using the manufacturers Approved Materials on projects of similar complexity and size as this project including Owner's names, current phone number and list of material used on project.
3. Submit resume of the key person(s) who will be performing the actual work using the manufacturers Approved Materials and list a minimum of five (5) projects with different Owners including Owner's names, current phone number, and data sheets on the material used on project.

D. Approved Manufacturer Supervision: A representative of the materials manufacturer must be present on site for the duration of the preparation and for all phases of the installation of the specified coating materials.

1.7 TOILET/SHOWER MOCKUP

A. Apply a mockup of a shower unit for each coating system to establish a benchmark of finish, thickness, texture, process, color, and quality.

1. Mockup location will be shown on the drawings.
2. Mockup shall be applied to the specified substrate(s).
3. Mockup shall show seamless shower coating terminations at floor, walls and ceiling.
4. Mockup shall include a curb if required at seamless shower coating and adjacent floor transition.
5. Mockup shall show seamless shower coating floor drain terminations.
6. Approved mockups may become part of completed Work if undisturbed at the time of Substantial Completion.
7. A 2-inch cant and 4-inch cove base to be included on the mockup.
8. Cost of mockup shall be included in bid proposal.
9. A meeting shall be held at the project site with the manufacturer's representative, the installer, the architect/engineer, general contractor, construction manager and owner's representative to review the completed mockup. General Contractor to document meeting discussions and furnish copy to each participant.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to project site with labels legible and intact.

B. Storage of materials:

1. Store only acceptable project materials on site.
2. Store in suitable location convenient to progress of work.
3. Comply with health and fire regulations.
4. Storage temperature shall be between 60 F and 90 F or such other ambient temperature conditions as may be specifically recommended by product manufacturer.

1.9 FIELD CONDITIONS

A. Protection: Cover or otherwise protect finished work of other trades and surfaces not being coated concurrently or not to be coated.

B. Lighting: Provide temporary lighting producing a minimum for 50-foot candles uniform distribution during resinous coating application.

C. Mitigation of Damaging Conditions: Leaks from piping, condensate spills from air conditioning systems and other sources of intrusion upon the coating application area must be corrected prior to the commencement of the coating application.

D. Environmental Limitations. Comply with coatings manufacturer's technical data sheet for acceptable substrate and ambient temperatures, concrete moisture levels, ventilation, and other environmental conditions that may negatively affect resinous flooring application or performance.

E. Installation. Close spaces to traffic during coatings application and for not less that 48-hours after application unless manufacturer recommends a longer period.

F. Airborne Contamination. Coating systems shall not be applied in areas where dust or other airborne particulate matter is being generated.

1.10 WARRANTY

A. Manufacturer alone shall furnish a single, written warranty covering 100% of the material and labor costs protecting the Owner from delamination and product failure caused by defective product or defective installation for a period of five (5) years from date of installation. Joint warranties between manufacturer and installer not accepted.

1. Issuance of warranty shall be a condition contingent on the receipt of final payment to the Installer.
2. Extent of warranty shall be limited to the repair or replacement of defective surfaces at no cost to the Owner including both material and installation costs associated with any repairs or replacement of defective product or defective installation. The warranty shall not include any remedy for defects caused by abuse, improper maintenance, change of use or operation, or structural movement of building structure or moisture migration from the back side of coating system or by normal wear, tear and usage.

B. The following items will not be included within the warranty: damage due to structural design deficiencies including, but not limited to, slab cracking from lateral, vertical or rotational movement, gouging from forklifts, heavy tools or other equipment, delamination caused by vapor transmission due to plumbing or external water issues effecting the moisture content of the substrate.

C. In cases of a warranty claim, the owner will notify the manufacturer/contractor in writing within thirty (30) days of the first appearance of problem. The owner will provide free and unencumbered access to the area during normal working hours for warranty rework. Property protection is also the owner's responsibility. Remedy is limited to direct repair of the manufacturer's system.

PART 2 - PRODUCTS

2.1 SEAMLESS SHOWER COATING

A. Basis-of-Design Product: Subject to compliance with requirements provide "5130 Seamless Shower Epoxy System" as manufactured by Prime Coat Coating Systems or a comparable product by one of the following:

1. Decofloor Coating Systems.
2. PPG Industries, Inc.

B. Description: Consisting of 100% solids accelerated cycloaliphatic amine cured epoxy with chopped strand fiberglass and Kevlar® reinforcement with integrated Micro Guard anti-microbial topcoat.

1. All components shall form a monolithic coating system that forms a continuous barrier with specified coating system without breaks in material including at interfaces of inside and outside corners and interfaces between walls and floors. System Characteristics/ Performance Requirements:

a. Color and Pattern. As selected by Owner from manufacturer's full range of flake colors.
b. Cant Base: 2-inch 45-degree style at showers.
c. Cove Base: 4-inch at Toilets.
d. System Thickness. Walls/Ceilings – 60 mils WFT minimum, Floors – 1/8-inch minimum.
e. VOC's. <50 g/lt per EPA Method 24 for each component.
f. Product Composition. 100% solids, cycloaliphatic, Bisphenol A epoxy with chopped strand fiberglass and Kevlar® reinforcement.
g. Wall Systems must be spray applied 100% solids with Fiberglass and Kevlar® strands premixed into both the Part A and Part B epoxy components. Must contain fiberglass strands sufficient to form a reinforced matrix/web within the resin.
h. High or Low Solids solvent based, and all water-based systems excluded.
i. Mat lay systems excluded.
j. Roller applied system excluded.
k. Integrated Micro Guard final finish as independently tested per JIS Z 2801 to reduce surface Microbes by 99.9997%.
l. Textures:

1) Walls/Ceilings: Texture A; Smooth.
2) Floors: Texture B; Mid-level slip resistant.

2. System Components:

a. Filler Coat: PC 615.
b. 2-inch Cant Cove: PC 311 TD.
c. Floor Primer Coat: PC 311 TD.
d. Broadcast Aggregate: PC 1332.
e. 2nd Primer Coat: PC 101 or PC 130.
f. Body Coat: PC 200 or PC 210.
g. Wear Coat: PC 280.

3. General Performance Requirements.

a. Resinous system shall meet minimum published standards in accordance with Prime Coat Coating Systems products as specified in this Section. In order, to create a true seamless environment, all coatings MUST be supplied and installed by one single manufacturer.
b. Resinous flooring system shall be properly sloped to drains to prevent ponding and may include a threshold if required to prevent water infiltration in the adjacent areas. Build-up system as required to provide a positive slope to the floor drains.

B. Moisture Vapor Protection: All coatings applied to slab on grade shall include a moisture mitigation primer if there is no proof of an effective moisture vapor barrier in place. Moisture mitigation primer shall achieve a minimum rating of 0.1 PERM Rating for CLASS 1 Vapor Retarder per ASTM F 3010.

C. Flexible Membrane: On all above grade showers manufacturer shall include in their system manufacturer's recommended fluid applied 30 mil flexible membrane to be attached directly to the concrete slab for added protection against micro cracking and protection against leaks.

2.2 MIXING

A. Accomplish job mixing and application only when acceptable to the Architect/Engineer.

B. Mix components only in containers furnished by the Manufacturer.

C. Proportioning of two-part and three-part coatings shall be in strict accordance with methods recommended by the Manufacturer.

D. Prime coat shall be mixed using a variable speed drill with a PS Jiffy blade. Parts A and B shall be mixed a minimum of two minutes. Ensure full blending of both parts with all material measured into the mixing container. Apply the mixed material within the pot life, induction times and temperatures recommended by the Manufacturer.

E. Do not reseal mixed material. Permit final chemical set to occur in the container and when set has been achieved; dispose of hardened material by legal means.

F. Do not apply any material that has exceeded shelf and pot life as determined by manufacturer.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine surfaces scheduled to receive coating for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work as included in 3.2. Preparation of Surfaces.

B. Notify Owner's agent immediately upon determination that surfaces scheduled to receive coating are unacceptable for proper adhesion or subsequent performance.

C. Testing of Floor Slabs.

1. Prior to the installation of resinous flooring, concrete should be tested for moisture content that could be detrimental to the long-term adhesion of coating materials. Tests below must be completed in accordance with the most recently revised Test Methods:

    a. Relative Humidity in situ Testing per ASTM F 2170
    b. Others as required by manufacturer or unique job conditions. If additional testing is required, additional costs may be incurred by Owner

D. Testing Activities During Resinous Coating Application.

1. Material Sampling. Owner's representative may at any time and any number of times during resinous coating application require the Owner's independent testing agency to collect material samples for testing for compliance with requirements.

    a. Material samples will be taken, identified, sealed, and certified in presence of installer.
    b. Testing agency will test samples for compliance with requirements at cost to the Owner, using applicable referenced testing procedures in addition to testing procedures listed in manufacturer's product data.

2. If test results show applied materials do not comply with specified requirements, Installer shall correct all deficiencies of coating system in a method and manner acceptable to the manufacturer's recommendations.

E. Do not proceed with surface preparation or coating application until conditions are suitable.

3.2 PREPARATION OF SURFACES

A. General. Prepare and clean substrates in accordance with manufacturer's written instructions for substrate indicated.

B. Concrete Floors: Concrete must be free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants, incompatible with floor coatings. Floor slabs shall be prepared as follows:

1. Prepare per ICRI CSP 3-5, and diamond grind edges as required.
2. Remove and legally dispose of all debris and contaminants generated by the surface preparation process.
3. Steel media resulting from the shot blasted floor slab surface shall be removed from cracks, slab edges, construction joints, and corners by magnetic broom, vacuum, or stiff bristle broom.
4. Chase cracks, non-moving joints with appropriate diamond blades.
5. Cut and prepare keyway terminations per manufactures detailed drawings.

C. Concrete Masonry Unit: Prior to installation of high-performance coatings, CMU walls shall receive a visual inspection by the onsite manufacturer's representative to assure that the substrate is acceptable for coating. The Masonry Contractor is to correct deficiencies.

1. Mortar joints are struck clean and filled tightly to avoid gaps or holes and provide a neat, uniform appearance in accordance with procedures as outlined under Division 4 - "Concrete Unit Masonry".
2. Removal of all mortar spatter, protruding mortar edges, and other excessive mortar.
3. All rough edges shall be ground smooth.
4. CMU to be cleaned as specified under requirements as outlined under Division 4 "Concrete Unit Masonry".
5. All surfaces shall be clean, dry and free of contaminants prior to installing coating system.

D. Cement Board Ceilings: Prior to installation of high-performance coatings, cement board ceilings shall receive a visual inspection by the onsite manufacturer's representative to assure that the substrate is acceptable for coating. The Contractor is to correct deficiencies.

1. All rough edges shall be ground smooth.
2. Fill panel joints shall be filled tightly to avoid gaps for a neat, uniform appearance.

3.3 INSTALLATION

A. General Requirements: Apply components of resinous coating system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface at the specified thickness. Coordinate application of components to provide optimum adhesion of resinous floor system to substrate.

B. Installation:

1. Do not apply initial coating until moisture content of surface is within limitations recommended by coating manufacturer and never install coatings when the substrate temperature is less than 5 degrees above dew point unless specifically approved, in writing, by the manufacturer.
2. Keep all application equipment free from contaminates suitable for the finish required.
3. Install moisture mitigation system to all slabs on grade as required.
4. Install flexible waterproof membrane to all slabs that are above grade.
5. Finish coats shall be smooth to the touch and free of skipped or missed areas. An orange peel texture with occasional fiberglass lumps is normal and acceptable.
6. Floor texture to be approved by Owner through mock-up. Texture to be verified by Sullmair FSC200-1346 floor tester.
7. Where walls, ceilings and floors abut and are both of a resinous material, obtain all coating materials from a single manufacturer being sure to meet all re-coat windows to insure a seamless installation.
8. Make edges where adjoining other materials or colors, clean and sharp.
9. Change colors at areas designated by Owner's agent and/or on color schedule where colors differ between adjoining spaces or rooms where door frames match wall colors.
10. Prefill non-moving cracks, joints and keyways as needed to promote smooth floor transitions and terminations.
11. Apply clear primer at 12 mils WFT or optional membrane at 30 mils DFT using 3/8-inch nap roller cover.
12. Install 2-inch Cant cove to perimeter of shower room and 4-inch cove base at Toilets.
13. When tacky (or next day), spray apply body coat at 45 mils WFT at right angles to substrates using good spray techniques. Check thickness often with wet film gauge.
14. Sand off fiberglass and other imperfections using 120 grit or higher and then tack rag to remove dust.
15. Apply pigmented wear coat at 8 mils WFT using 3/8" nap roller cover.
16. Cut and fill dynamic joints as required/needed to allow for movement.
17. Texture can be achieved in numerous ways. Make sure the texture has been demonstrated and approved prior to installation.

3.4 CURING

A. Cure resinous flooring components according to manufacturer's written instructions.

1. Temperatures shall be maintained at 65°F - 85°F with less than 50% relative humidity.
2. Water leaks must be prevented as they may damage finish sheen.
3. Prevent contamination during curing processes

3.5 CLEANING

A. Remove debris promptly from work area and dispose of properly.

B. Remove spilled, splashed, or splattered coating materials from all surfaces.

C. Do not mar surface finish of items being cleaned.

END OF SECTION 096725

SECTION 105626 – MOBILE STORAGE SHELVING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Mechanically assisted, carriage-mounted, high density mobile storage systems, including support rails, fabrication including leveling of support rails.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete".

a. Base floor capable of withstanding line load weight distribution created by load transfers from weight of system, storage housing, media and occupants.
b. Finished floor material and installation within system footprint.

2. Sections in Division 9 – Finishes, relating to finish floor and base materials.

C. Related Work, Not Furnished:

1. Finish floor covering materials and installation on concrete with recessed rail installation.

1.3 REFERENCES

A. American National Standards Institute (ANSI) Standards:

1. Applicable standards for fasteners used for assembly.

B. America Society of Testing and Materials (ASTM) Standards:

1. Applicable standards for steel materials used for fabrication.

C. American Institute of Steel Construction (AISC) Standards:

1. Applicable standards for steel materials used for fabrication.

1.4 SYSTEMS DESCRIPTION

A. General: The high-density mobile storage system consists of manufactured storage units mounted on manufacturer's track-guided carriages to form a compact storage system. System design permits access to any single aisle by manually moving units until the desired aisle is opened. The carriage/rail system provides uniform carriage movement along the total length of travel, even with unbalanced loads.

B. Carriage System Design and Features: The welded carriage system with 3/4-inch recess consists of a formed structural steel frame with machined and balanced wheels riding on steel rails recessed mounted to the floor. Rails shall be types selected by the manufacturer to ensure smooth operation and self-centering of mobile storage units during travel without end play or binding. Rail types, quantities and spacing shall be selected by the manufacturer to suit installation conditions and requirements. All bearings used in the drive mechanism shall be permanently shielded and lubricated. Bolted carriages are unacceptable.

C. Movement Controls: Triple arm operating wheels with rotating hand knobs shall be provided on the accessible (drive) ends of shelf units, centered on the end panel, located 40-inches from the base of each unit to permit units to be moved to create a single aisle opening. Turning the handle transmits power through chain drive to drive wheels on each carriage.

D. Drive System: The system shall be designed with a positive type mechanically assisted drive which minimizes end play, ensures there is no play in the drive handle and that carriages will stop without drifting.

1. System shall include a chain sprocket drive system for each movable carriage to ensure that carriages move uniformly along the total length of travel, even with unbalanced loads. All system components shall be selected to ensure a smooth, even movement along the entire carriage length. Drive system gearing shall be designed to permit 1 lb. of force applied to the drive-handle to move a minimum of 4,000 lbs. of load.
2. A chain tensioning device shall be provided on each chain drive with provision for adjusting tension without removing end panels.
3. All bearings used in the drive mechanism shall be permanently shielded and lubricated.

E. Safety Features:

1. Color-coded visual indicators shall provide verification that carriages are in a locked or unlocked mode.
2. A single safety lock button, mounted on each operating wheel hub, will permit moving a carriage in either direction to create a new access aisle when pulled out (unlocked), or locking the carriage when pushed in.

3. Mechanical Sweep and Safety Stop (Non-Powered): Every potential aisle shall be protected with a 3-inch-high extruded aluminum safety sweep, hinged from the carriage using spring steel leaf springs, with the base edge maximum 3/4-inch from the floor. The carriage(s) shall stop when depressed at any location along the leading edge of the sweep surface. Activated safety sweep shall engage an impact-absorbing friction disk brake to protect occupants, stored media and the carriage system itself via a sheathed cable system comprised of aircraft-grade 3/64-inch stainless-steel core cables housed inside lined conduit. Safety sweep shall have bright, red and white safety identification tape applied full length marking its location. Safety sweep shall run full length of both sides of each moveable carriage for full aisle coverage.
4. Mechanical safety sweep shall automatically reset to enable mobile system users to freely and safely back carriages away from aisle obstructions simply by reversing the direction of the rotating handle.
5. Safety sweep shall be operational when the carriages are not moving. Should a sweep be activated in an open aisle, the carriage with the activated sweep will not close on that aisle. Safety sweep shall automatically reset if activated and then released when the carriages are not moving.
6. Safety sweeps shall require no electrical power or batteries to operate.

F. Finishes:

1. Fabricated Metal Components and Assembles: Manufacturer's standard powder coat paint finish.
2. End Panels, Accessible Ends: Manufacturer's standard powder coat paint finish.

1.5 PERFORMANCE REQUIREMENTS

A. Seismic Performance:

1. Mobile shelving systems shall withstand the effects of earthquake motions determined according to ASCE/SEI7.
2. Structural Performance:

a. Load per Linear Foot of Carriage and Rail: 1000 lb./ft.
b. Rail Deflection: Maximum not to exceed L/480.

B. Ease of Movement:

1. For mechanically assisted units capable of being moved by exerting a maximum horizontal force of 5 lbs. on the operating wheel.

C. Design Requirements:

1. Limit overall height to 102-inches.
2. Limit overall length to 192-inches.

1.6 COORDINATION

A. Recessed Tracks: Coordinate size and location of recesses in concrete with installation of recessed tracks.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for mobile shelving systems and accessories. This all must be verified prior to the installation of the concrete floor slab.

1.7 ACTION SUBMITTALS

A. Product Data: Submit manufacturer's product literature and installation instructions for each type of shelving, track and installation accessory required. Include data substantiating that products to be furnished comply with requirements of the contract documents.

B. Shop Drawings: Shop Drawings: Show fabrication, assembly, and installation details including descriptions of procedures and diagrams. Show complete extent of installation layout including clearances, spacings, and relation to adjacent construction in plan, elevation, details and sections. Indicate clear exit and access aisle widths; access to concealed components; assemblies, connections, attachments, reinforcement, and anchorage; and deck details, edge conditions, and extent of finish flooring within area where units are to be installed.

1. Show installation details at non-standard conditions. Furnish floor layouts, technical and installation manuals for every unit shipment with necessary dimensions for rail layout and system configuration at the project site. Include installed weight, load criteria, furnished specialties, and accessories.
2. Provide layout, dimensions, and identification of each unit corresponding to sequence of installation and erection procedures. Specifically include the following:

a. Location, position and configuration of tracks on all floors.
b. Plan layouts of positions of carriages, including all required clearances.
c. Details of shelving, indicating method and configuration of installation in carriages.

3. Provide location and details of anchorage devices to be embedded in or fastened to other construction.
4. Provide installation schedule and complete erection procedures to ensure proper installation.

C. Samples:

1. For each exposed product and for each color and texture specified, 6-inches in site.

D. Samples for Initial Selections:

1. For units with factory-applied finishes, 6-inches in size.

1.8 INFORMATIONAL SUBMITTALS:

A. Qualification Data:

1. For Installer.

B. Sample Warranty:

1. For manufacture's special warranty.

1.9 CLOSEOUT SUBMITTALS

A. Maintenance Data: For mobile shelving systems to include in maintenance manuals.

1.10 MAINTENANCE MATERIALS SUBMITTALS

A. Furnish extra materials that match products installed and that are packages with protective covering for storage and identified with labels describing contents.

1. Shelf Units: Two (2) of each size and type indicated.

1.11 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer Qualifications: An entity that employs and supervisors who are trained and approved by manufacturer. Engage an experienced installer who is authorized by the manufacturer to install a high-density mobile system of this magnitude and has a minimum of two (2) year experience doing so.

a. Guaranteed 24-hour service response time.

B. Manufacturer Qualifications:

1. Engage an experienced manufacturer who is ISO 9001 certified for the design, production, installation and service of carriage mounted high-density mobile storage units and support rails. Furnish certificate attesting manufacturer's ISO 9001 quality system registration.

a. Manufacturer must have a minimum of ten (10)-years' experience in the manufacture of mechanically operated mobile storage systems.

1.12 FIELD CONDITIONS

A. Field Measurements: Verify dimensions before fabrication. Indicate verified measurements on Shop Drawings. Coordinate fabrication and delivery to ensure no delay in progress of the Work.

B. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating mobile storage units without field measurements. Coordinate construction to ensure actual dimensions correspond to established dimensions.

1.13 DELIVERY, STORAGE AND HANDLING

A. Follow manufacturer's instructions and recommendations for delivery, storage and handling requirements.

1.14 SEQUENCING AND SCHEDULING

A. Coordinate the recessed steel rail locations, dimensions and details for the mobile storage units prior to the installation of the concrete floor slab in this area.

B. Sequence high-density mobile storage system with adjoining work to minimize possibility of damage and soiling during entire construction period.

C. Schedule installation of specified high-density mobile system after finishing operations, including painting have been completed.

D. Delivery, Storage, and Handling:

1. Comply with all instructions and recommendations made by manufacturer or manufacturer's representative for delivery, storage and handling requirements.

E. Pre-installation Conference: Schedule and conduct conference on project site to review methods, procedures, and logistic details for coordination of installation of high-density mobile system.

1. Required attendees:

a. Owner's representative.
b. Construction Manager or representatives.
c. Architect, engineer or person responsible for the layout design.
d. Manufacturer's representative
e. Subcontractors or installers whose work may affect or be affected by the installation of this system.

1.15 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of mobile shelving systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to the following:

a. Deterioration of metals, metal finishes, and other materials beyond normal wear.
b. Structural failures including, but not limited to, excessive deflection.
c. Failure of operating components to function properly.

2. Warranty Period:

a. Five (5) years for the entire movable compact shelving installation against defects in materials.
b. One (1) year from date of acceptance by Owner for workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product:

1. Subject to compliance with requirements provide "Mechanical Assist System" mobile storage shelving system as manufactured by Spacesaver Corporation or comparable products meeting the specification requirements by one of the following:

a. Datum Filing Systems, Inc.
b. Montel Inc.
c. Richard-Wilcox, Inc.

B. Source Limitations: Obtain mobile storage systems including shelving from single manufacturer.

2.2 BASIC MATERIALS

A. General: Provide materials and quality of workmanship which meet or exceed established industry standards for products specified. Material thickness/gages are manufacturer's option unless indicated otherwise. Fabricated units from ASTM Class 1, cold-rolled commercial grade sheet or coil steel with all bends and radiuses consistent and true.

2.3 GROUT

A. General:

1. Shall be ready-mixed high strength; controlled expansive grout with superior dynamic load stability, which when mixed with water shall harden rapidly to produce a permanent foundation for the mobile storage system. Grout shall be non-corrosive, non-metallic a non-shrink. The grout after curing shall have a minimum strength of 8,000 pounds per square inch.

2.4 SYSTEMS AND COMPONENTS

A. System Description: The system consists of manufactured storage units mounted on manufacturer's track-guided carriages to form a compact storage system. System design permits access to any single aisle by moving units until the desired aisle is opened. The manufacturer's proprietary unit interlock system shall prevent units from being moved while the open aisle is occupied. The carriage/rail system provides uniform carriage movement along the total length of travel, even with unbalanced loads.

B. General: Provide manufacturer's standard mobile shelving systems and components. Where components are not otherwise indicated, provide manufacturer's standard components as required for a complete system.

C. Rails:

1. Rail shall be ASTM/AISI Type 1045 or 1035 steel of manufacturer's selection designed and manufactured to carry a load of 1,000 pounds per lineal foot of carriage length.
2. Minimum Contact Surface: 5/8-inch wide.
3. Provide rail sections in minimum 6-ft. lengths.
4. Rail configuration shall permit attachment to top of structural floor system with provision for leveling rails to compensate for variations in floor surface level.
5. Provide rail connections designed to provide horizontal and vertical continuity between rail sections, to gradually transfer for concentrated wheel point load to and from adjoining rail sections. Butt joints are not permitted.
6. Rail Form Covers: Manufacturer shall provide for protection if required to prevent damage to rails during concrete back pours.
7. Barrier free design.

D. Carriages:

1. Provide manufacturer's design movable carriages fabricated of welded or bolted steel construction. Galvanized structural components and/or riveted carriages are unacceptable.
2. Provide fixed carriages of same construction and height as the movable carriages, anchored to rails. Setting fixed shelving directly on floors is not permitted.

3. When required, provide bolted carriage splices designed to maintain proper unit alignment and weigh load distribution.
4. Design carriages to allow the shelving uprights to recess and interlock into the carriage wheel section a minimum of 2-inches. Carriage design shall provide a minimum of two shelving retention rivets and two carriage bolts to securely retain each shelving post. Top mount carriages are unacceptable.
5. Provide each carriage with two (2) wheels per rail.

E. Wheels:

1. Low-Profile Wheel Section: Minimum 12 gage fixture-welded wheel sections to ensure that, once installed; bottom storage shelf is no higher than 4.25-inches above top of rail. Locate wheel assemblies under each upright to distribute loads directly to wheels.
2. Wheel Size: Minimum 3-inches, outside diameter drive and lo wheels.
3. Guide Wheels: All wheels and all locations

F. Drive/Guide System:

1. Guide Design: Provide drive system which prevents carriage whipping, binding and excessive wheel/rail wear under normal operation.
2. Shafts: 1-inch solid steel connecting tube shafts.
3. Shaft Connections: Secured couplings.
4. Bearing Surfaces: Provide rotating load bearing members with ball or roller bearings. Provide shafts with pillow block or flanged self-aligning type bearings.

G. End/Face Panels:

1. Materials: Standard metal end panel.
2. Finishes: Selected from manufacturer's standard paint colors.

H. Operation:

1. Hand push.
2. Mechanical assist handles.

I. Accessories:

1. Optional Waist High Carriage Security Locks: Provide manufacturer's standard.

2.5 HIGH-DENSITY MOBILE STORAGE UNIT SHELVING

A. Shelving Units: FIXED

1. Type: Fixed Unit.
2. Configuration: Single-faced units with full shelving back panels.
3. Width: Refer to drawings.
4. Height: Refer to drawings.

5. Shelf Depth: Refer to drawings.
6. Shelf Styles: Provide the following styles and numbers of adjustable shelves:

    a. Bottom fixed with adjustable intermediate shelves, refer to drawings for number and location.

7 Carriage Heights: 5-15/16-inches.

B. Mobile Shelving Units: MOBILE

1. Type: Mobile Unit.
2. Configuration: Double-faced units with full shelving back panels.
3. Width: Refer to drawings.
4. Height: Refer to drawings.
5. Shelf Depth: Refer to drawings.
6. Shelf Styles: Provided the following styles and numbers of adjustable shelves:

    a. Bottom fixed with adjustable intermediate shelves, refer to drawings for number and location.

7. Carriage Heights: 5-15/16-inches.

2.6 FABRICATION

A. General: Coordinate fabrication and delivery to ensure no delay in progress of the Work.

B. Wheels: Provide precision machined and balanced units with permanently shielded and lubricated bearings.

C. Carriages: Fabricate to ensure no more than 1/4-inch maximum deviation from a true straight line. Splice and weld to ensure no permanent set or slippage in any spliced or welded joint when exposed to forces encountered in normal operating circumstances.

D. Carriage Wheel Sections: Fabricate Carriage wheel sections to provide two heavy-duty 7 gage support plates to support the full weight of shelving posts.

E. Carriage Side Profiles: Fabricate 14 gage die-formed carriage side profiles 2-3/4-inches tall each with four (4) shelving retention rivets.

F. Rail Shims: Fabricate galvanized steel shims with interlocking tabs to prevent dislocation; interlocking tabs to interlock with rail and with other shims. For non-grouted systems only.

2.7 FINISHES

A. Colors: Selected from manufacturer's standard available colors.

B. Paint Finish: Provide factory applied electrostatic powder coat paint. Meet or exceed specifications of the American Library Association.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Examine areas, with Installer Present, for compliance with requirements for installation tolerances, location of framing and reinforcements and other conditions affecting performance of mobile shelving systems.

1. For installations on existing floors, ensure that rail spacings indicated on shop drawings are in proper locations so existing load-bearing structural members are not over stressed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

C. Verify that intended installation locations of mobile storage units will not interfere with, nor block established required exit paths or similar means of egress once units are installed.

3.2 INSTALLTION:

A. Rails:

1. Recessed Mount: Rail shall be ASTM/AISI 4140 steel bar 4-1/2-inches wide x 3/8-inch high with black zinc finish. Rail edges shall be beveled down to a maximum of 3/16-inch to allow for the rail to be transverse by material handling equipment. Rail shall disperse the wheel point loads to structural slab. Rail shall have two permanently mounted floor anchors maximum 15-inches on center. Recessed rails shall be installed on top of concrete slab and laid in a manor such that rail joints are staggered across all adjacent rail runs. Rail and carriage design allows concrete slab to be unleveled at the following maximum variation of 3/16-inch over any 2 ft. rail run and 1/4-inch maximum variation over any 10 ft. rail run.
2. Lay out rails using full length units to the maximum extent possible. Use cut lengths only at the ends to attain total length required. Locate and position properly, following dimensions indicated on approved shop drawings. Verify thickness of finished floor materials to be installed (by others) and install level, 1/16-inch above finished floor surfaces.
3. Set rails in full grout bed, completely filling any voids entire length of all rails, including rail connectors. Trim up sides flush with rails to ensure proper load transfer from rail to supporting floor. Using shims in lieu of full grouting is not permitted.
4. Installation Tolerances: Do not exceed levelness of installed rails listed below:

a. Maximum Variation from True Level Within Any Module: 3/32-inch.
b. Maximum Variation Between Adjacent (Parallel) Rails: 1/16-inch, perpendicular to rail direction.
c. Maximum Variation in Height: 1/32-inch, measured along any 10 ft. rail length.

B. Shelving Units Installation:

1. General: Follow layout and details shown on approved shop drawings and manufacturer's printed installation instructions. Position units level plumb; at proper location, relative to adjoining units and related work.

C. Carriages:

1. Position fixed carriage units to align with moveable units.
2. Place movable carriages on rails. Ensure that all wheels track properly and centering wheels are properly seated on centering rails. Fasten multiple carriage units together to form single moveable base where required.

D. Shelving Units:

1. Permanently fasten shelving units to fixed and movable carriages with vibration-proof fasteners.
2. Stabilize shelving units following manufacturer's written instructions. Reinforce shelving units to withstand the stress of movement where required and specified.
3. Level and plumb shelving units to a tolerance of 1/8-inch in 96-inches.
4. Starter/Adder Units: Connect groups together with standard fasteners according to manufacturer's written instructions, using concealed fasteners where possible.
5. Install shelves in shelving units at locations indicated on Drawings and according to manufacturer's written instructions.
6. Shelving Enclosure Panels: Install end panels and canopy tops with concealed fasteners

3.3 FIELD QUALITY CONTROL

A. Verify shelving unit alignment and plumb after installation. Correct if required following manufacturer's instructions.

B. Remove components which are chipped, scratched, or otherwise damaged and which do not match adjoining work. Replace with new matching units, installed as specified and in manner to eliminate evidence of replacement.

3.4 ADJUSTING

A. Adjust components and accessories to provide smoothly operating, visually acceptable installation.

3.5 CLEANING AND PROTECTING

A. Repair or remove and replace defective work as described on completion of installation.

B. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original finish, as approved by Architect.

C. Protect installed products from damage during remainder of the construction period.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain mobile storage shelving.

B. Schedule and conduct maintenance training with Owner's maintenance personnel. Training session should include lecture and demonstration of all maintenance and repair procedures that end user personnel would normally perform.

3.6 PROTECTION

A. Protect system against damage during the remainder of construction period. Advise Owner of additional protection needed to ensure that system will be without damage or deterioration at time of substantial completion.

END OF SECTION 105626

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SECTION 111903 - SECURITY BARRIERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Prepare field quality-control certification endorsed by Detention Specialist that states installed products comply with requirements in the Contract Documents.

1.1 SUMMARY

A. Section includes:

1. Woven-rod-mesh security barriers at mezzanine walkways and stairways.

B. Related Requirements:

1. Section 050553 "Security Metal Fastenings" for anchoring or attaching building elements, furniture, equipment and fixtures within the secure perimeter.
2. Section 051200 "Structural Steel Framing" for structural steel framing used for supporting the security barrier system.
3. Section 055000 "Metal Fabrications" for miscellaneous steel framing and supports for the security barrier system.

1.2 REFERENCES

A. ASTM C423. Standard Test Method for Sound Absorption.

1.3 SUBMITTALS

A. Shop Drawings: Manufacturer shall submit shop drawings, showing details of attachment to surround materials and elevations showing scope of the project.

B. Samples of materials as may be requested without cost to owner: frame sections, woven rod panel, fasteners, mullion section, corner section, etc.

1.4 QUALIFICATIONS

A. Manufacturers bidding on this project must be actively engaged in the fabrication of specified items for a minimum of Ten (10) years prior to the bid date. Manufacturers requesting approval to bid their products as equal must submit to the Architect full-size drawings, including details of construction, and a complete full-size physical sample, Fourteen (14) days prior to the bid date.

1.5 SEQUENCING

A. Sequence work to ensure security mesh and woven rod are not installed in interference or detriment of other trades.

B. Install security units after interior wet work is dry.

1.6 DAYROOM MOCKUP

A. Provide a mockup of a typical Dayroom to verify selections made under Sample submittals to set quality standards for materials and execution, to demonstrate aesthetic effects and set quality standards for materials and execution, and to set quality standards for installation.

1. Mockup location will be shown on the drawings.
2. Mockup should include stair and mezzanine security barrier systems and selected colors.
3. A meeting shall be held at the project site with the manufacturer's representative, the installer, the architect/engineer, general contractor, and construction manager and owner to review the completed mockup. General Contractor to document meeting discussions and furnish copy to each participant.

PART 2 - PRODUCTS

2.1 WOVEN ROD-MESH SECURITY BARRIERS **SB-1**

A. Basis-of-Design Product: Subject to compliance with requirements provide "Model SV12Z Vantage Wall Barrier" at housing unit mezzanines and stairways as manufactured by Kane Innovations or an Architect/Owner approved comparable product prior to bidding.

B. The main frame shall be built-up tubular type, measuring 1-3/4-inches by 2-1/2-inches with fixed concealment plates. The open channel frame members shall be formed of not less than 12-gage sheet steel and shall have individual slots along the inner edges to support the woven rod panel. The corners of the main frame shall be notched for self-aligning and robotically welded. Braces, which are similar to the frame, shall be furnished when required.

1. Open Channel: Formed from 0.105-inch (12 gage) nominal-thickness steel sheet or channel with individual slots along inner edges to support woven-rod panels.
2. Concealment Plates: Steel sheet to match open channel shall be welded to the back of the main frame approximately 8-inches on center to complete the tubular shape.
3. Braces: Built-up tubular type measuring 1-1/4-inches x 2-1/2-inches with fixed concealment plates. Braces shall be formed of not less than 12-gage sheet steel and furnished when required.

C. Rod Attachment-Woven rod panels shall be installed symmetrically into the slotted main frame. Slots shall be centered according to the rod pattern. Each rod shall penetrate each slot where it contacts the main frame. Every other rod shall be welded into the slot at both ends where it penetrates the main frame.

D. Woven-Rod Panels: Formed from double crimped, 1/4-inch diameter steel rod, woven horizontally and vertically into a rigid grille with rods at 2-1/4-inches o.c.

1. Steel Rod: Mild steel.

E. Wall and Ceiling Anchors and Trim: Continuous mild-steel angle with 2-inches by-3/16-inch mild-steel flat bar.

F. Materials:

1. Mild-Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Steel Sheet: Cold-rolled ASTM A 1008/A 1008M or hot-rolled ASTM A 1011/A 1011M, CS (Commercial Steel), Type B; suitable for exposed applications.
3. Steel Tubing: ASTM A 501 or ASTM A 513, Type B unless otherwise indicated.

G. Finishes:

1. Finish-All interior and exterior surfaces of the main frame, rods and concealment plates shall be thoroughly cleaned in a 5-step bonderizing process. The surfaces shall receive an electrostatically applied thermoplastic, polyester powder coating which shall be applied and baked to a hard mar-resistant finish: custom color selected by architect.

a. Color: Black

2.2 WOVEN ROD-MESH GLAZED SECURITY BARRIERS **SB-2**

A. Basis-of-Design Product: Subject to compliance with requirements provide "Model S-G12-Z Level 8 Fixed Steel Secur-view Glazed Barrier " at housing unit mezzanines and stairways as manufactured by Kane Innovations or an Architect/Owner approved comparable product prior to bidding.

B. The main frame shall be built-up tubular type, measuring 1-1/4-inches by 2-3/4-inches with fixed concealment plates. The open channel frame members shall be formed of not less than 12-gage sheet steel and shall have individual slots along the inner edges to support the woven rod panel. A glazing pocket 1/2-inch by 3/4-inch shall be opposite the rod panel. The corners of the main frame shall be notched for self-aligning and robotically welded.

C. The 12 gage concealment plates shall be welded to the back of the main frame 8-inches o.c. to complete the tubular shape.

D. Braces shall be built-up tubular, measuring 1-1/4-inch by 3-inches with fixed concealment plates. The 1/2-inch by 3/4-inch glazing pocket shall be opposite the woven rood panel. Braces shall be formed of not less than 12 gage sheet steel and furnished when required.

E. The glazing covers of 12 gage steel shall be attached to the main frame approximately 12-inches o.c. and be removable for glazing replacement.

F. Perimeter Channel shall be a formed channel 1-inch by 1-17/32-inch by 1-inch of not less than 12 gage sheet steel. Channel provided in stock lengths with factory punched ¼-inch diameter holes approximately 12-inches o.c. for attachment to structure.

G. Rods: Woven rood panels shall be fabricated from double crimped, low carbon, mild steel 1/4-inch diameter rods, woven with 2-inch open space.

H. Rod Attachment: Woven rod panels shall be installed symmetrically into the slotted main frame. Slots shall be centered according to the rod pattern. Each rod shall penetrate into each slot where it contacts the main frame. Every rod shall be welded into the slot at both ends where it penetrates the main frame.

I. Glazing: 1/4-inch Polycarbonate.

J. Materials:

1. Mild-Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Steel Sheet: Cold-rolled ASTM A 1008/A 1008M or hot-rolled ASTM A 1011/A 1011M, CS (Commercial Steel), Type B; suitable for exposed applications.
3. Steel Tubing: ASTM A 501 or ASTM A 513, Type B unless otherwise indicated.

K. Finishes:

1. Finish-All interior and exterior surfaces of the main frame, rods and concealment plates shall be thoroughly cleaned in a 5-step bonderizing process. The surfaces shall receive an electrostatically applied thermoplastic, polyester powder coating which shall be applied and baked to a hard mar-resistant finish: custom color selected by Architect.

a. Color: Black

2.3 ACCESSORIES

A. Touch-up Paint: Color to match screens and framing.

2.4 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Coordinate dimensions and attachment methods of detention enclosures with those of adjoining construction to produce integrated assemblies with closely fitting joints and with edges and surfaces aligned unless otherwise indicated.

C. Shear and punch metals cleanly and accurately. Remove burrs.

D. Form and grind edges and corners to be free of sharp edges or rough areas.

E. Form metal in maximum lengths to minimize joints. Form sheet-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

F. Weld corners and seams continuously to comply with referenced AWS standard and the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish exposed welds and surfaces smooth and blended at exposed connections so that no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
5. Weld before finishing components to greatest extent possible. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

G. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure detention enclosures rigidly in place and to support indicated loads. Build in straps, plates, and brackets as needed to support and anchor fabricated items to adjoining construction. Reinforce formed-metal units as needed to attach and support other construction.

H. Cut, reinforce, drill, and tap detention enclosures as indicated to receive hardware, security fasteners, and similar items.

I. Form exposed work true to line and level with accurate angles, surfaces, and straight sharp edges.

J. Form exposed connections with hairline joints flush and smooth using concealed fasteners where possible. Use exposed security fasteners of type indicated or, if not indicated, flat-head (countersunk) security screws. Locate joints where least conspicuous.

2.5 FABRICATION OF SECURITY BARRIERS

A. Main Framing: Before inserting woven-rod panels, weld and grind smooth corners of open channel elements.

B. Woven-Rod Panels: Insert panels symmetrically in main framing. Extend end of each rod at least 1-inch into main framing and, from inside of channel, weld into each slot where it contacts main framing.

C. Concealment Plates: Weld plates to main framing with minimum 1-inch welds at minimum 10-inches o.c., staggered side to side and ground smooth, to form a fully enclosed tubular steel frame.

D. Anchor Clips: For each enclosure panel, weld one anchor clip to secure side of main framing in line with vertical framing.

E. Hardware Preparation: Mortise, reinforce, drill, and tap doors and main framings.

F. Wire Cloth Attachment: Spot welded to the main frame 4-inches o.c.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify site conditions.

B. Verify that openings fit allowable tolerances, are plumb, level, provide a solid anchoring surface and comply with approved shop drawings.

3.2 INSTALLATION - GENERAL

A. Install in accordance specifications and manufacturer's instructions.

3.3 INSTALLATION

A. Install in accordance with approved shop drawings.

B. Plumb and align faces in a single plane and erect barriers square and true, adequately anchored.

C. After completion of installation, barriers shall be adjusted, in working order and clean.

3.4 ERECTION TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8-inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION 111903

SECTION 237313.13 - INDOOR, BASIC AIR-HANDLING UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Indoor, basic air-handling units.
2. Unit casings.
3. Fan, drive, and motor section.
4. Coil section.
5. Air filtration section.
6. Dampers.

1.2 ACTION SUBMITTALS

A. Product Data: For each air-handling unit.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
3. Include unit dimensions and weight.
4. Include cabinet material, metal thickness, finishes, insulation, and accessories.
5. Fans:

    a. Include certified fan-performance curves with system operating conditions indicated.
    b. Include certified fan-sound power ratings.
    c. Include fan construction and accessories.
    d. Include motor ratings, electrical characteristics, and motor accessories.

6. Include certified coil-performance ratings with system operating conditions indicated.
7. Include filters with performance characteristics.
8. Include dampers, including housings, linkages, and operators.

B. Shop Drawings: For each type and configuration of indoor, basic, air-handling unit.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Detail fabrication and assembly of indoor, basic air-handling units, as well as procedures and diagrams.

4. Include diagrams for power, signal, and control wiring.

C. Delegated Design Submittal: For vibration isolation, supports, and seismic restraints indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Design Calculations: Calculate requirements for selecting vibration isolators, supports, and for designing vibration isolation bases.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Floor plans and other details, or BIM model, drawn to scale, showing the items described in this Section, and coordinated with all building trades.

B. Source quality-control reports.

C. Startup service reports.

D. Field quality-control reports.

E. Sample Warranty: For manufacturer's warranty.

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For air-handling units to include in emergency, operation, and maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One set(s) for each air-handling unit.
2. Gaskets: One set(s) for each access door.
3. Fan Belts: One set(s) for each air-handling unit fan.

1.6 WARRANTY

A. Warranty: Manufacturer agrees to repair or replace components of indoor, basic, air-handling units that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Manufacturer's standard, but not less than one year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of air-handling units and components.

C. ASHRAE 62.1 Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

"ASHRAE/IES 90.1 Compliance" Paragraph below may be required to comply with Project requirements or authorities having jurisdiction. Sustainable design may require minimum efficiency equal to requirements in ASHRAE/IES 90.1.

D. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

E. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design vibration isolation, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

F. Structural Performance: Casing panels are to be self-supporting and capable of withstanding positive/negative 4-inch wg of internal static pressure, without exceeding a midpoint deflection of 0.005 inches/inch of panel span.

2.2 CAPACITIES AND CHARACTERISTICS

A. Refer to Mechanical Equipment Schedules for additional information.

2.3 INDOOR, BASIC AIR-HANDLING UNITS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. York, a Johnson Controls company.
   2. Trane.
   3. Carrier Corporation.
   4. Daikin Applied.

B. Unit Casings:

   1. General Fabrication Requirements for Casings:

      a. Forming: Form walls, roofs, and floors with at least two breaks at each joint.

b. Joints: Sheet metal screws or pop rivets.
c. Sealing: Seal all joints with water-resistant sealant. Hermetically seal at each corner and around entire perimeter.

2. Double-Wall Construction:

a. Outside Casing Wall: Galvanized steel, minimum 18 gauge thick, with manufacturer's standard finish.
b. Inside Casing Wall: G90 galvanized steel, solid, minimum 18 gauge thick.
c. Floor Plate: G90 galvanized steel, treadplate, minimum 18 gauge (1.3 mm) thick.
d. Casing Insulation:

1) Materials: Glass-fiber blanket or board insulation, Type I or Type II ASTM C1071 or injected polyurethane foam insulation.
2) Casing Panel R-Value: Minimum 12.
3) Insulation Thickness: 1 inch.
4) Thermal Break: Provide continuity of insulation with no through-casing metal in casing walls, floors, or roofs of air-handling unit.

3. Airstream Surfaces: Surfaces in contact with airstream are to comply with requirements in ASHRAE 62.1.

4. Panels and Doors:

a. Panels:

1) Fabrication: Formed and reinforced with same materials and insulation thickness as casing.
2) Fasteners: Two or more camlock type for panel lift-out operation. Arrangement is to allow panels to be opened against airflow.
3) Gasket: Neoprene, applied around entire perimeters of panel frames.
4) Size: Large enough to allow unobstructed access for inspection and maintenance of air-handling unit's internal components. At least 18 inches wide by full height of unit casing up to a maximum height of 72 inches.

b. Doors:

1) Fabrication: Formed and reinforced with same materials and insulation thickness as casing.
2) Hinges: A minimum of two ball-bearing hinges or stainless steel piano hinge and two wedge-lever-type latches, operable from inside and outside. Arrange doors to be opened against airflow. Provide safety latch retainers on doors so that doors do not open uncontrollably.
3) Gasket: Neoprene, applied around entire perimeters of frame.
4) Size: Large enough to allow for unobstructed access for inspection and maintenance of air-handling unit's internal components. At least 18 inches wide by full height of unit casing up to a maximum height of 60 inches

c. Locations and Applications:

1) Fan Section: Doors.
2) Coil Section: Panels.
3) Access Section: Doors.
4) Access Sections Immediately Upstream and Downstream of Coil Sections: Doors.
5) Damper Section: Doors.
6) Filter Section: Doors large enough to allow periodic removal and installation of filters.
7) Mixing Section: Doors.

5. Condensate Drain Pans:

a. Location: Each type of cooling coil.
b. Construction:

1) Single-wall, stainless steel sheet.

c. Drain Connection:

1) Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on both ends of pan.
2) Minimum Connection Size: NPS 2.

d. Slope: Minimum 0.125 in./ft. slope, to comply with ASHRAE 62.1, in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and from humidifiers, and to direct water toward drain connection.
e. Length: Extend drain pan downstream from leaving face for distance to comply with ASHRAE 62.1.
f. Width: Entire width of water producing device.
g. Depth: A minimum of 2 inches deep.

C. Fan, Drive, and Motor Section:

1. Fan and Drive Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum-rated fan speed and motor horsepower.
2. Fans: Centrifugal, galvanized steel; mounted on solid-steel shaft.

a. Shafts: With field-adjustable alignment.

1) Turned, ground, and polished hot-rolled steel with keyway.

b. Shaft Bearings:

1) Heavy-duty, self-aligning, pillow-block type with an L-50 rated life of minimum 200,000 hours in accordance with ABMA 9.

c. Housings: Formed- and reinforced-steel panels to form curved scroll housings with shaped cutoff and spun-metal inlet bell.

1) Bracing: Steel angle or channel supports for mounting and supporting fan scroll, wheel, motor, and accessories.

d. Housings, Plenum Fans: Steel frame and panel; fabricated without fan scroll and volute housing. Provide inlet screens for Type SWSI fans.
e. Forward-Curved, Centrifugal Fan Wheels: Inlet flange, backplate, and shallow blades with inlet and tip curved forward in direction of airflow and mechanically fastened to flange and backplate; steel hub swaged to backplate and fastened to shaft with setscrews.
f. Airfoil, Centrifugal Fan Wheels (Plenum Fan Wheels): Smooth-curved inlet flange, backplate, and hollow die-formed airfoil-shaped blades continuously welded at tip flange and backplate; steel hub riveted to backplate and fastened to shaft with setscrews.
g. Mounting: For internal vibration isolation. Factory-mount fans with manufacturer's standard vibration isolation mounting devices having a minimum static deflection of 1 inch.
h. Shaft Lubrication Lines: Extended to a location outside the casing.
i. Flexible Connector: Factory fabricated with a fabric strip minimum 3-1/2 inches (89 mm) wide, attached to two strips of minimum 2-3/4-inch- (70-mm-) wide by 0.028-inch- (0.7-mm-) thick, galvanized-steel sheet.

1) Flexible Connector Fabric: Glass fabric, double coated with neoprene. Fabrics, coatings, and adhesives are to comply with UL 181, Class 1.

3. Drive, Direct: Factory-mounted, direct drive.
4. Drive, Belt: Factory-mounted, V-belt drive, with adjustable alignment and belt tensioning, and with [1.5] [1.25] service factor based on fan motor.

a. Pulleys: Cast iron or cast steel with split, tapered bushing, dynamically balanced at the factory.
b. Belts: Oil resistant, non-sparking and nonstatic; in matched sets for multiple-belt drives.
c. Belt Guards: Comply with requirements specified by OSHA and fabricate in accordance with SMACNA's "HVAC Duct Construction Standards"; 0.146-inch-thick, 3/4-inch diamond-mesh wire screen, welded to steel angle frame; prime coated.

5. Motors:

a. Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 230500 "Common Work Results for HVAC."
b. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
c. Enclosure Type: Totally enclosed, fan cooled.

d. Efficiency: Premium efficient as defined in NEMA MG 1.
e. NEMA Design: MG 1.

f. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.

6. Comply with Section 262923 "Variable-Frequency Motor Controllers."
7. Variable-Frequency Motor Controller: Serving all fans.

a. Manufactured Units: Pulse-width modulated; constant torque and variable torque for inverter-duty motors.
b. Output Rating: Three phase; 10 to 60 Hz, with voltage proportional to frequency throughout voltage range; maximum voltage equals input voltage.
c. Unit Operating Requirements:

1) Internal Adjustability:

a) Minimum Speed: 5 to 25 percent of maximum rpm.
b) Maximum Speed: 80 to 100 percent of maximum rpm.
c) Acceleration: 0.1 to 999.9 seconds.
d) Deceleration: 0.1 to 999.9 seconds.
e) Current Limit: 30 to minimum of 150 percent of maximum rating.

2) Self-Protection and Reliability Features:

a) Surge suppression.
b) Loss of input signal protection.
c) Under- and overvoltage trips.
d) Variable-frequency motor controller and motor-overload/overtemperature protection.
e) Critical frequency rejection.
f) Loss-of-phase protection.
g) Reverse-phase protection.
h) Motor-overtemperature fault.

3) Bidirectional autospeed search.
4) Torque boost.
5) Motor temperature compensation at slow speeds.

a) Panel-mounted operator station.
b) Historical logging information and displays.
c) Digital indicating devices.

6) Control Signal Interface: Electric.
7) Proportional Integral Directive (PID) control interface.
8) DDC system for HVAC Protocols for Network Communications: ASHRAE 135.

d. Line Conditioning:

1) Input line conditioning.
2) Output filtering.

3) EMI/RFI filtering.

D. Coil Section:

1. General Requirements for Coil Section:

a. Comply with AHRI 410.
b. Fabricate coil section to allow removal and replacement of coil for maintenance and to allow in-place access for service and maintenance of coil(s).
c. Coils are not to act as structural component of unit.

d. Hot-Water Coils: Continuous circuit.

1) Piping Connections: Threaded or Flanged, same end of coil.
2) Tube Material: Copper.
3) Fin Type: Plate.
4) Fin Material: Aluminum.
5) Fin and Tube Joint: Silver brazed.
6) Headers:

a) Cast iron with cleaning plugs and drain and air vent tappings extended to exterior of unit.
b) Seamless copper tube with brazed joints, prime coated.
c) Fabricated steel, with brazed joints, prime coated.
d) Provide insulated cover to conceal exposed outside casings of headers.

7) Frames: Channel frame, minimum 0.052-inch- thick galvanized steel.
8) Coil Working-Pressure Ratings: 200 psig
9) Coating: Corrosion-resistant coating.

2. Cooling Coils:

a. Chilled-Water Coils: Continuous circuit.

1) Piping Connections: Threaded or Flanged, same end of coil.
2) Tube Material: Copper.
3) Fin Type: Plate.
4) Fin Material: Aluminum.
5) Fin and Tube Joint: Silver brazed.
6) Headers:

a) Cast iron with cleaning plugs and drain and air vent tappings extended to exterior of unit.
b) Seamless copper tube with brazed joints, prime coated.
c) Fabricated steel, with brazed joints, prime coated.
d) Provide insulated cover to conceal exposed outside casings of headers.

7) Frames: Channel frame, minimum 0.052-inch- thick galvanized steel.
8) Coil Working-Pressure Ratings: 200 psig
9) Coating: Corrosion-resistant coating.

E. Air Filtration Section:

1. Particulate air filtration is specified in Section 234100 "Particulate Air Filtration."
2. Panel Filters:

a. Description: Pleated factory-fabricated, self-supported disposable air filters with holding frames.
b. Filter Unit Class: UL 900.
c. Media: Interlaced glass, synthetic, or cotton fibers coated with nonflammable adhesive and antimicrobial coating.
d. Filter-Media Frame: High wet-strength beverage board with perforated metal retainer, or metal grid, on outlet side.

3. Side-Access Filter Mounting Frames:

a. Particulate Air Filter Frames: Match inner casing and outer casing material, and insulation thickness. Galvanized steel track.

1) Sealing: Incorporate positive-sealing device to ensure seal between gasketed material on channels to seal top and bottom of filter cartridge frames to prevent bypass of unfiltered air.

F. Dampers:

1. Outdoor- and Return-Air Dampers: Low-leakage, double-skin, airfoil-blade, galvanized-steel dampers with compressible jamb seals and extruded-vinyl blade edge seals in opposed-blade arrangement with zinc-plated steel operating rods rotating in sintered bronze or nylon bearings mounted in a single galvanized-steel frame, and with operating rods connected with a common linkage. Leakage rate is not to exceed 4 cfm/sq. ft. at 1-inch wg and 8 cfm/sq. ft. at 4-inch wg, tested, rated, and labeled in accordance with AMCA 511.
2. Electronic Damper Operators:

a. Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.
b. Electronic damper position indicator is to have visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.
c. Operator Motors:

1) Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 230500 "Common Work Results for HVAC."
2) Size to operate with sufficient reserve power to provide smooth modulating action or two-position action.
3) Permanent Split-Capacitor or Shaded-Pole Type: Gear trains completely oil immersed and sealed. Equip spring-return motors with integral spiral-spring mechanism in housings designed for easy removal for service or

adjustment of limit switches, auxiliary switches, or feedback potentiometer.

d. Nonspring-Return Motors for Dampers Larger Than 25 Sq. Ft. (2.3 sq. m): Size for running torque of 150 in. x lbf (16.9 N x m) and breakaway torque of 300 in. x lbf (33.9 N x m).
e. Spring-Return Motors for Dampers Larger Than 25 Sq. Ft. (2.3 sq. m): Size for running and breakaway torque of 150 in. x lbf (16.9 N x m).
f. Size dampers for running torque calculated as follows:

1) Parallel-Blade Damper with Edge Seals: 7 inch-lb/sq. ft. (86.8 kg-cm/sq. m) of damper.
2) Opposed-Blade Damper with Edge Seals: 5 inch-lb/sq. ft. (62 kg-cm/sq. m) of damper.
3) Parallel-Blade Damper without Edge Seals: 4 inch-lb/sq. ft. (49.6 kg-cm/sq. m) of damper.
4) Opposed-Blade Damper without Edge Seals: 3 inch-lb/sq. ft. (37.2 kg-cm/sq. m) of damper.
5) Dampers with 2- to 3-Inch wg (500 to 750 Pa) of Pressure Drop or Face Velocities of 1000 to 2500 fpm (5 to 13 m/s): Increase running torque by 1.5.
6) Dampers with 3- to 4-Inch wg (750 to 1000 Pa) of Pressure Drop or Face Velocities of 2500 to 3000 fpm (13 to 15 m/s): Increase running torque by 2.0.

g. Coupling: V-bolt and V-shaped, toothed cradle.
h. Overload Protection: Electronic overload or digital rotation-sensing circuitry.
i. Fail-Safe Operation: Mechanical, spring-return mechanism with external, manual gear release on nonspring-return actuators.
j. Power Requirements (Two-Position Spring Return): 24 V dc.
k. Power Requirements (Modulating): Maximum 10 VA at 24 V ac or 8 W at 24 V dc.
l. Proportional Signal: 2 to 10 V dc or 4 to 20 mA, and 2- to 10-V dc position feedback signal.
m. Temperature Rating: Minus 22 to plus 122 deg F
n. Run Time: 12 seconds open, 5 seconds closed.

3. Mixing Section: Multiple-blade, air-mixer assembly located immediately downstream of mixing section.
4. Combination Filter and Mixing Section:

a. Cabinet support members are to hold 2-inch- thick, pleated, flat, permanent or throwaway filters.

G. Air Blenders:

1. Multiple-blade, air-mixer assembly is to mix air to prevent stratification, located immediately downstream of mixing box.

H. Materials:

1. Steel:

    a. ASTM A36/A36M for carbon structural steel.
    b. ASTM A568/A568M for steel sheet.

2. Stainless Steel:

    a. Manufacturer's standard grade for casing.
    b. Manufacturer's standard type, ASTM A240/A240M for bare steel exposed to airstream or moisture.

3. Galvanized Steel: ASTM A653/A653M.
4. Aluminum: ASTM B209.

    a. Standards:

        1) ASTM B117 for salt spray.
        2) ASTM D2794 for minimum impact resistance of 100 in-lb (11.3 N-m).
        3) ASTM B3359 for cross hatch adhesion of 5B.

    b. Application: Immersion.
    c. Thickness: 1 mil.
    d. Gloss: Minimum gloss of 60 on a 60-degree meter.

2.4 SOURCE QUALITY CONTROL

A. AHRI 430 Certification: Test, rate, and label air-handling units and their components in accordance with AHRI 430.

B. AHRI 260 or AMCA 311 Sound Performance Rating Certification: Test, rate, and label in accordance with AHRI 260 or AMCA 311.

C. Fan Aerodynamic Performance Rating: Factory test and rate fan performance for airflow, pressure, power, air density, rotation speed, and efficiency in accordance with AMCA 210.

D. Fan Energy Index (FEI): Test in accordance with AMCA 210 and rate in accordance with AMCA 99, AMCA 207, and AMCA 208.

E. Fan Operating Limits: Classify fans in accordance with AMCA 99, Section 14.

F. Water Coils: Factory tested to 300 psig (2070 kPa) in accordance with AHRI 410 and ASHRAE 33.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine casing insulation materials and filter media before air-handling unit installation. Replace with new insulation materials and filter media that are wet, moisture damaged, or mold damaged.

C. Examine roughing-in for steam, hydronic, and condensate drainage piping systems and electrical services to verify actual locations of connections before installation.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF INDOOR, BASIC AIR-HANDLING UNITS

A. Equipment Mounting:

1. Install air-handling units on cast-in-place concrete equipment bases. Coordinate sizes and locations of concrete bases with actual equipment provided. Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."
2. Comply with requirements for vibration isolation devices specified in Section 230548.13 "Vibration Controls for HVAC."

B. Arrange installation of units to provide access space around air-handling units for service and maintenance.

C. Do not operate fan system until filters (temporary or permanent) are in place. Replace temporary filters used during construction and testing with new, clean filters.

D. Connect duct to air-handling units with flexible connections. Comply with requirements in Section 233300 "Air Duct Accessories."

3.3 PIPING CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to air-handling unit, allow for service and maintenance.

C. Connect piping to air-handling units mounted on vibration isolators with flexible connectors.

D. Connect condensate drain pans using NPS 1-1/4, ASTM B88, Type M copper tubing. Extend to nearest equipment or floor drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.

E. Hot- and Chilled-Water Piping: Comply with applicable requirements in Section 232113 "Hydronic Piping" and Section 232116 "Hydronic Piping Specialties." Install shutoff valve and union or flange at each coil supply connection. Install balancing valve and union or flange at each coil return connection.

3.4 ELECTRICAL CONNECTIONS

A. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."

C. Install electrical devices furnished by manufacturer, but not factory mounted, in accordance with NFPA 70 and NECA 1.

D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.
   1. Nameplate is to be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch (13 mm) high.

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring in accordance with Section 260523 "Control-Voltage Electrical Power Cables."

3.6 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

   1. Complete installation and startup checks in accordance with manufacturer's written instructions.
   2. Verify that shipping, blocking, and bracing are removed.
   3. Verify that unit is secure on mountings and supporting devices and that connections to piping, ducts, and electrical systems are complete. Verify that proper thermal-overload protection is installed in motors, controllers, and switches.
   4. Verify proper motor rotation direction, free fan wheel rotation, and smooth bearing operations. Reconnect fan drive system, align belts, and install belt guards.
   5. Verify that bearings, pulleys, belts, and other moving parts are lubricated with factory-recommended lubricants.

6. Verify that outdoor- and return-air mixing dampers open and close, and maintain minimum outdoor-air setting.
7. Comb coil fins for parallel orientation.
8. Verify that proper thermal-overload protection is installed for electric coils.
9. Install new, clean filters.
10. Verify that manual and automatic volume control and fire and smoke dampers in connected duct systems are in fully open position.

B. Starting procedures for air-handling units include the following:

1. Energize motor; verify proper operation of motor, drive system, and fan wheel. Adjust fan to indicated rpm. Replace fan and motor pulleys as required to achieve design conditions.
2. Measure and record motor electrical values for voltage and amperage.
3. Manually operate dampers from fully closed to fully open position and record fan performance.

3.7 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC" for air-handling system testing, adjusting, and balancing.

C. Occupancy Adjustments: When requested within 12 months from date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose.

3.8 CLEANING

A. After completing system installation and testing, adjusting, and balancing of air-handling unit and air-distribution systems, and after completing startup service, clean air-handling units internally to remove foreign material and construction dirt and dust. Clean fan wheels, cabinets, dampers, coils, and filter housings, and install new, clean filters.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Leak Test: After installation, fill water and steam coils with water, and test coils and connections for leaks.
2. Charge refrigerant coils with refrigerant and test for leaks.
3. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
4. Air-handling unit and components will be considered defective if unit or components do not pass tests and inspections.
5. Prepare test and inspection reports.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain air-handling units.

END OF SECTION 237313.13

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SECTION 238126 - SPLIT-SYSTEM AIR-CONDITIONERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes split-system air-conditioning and heat-pump units consisting of separate evaporator-fan and compressor-condenser components.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For split-system air-conditioning units to include in emergency, operation, and maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One set(s) for each air-handling unit.
2. Gaskets: One set(s) for each access door.
3. Fan Belts: One set(s) for each air-handling unit fan.

1.7 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. ASHRAE Compliance:

1. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Standard for Refrigeration Systems."
2. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 4 - "Outdoor Air Quality," Section 5 - "Systems and Equipment," Section 6 - " Procedures," and Section 7 - "Construction and System Start-up."

C. ASHRAE/IES Compliance: Applicable requirements in ASHRAE/IES 90.1.

1.8 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork are specified in Section 033000 "Cast-in-Place Concrete."

B. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of split-system air-conditioning units that fail in materials or workmanship within specified warranty period.

1. Warranty Period:

a. For Compressor: Five year(s) from date of Substantial Completion.
b. For Parts: Five year(s) from date of Substantial Completion.
c. For Labor: Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Carrier Corporation; a unit of United Technologies Corp.
2. Mitsubishi Electric & Electronics USA, Inc.
3. Samsung.
4. Trane.
5. YORK; a Johnson Controls company.
6. LG.
7. Daikin Applied.

2.2 INDOOR UNITS (5 TONS OR LESS)

A. Concealed Evaporator-Fan Components:

1. Chassis: Galvanized steel with flanged edges, removable panels for servicing, and insulation on back of panel.
2. Insulation: Faced, glass-fiber duct liner.
3. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and thermal-expansion valve. Comply with ARI 206/110.
4. Fan: Forward-curved, double-width wheel of galvanized steel; directly connected to motor.
5. Fan Motors:

    a. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
    b. Multitapped, multispeed with internal thermal protection and permanent lubrication.
    c. Wiring Terminations: Connect motor to chassis wiring with plug connection.

6. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
7. Filters: Permanent, cleanable.
8. Condensate Drain Pans:

    a. Fabricated with one percent slope in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and humidifiers, and to direct water toward drain connection.

        1) Length: Extend drain pan downstream from leaving face to comply with ASHRAE 62.1.
        2) Depth: A minimum of 2 inches (50 mm) deep.

b. Single-wall, stainless-steel sheet.
c. Drain Connection: Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.

1) Minimum Connection Size: NPS 1 (DN 25).

d. Pan-Top Surface Coating: Asphaltic waterproofing compound.

2.3 OUTDOOR UNITS (5 TONS OR LESS)

A. Air-Cooled, Compressor-Condenser Components:

1. Casing: Steel, finished with baked enamel in color selected by Architect, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.
2. Compressor: Hermetically sealed with crankcase heater and mounted on vibration isolation device. Compressor motor shall have thermal- and current-sensitive overload devices, start capacitor, relay, and contactor.

a. Compressor Type: Scroll.
b. Two-speed compressor motor with manual-reset high-pressure switch and automatic-reset low-pressure switch.
c. Refrigerant: R-454B or R-32.
d. Refrigerant Coil: Copper tube, with mechanically bonded aluminum fins and liquid subcooler. Comply with ARI 206/110.

3. Heat-Pump Components: Reversing valve and low-temperature-air cutoff thermostat.
4. Fan: Aluminum-propeller type, directly connected to motor.
5. Motor: Permanently lubricated, with integral thermal-overload protection.
6. Low Ambient Kit: Permits operation down to 0 deg F.
7. Mounting Base: Polyethylene.

2.4 ACCESSORIES

A. Thermostat: Low voltage with subbase to control compressor and evaporator fan.

B. Automatic-reset timer to prevent rapid cycling of compressor.

C. Refrigerant Line Kits: Soft-annealed copper suction and liquid lines factory cleaned, dried, pressurized, and sealed; factory-insulated suction line with flared fittings at both ends.

D. Drain Hose: For condensate.

E. Monitoring:

1. Monitor constant and variable motor loads.
2. Monitor variable-frequency-drive operation.

3. Monitor economizer cycle.
4. Monitor cooling load.
5. Monitor air distribution static pressure and ventilation air volumes.

2.5 CAPACITIES AND CHARACTERISTICS

A. See schedule on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units level and plumb.

B. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.

C. Equipment Mounting:
1. Comply with requirements for vibration isolation devices specified in Section 230548.13 "Vibration Controls for HVAC."

D. Install and connect precharged refrigerant tubing to component's quick-connect fittings. Install tubing to allow access to unit.

3.2 CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where piping is installed adjacent to unit, allow space for service and maintenance of unit.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

C. Tests and Inspections:

1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Remove and replace malfunctioning units and retest as specified above.

E. Prepare test and inspection reports.

3.4 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain units.

END OF SECTION 238126

NOTE: NOT EVERY KEYNOTE IS APPLICABLE TO EVERY SHEET.

MECHANICAL INSTALLATION KEYNOTES

230001	INSTALL NEW BOILERS IN PLACE OF EXISTING UNITS. RESIZE EQUIPMENT PAD AS NECESSARY TO MAINTAIN 6" SPACE AROUND PERIMETER OF EQUIPMENT. REBALANCE EXISTING INLINE PUMPS.
230002	INSTALL NEW EXHAUST FAN IN PLACE OF EXISTING EXHAUST FAN. PROVIDE CURB ADAPTER AS NEEDED. CONNECT TO EXISTING DUCTWORK. INTERFACE WITH NEW BMS INTERFACE AS PER CONTROLS ON M7.1.
230004	INSTALL NEW SMOKE EXHAUST FAN IN PLACE OF EXISTING SMOKE EXHAUST FAN. PROVIDE CURB ADAPTER AS NEEDED. SYSTEM COMPONENTS, CONTROLS, AND WIRING TO MEET REQUIREMENT OF UL-864. CONNECT TO EXISTING DUCTWORK. INTERFACE WITH NEW BMS INTERFACE AS PER CONTROLS ON SHEETS M7.7 AND M7.8.
230005	INSTALL NEW AHU IN PLACE OF EXISTING AHU. CONNECT TO EXISTING DUCTWORK AND PIPING AS SHOWN. RESIZE EQUIPMENT PAD AS NECESSARY TO MAINTAIN 6" SPACE AROUND PERIMETER OF EQUIPMENT. REFER TO M.4 SERIES FOR MORE INFORMATION.
230006	INSTALL NEW ERV IN PLACE OF EXISTING ERV. CONNECT TO EXISTING DUCTWORK AS SHOWN. INTERFACE WITH NEW BMS SYSTEM AS PER CONTROLS ON SHEET 4/M7.2.
230007	INSTALL NEW CHILLED WATER PUMP IN PLACE OF EXISTING PUMP. CONNECT PIPING AS SHOWN. PROVIDE VFD WITH PUMP. INTERFACE WITH NEW BMS SYSTEM AS PER CONTROLS ON DETAIL 1/M7.3.
230011	INSTALL NEW RETURN FAN IN PLACE OF EXISTING RETURN FAN. CONNECT TO EXISTING DUCTWORK AS SHOWN. INTERFACE WITH NEW BMS SYSTEM AS PER CONTROLS ON 1/M7.2.
230012	INSTALL NEW EXHAUST FAN AT EXISTING ROOF CURB. PROVIDE CURB ADAPTER.
230013	PROVIDE NEW HOUSING PAD FOR CHILLER. ADJUST CHILLER YARD FENCING TO EXTEND NORTH TO ALIGN WITH WALL AS INDICATED. REFER TO M5.3 FOR FENCING DETAILS. (2)
230014	REUSE EXISTING PENETRATIONS FROM PREVIOUS BOILER FLUES FOR NEW FLUES / COMBUSTION AIR INTAKES.
230015	INSTALL NEW CONDENSING UNIT FOR NEW AHU-9 ON EXISTING EQUIPMENT SUPPORT. CONTRACTOR TO ADJUST SUPPORT AS NECESSARY TO MEET MANUFACTURER RECOMMENDATIONS.
230016	INSTALL NEW DUCT MOUNTED COILS IN PLACE OF EXISTING. CONNECT TO EXISTING PIPING AND DUCTWORK. PROVIDE DUCT TRANSITIONS AS NECESSARY TO CONNECT TO EQUIPMENT. PROVIDE NEW CONTROLS AS PER DETAIL 5/M7.2.
230017	CONNECT NEW VAV BOX TO EXISTING DUCTWORK AND PIPING. PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.
230018	CONNECT NEW DUCT MOUNTED COIL BOX TO EXISTING DUCTWORK AND PIPING. PROVIDE DUCT MOUNTED ACCESS DOOR UPSTREAM OF BOX. PROVIDE NEW CONTROLS FOR DUCT MOUNTED COILS AS PER CONTROLS SCHEMATIC 5/M7.2.
230019	CONNECT WATER HEATER EXHAUST FLUE AND INTAKE TO EXISTING EXHAUST/INTAKE DUCTWORK. REUSE EXISTING ROOF PENETRATIONS. SIZE AND INSTALL FLUE AND INTAKE AS PER MANUFACTURER RECOMMENDATIONS.
230021 (2)	RESIZE EXISTING HOUSING PAD TO FIT NEW CHILLER.
230701	CONNECT NEW GRILLE TO EXISTING EXHAUST DUCTWORK. LOCATE GRILLE TO ADJUST DUCTWORK AS MINIMALLY AS POSSIBLE.
230702	CONNECT NEW DIFFUSER TO EXISTING DUCTWORK. LOCATE DIFFUSER TO ADJUST DUCTWORK AS MINIMALLY AS POSSIBLE.
230703	PROVIDE ELBOW WITHOUT TURNING VANES FOR TRANSFER AIR DUCT.
230704	INSTALL NEW DUCTWORK FROM FPV TO EXISTING. VIELD VERIFY TO MATCH TO EXISTING DUCTWORK SIZE.
230705	REINSTALL EXISTING DIFFUSERS AND GRILLES AND CONNECT TO EXISTING DUCTWORK IN ENTIRE SPACE. ALTERNATE BID: CONNECT NEW DIFFUSERS AND GRILLES TO EXISTING DUCTWORK. PROVIDE DIFFUSER OR GRILLE AS INDICATED ON AIR TERMINAL SCHEDULE.
230901	PROVIDE NEW CONTROLS FOR THE FAN COIL UNIT AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM AS PER 3/M7.1.

MECHANICAL INSTALLATION KEYNOTES

230903	PROVIDE NEW CONTROLS FOR VAV AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO SHEET M2/7.5.
230904	PROVIDE NEW CONTROLS FOR THE SHUTOFF TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 1/M7.1.
230905	PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.
230906	PROVIDE NEW CONTROLS FOR CHILLED WATER PUMPS AND INTERFACE WITH NEW BUILDING MANAGEMENT SYSTEM. REFER TO 1/M7.3 FOR ADDITIONAL INFORMATION.
230907	PROVIDE NEW CONTROLS FOR HYDRONIC HOT WATER SYSTEM AND INTERFACE WITH NEW BUILDING MANAGEMENT SYSTEM. REFER TO 1,2/M7.4 FOR ADDITIONAL INFORMATION.
230908	PROVIDE NEW CONTROLS FOR HYDRONIC UNIT HEATER AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 7/M7.1.
230909	PROVIDE NEW CONTROLS FOR FIN TUBE RADIATOR AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 8/M7.6.
230911	PROVIDE NEW CONTROLS FOR CONSTANT VOLUME AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.2.
230912	PROVIDE NEW CONTROLS FOR CONSTANT VOLUME AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 1/M7.2.
230913	PROVIDE NEW CONTROLS FOR CONSTANT VOLUME AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 1/M7.5.
230914	PROVIDE NEW CONTROLS FOR VAV AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.5.
230915	PROVIDE TEMPERATURE SENSOR INSIDE RETURN DUCTWORK. SENSOR TO CONTROL THE UNITS INDICATED.
230918	PROVIDE TEMPERATURE SENSOR INSIDE RETURN DUCTWORK. REPAIR OR REPLACE INSULATION AFFECTED BY TEMPERATURE SENSOR INSTALLATION. SENSOR TO CONTROL THE UNITS INDICATED.
230920	PROVIDE THERMOSTAT IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
230921	PROVIDE TEMPERATURE SENSOR IN EXISTING EXHAUST DUCTWORK.
230922	PROVIDE THERMOSTAT WITH SECURITY COVER IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
230923	PROVIDE NEW THERMOSTAT WITH SECURITY COVER. LOCATION INDICATED IS PLACEHOLDER. CONTRACTOR TO FIELD VERIFY THERMOSTAT LOCATION AND REPLACE EXISTING AT SAME LOCATION.
230924	PROVIDE NEW CONTROLS FOR THE ROOF HOOD UNIT. REFER TO M7.6 FOR CONTROLS.
230925	PROVIDE NEW EMERGENCY BOILER SHUTOFF BUTTON NEAR EXIT. MOUNT BUTTON 4'-6" A.F.F. PER IFC SECTION 606. PROVIDE CONTROLS TO ALLOW FOR EMERGENCY SHUTOFF THROUGH CENTRAL WORKSTATION.
230926	PROVIDE NEW CONTROLS FOR EXISTING LOUVERS. REFER TO M7.7/M7.8 FOR CONTROLS.
230927	PROVIDE NEW CONTROLS FOR EXISTING LOUVER. REFER TO 8/M7.1 FOR CONTROLS.
230928	PROVIDE NEW FIREFIGHTER SMOKE CONTROL PANEL IN CENTRAL CONTROL. CONTRACTOR TO CONFIRM LOCATION WITH EXISTING EQUIPMENT.
231101	CONNECT EXISTING NATURAL GAS PIPE TO NEW MAKE UP AIR UNIT. PROVIDE DUCTWORK TO EXISTING HOOD FROM MAKE UP AIR UNIT. REUSE EXISTING ROOF CURB.
232101	ROUTE CONDENSATE LINE DOWN TO MOP SINK.
232102	PROVIDE STUB-OUT WITH SHUTOFF VALVES FOR EMERGENCY CHILLED WATER CONNECTION. CAP OPEN ENDS.
232103	PROVIDE STUB-OUT WITH SHUTOFF VALVES FOR EMERGENCY HEATING HOT WATER CONNECTION. CAP OPEN ENDS.
232104	REBALANCE PUMPS AFTER INSTALLATION OF NEW BOILERS AND AIR HANDLING UNITS.
232105	PROVIDE MANUAL SHUTOFF VALVES FOR PIPING CROSSOVER.
232106	SHUTOFF VALVE.
233101	CONNECT DUCTWORK TO EF-23. COORDINATE LOCATION WITH EXISTING ROOF CURB.
233301	PROVIDE NEW SMOKE DAMPER ON DUCT UPSTREAM OF VAV BOX. REFER TO M7.7/M7.8 FOR CONTROLS.
233302	PROVIDE SMOKE DAMPER ON DUCTWORK FROM RETURN GRILLE. REFER TO M7.7/M7.8 FOR CONTROLS.
233701	REINSTALL EXISTING RETURN GRILLE IN SAME LOCATION AS PREVIOUSLY.
233702	INSTALL NEW SUPPLY DIFFUSER IN SAME LOCATION AS PREVIOUSLY. RECONNECT TO EXISTING DUCTWORK.

NOTE: NOT EVERY KEYNOTE IS APPLICABLE TO EVERY SHEET.

MECHANICAL DEMOLITION KEYNOTES

022301	REMOVE EXISTING EXHAUST FAN FOR REPLACEMENT. REMOVE DUCTWORK MINIMALLY AS NEEDED FOR INSTALLATION OF NEW UNIT. REMOVE FROM CONTROLS FRONT END. REFER TO INSTALLATION PLANS FOR ADDITIONAL INFORMATION.
022302	REMOVE EXISTING BOILER AND ALL ASSOCIATED ACCESSORIES INCLUDING PUMPS. REMOVE EXISTING FLUE AND INTAKE AS INDICATED. REMOVE PIPING AS INDICATED. REMOVED FROM CONTROLS FRONT END. EQUIPMENT PAD EXISTING TO REMAIN.
022303	REMOVE EXISTING REMOTE EVAPORATOR AND ALL ASSOCIATED ACCESSORIES AND APPURTENANCES. REMOVE ASSOCIATED PIPING COMPLETE. REMOVE FROM CONTROLS FRONT END.
022304	REMOVE AIR HANDLING UNIT COMPLETE, INCLUDING DUCTWORK AS INDICATED, PIPING AS INDICATED, CONTROLS, AND ACCESSORIES COMPLETE. EQUIPMENT PAD EXISTING TO REMAIN. REFER TO MD4.X SERIES FOR MORE INFORMATION.
022305	REMOVE EXISTING CONTROLS TO UNIT COMPLETE. REMOVE ALL ASSOCIATED TUBING OR WIRING SERVING UNIT CONTROLS. REMOVE UNIT FROM CONTROLS FRONT END.
022306	REMOVE EXISTING CHILLER AND ALL ASSOCIATED ACCESSORIES, ASSOCIATED REFRIGERANT PIPING AS INDICATED, AND CONTROLS. REMOVE FROM CONTROLS FRONT END.
022307	REMOVE EXISTING THERMOSTAT AND WIRING. CONTRACTOR TO FIELD VERIFY THERMOSTAT LOCATIONS.
022308	REMOVE EXISTING CHILLED WATER PUMP AND ALL ASSOCIATED ACCESSORIES, ASSOCIATED PIPING AS INDICATED, AND CONTROLS. REMOVE FROM CONTROLS FRONT END.
022309	REMOVE EXISTING RETURN FAN COMPLETE, INCLUDING DUCTWORK AS INDICATED, CONTROLS, AND ACCESSORIES COMPLETE.
022310	REMOVE EXISTING KITCHEN MAKE UP AIR UNIT, INCLUDING DUCTWORK TO HOOD AND CONTROLS. CURB TO REMAIN IN PLACE. TEMPORARILY COVER OPENINGS.
022311	REMOVE REFRIGERANT PIPING BETWEEN REMOTE EVAPORATOR AND CHILLER COMPLETE INCLUDING SUPPORTS AND STANDS. TEMPORARILY COVER WALL PENETRATION.
022312	REMOVE EXISTING ERV AND ASSOCIATED DUCTWORK AS INDICATED. REMOVE FROM CONTROLS FRONT END.

MECHANICAL DEMOLITION KEYNOTES

022313	REMOVE EXISTING TEMPERATURE SENSOR AND WIRING FROM EXHAUST DUCT.
022314	DISCONNECT AND REMOVE EXHAUST GRILLE FROM DUCTWORK. TEMPORARILY COVER DUCT OPENING.
022315	REMOVE EXISTING TRANSFER AIR DUCT AND ASSOCIATED GRILLE. PATCH WALL TO MATCH EXISTING CONDITIONS.
022316	DISCONNECT AND REMOVE EXISTING VAV BOX FROM DUCTWORK. TEMPORARILY COVER DUCT OPENINGS.
022317	REMOVE EXISTING TEMPERATURE SENSOR AND WIRING FROM RETURN DUCTWORK. CONTRACTOR TO FIELD VERIFY EXISTING TEMPERATURE SENSOR LOCATION.
022318	TEMPORARILY DISCONNECT AND REMOVE RETURN GRILLE FROM CEILING. SALVAGE GRILLE FOR REINSTALLATION. ALTERNATE BID: REMOVE EXISTING RETURN GRILLE FOR REPLACEMENT.
022319	TEMPORARILY DISCONNECT AND REMOVE SUPPLY DIFFUSER FROM DUCTWORK AND CEILING. TEMPORARILY COVER DUCT OPENING. SALVAGE DIFFUSER FOR REINSTALLATION. ALTERNATE BID: REMOVE EXISTING SUPPLY DIFFUSER FOR REPLACEMENT. TEMPORARILY COVER DUCT OPENING.
022320	EXISTING CONDENSING UNIT SERVING AHU-9 TO BE REMOVED INCLUDING ANY ASSOCIATED PIPING AND WIRING. EQUIPMENT STAND TO REMAIN.
022321	REMOVE FPV. REMOVE EXISTING CONTROLS TO UNIT COMPLETE. REMOVE ALL ASSOCIATED TUBING OR WIRING SERVING UNIT CONTROLS. REMOVE UNIT FROM CONTROLS FRONT END. TEMPORARILY COVER DUCT OPENING UNTIL NEW FPV IS INSTALLED.
022322	FPV UNIT TO BE TEMPORARILY REMOVED AND RELOCATED. REMOVE EXISTING CONTROLS TO UNIT COMPLETE. REMOVE ALL ASSOCIATED TUBING OR WIRING SERVING UNIT CONTROLS. REMOVE UNIT FROM CONTROLS FRONT END. REFER TO DRAWING M2.1E FOR NEW INSTALL LOCATION.
022323	DISCONNECT AND REMOVE EXISTING SUPPLY DIFFUSER FOR REPLACEMENT. TEMPORARILY COVER DUCT OPENING.
022324	REMOVE EXISTING RETURN GRILLE FOR REPLACEMENT.
022325	TEMPORARILY DISCONNECT AND REMOVE EXHAUST GRILLE FROM DUCTWORK. TEMPORARILY COVER DUCT OPENING. SALVAGE GRILLE FOR REINSTALLATION. ALTERNATE BID: REMOVE EXISTING EXHAUST GRILLE FOR REPLACEMENT. TEMPORARILY COVER DUCT OPENING.
022326	DISCONNECT AND REMOVE EXISTING DUCT MOUNTED COIL. REMOVE PIPING AND DUCTWORK TRANSITIONS TO UNIT. REMOVE EXISTING CONTROLS TO UNIT COMPLETE. REMOVE ALL ASSOCIATED WIRING SERVING CONTROLS. REMOVE UNIT FROM CONTROLS FRONT END.
022327	REMOVE EXHAUST FLUE AND INTAKE FROM EXISTING WATER HEATERS AS INDICATED. CAP DUCTWORK AT ROOF PENETRATION FOR RECONNECTION.

SYMBOLS

- AxB — RECTANGULAR DUCT DIMENSION
- A/B — FLAT-OVAL DUCT DIMENSION
- AØ — ROUND DUCT DIMENSION
- RECTANGULAR SUPPLY OR OUTSIDE AIR DUCT - UP OR DOWN
- RECTANGULAR RETURN AIR DUCT - UP OR DOWN
- RECTANGULAR EXHAUST AIR DUCT - UP OR DOWN
- ROUND SUPPLY OR OUTSIDE AIR DUCT - UP OR DOWN.
- ROUND RETURN AIR DUCT - UP OR DOWN.
- ROUND EXHAUST AIR DUCT - UP OR DOWN.
- SUPPLY AIR DIFFUSER (SQUARE)
- RETURN AIR GRILLE (SQUARE)
- RETURN AIR GRILLE OR EXHAUST REGISTER (RECTANGULAR)
- EXHAUST GRILLE (SQUARE)
- S D — DUCT SMOKE DETECTOR
- BD — BACKDRAFT DAMPER
- CONTROL DAMPER
- VOLUME DAMPER
- ROUND DIFFUSER
- SLOT DIFFUSER
- BALL VALVE
- BUTTERFLY VALVE
- GATE VALVE
- DISCONNECT FROM EXISTING
- CONNECT TO EXISTING
- T — THERMOSTAT
- TS — TEMPERATURE SENSOR
- X / X — EQUIPMENT TYPE (SEE ABBREVIATIONS) / SCHEDULE #
- XXXXXX — KEYNOTE
- TMV — THERMOSTATIC MIXING VALVE OUTLET TEMPERATURE SENSOR
- BPS — BUILDING PRESSURE SENSOR
- CO — CARBON MONOXIDE SENSOR
- NO2 — NITROGEN DIOXIDE SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- RL — REFRIGERANT LIQUID
- RG — REFRIGERANT GAS
- HWS — HYDRONIC WATER SUPPLY
- HWR — HYDRONIC WATER RETURN
- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- COND — CONDENSATE LINE

ABBREVIATIONS

AMPS	AMPERES
ADJ.	ADJUSTABLE
ATC	AUTOMATIC TEMPERATURE CONTROL
APD	AIR PRESSURE DROP
A.F.F.	ABOVE FINISHED FLOOR
CFM	CUBIC FEET PER MINUTE
CO.	COMPANY
COND.	CONDENSATE
D	DRAIN
DSP	DUCT STATIC PRESSURE
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EFF	EFFICIENCY
ELECT.	ELECTRICAL
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
F	FIRE DAMPER
FPM	FEET PER MINUTE
FD	FLOOR DRAIN
FT	FEET
GAL	GALLON
GPM	GALLONS PER MINUTE
GC	GENERAL CONTRACTOR
HC	HEATING COIL
HP	HORSE POWER
HR	HOUR
HTG.	HEATING
I.D.	IDENTIFICATION
IH	INTAKE HOOD
IN	INCH
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB
LBS	POUNDS
LWB	LEAVING WET BULB
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MIN.	MINIMUM
NO.	NUMBER
OA	OUTSIDE AIR
P.C.	PLUMBING CONTRACTOR
PH	PHASE
PSI.	POUNDS PER SQUARE INCH
RA	RETURN AIR
RF	RELIEF AIR FAN
RH	RELIEF AIR HOOD
RM	ROOM
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SE	SMOKE EXHAUST
S	SMOKE DAMPER
SENS	SENSIBLE
TSP	TOTAL STATIC PRESSURE
V	VENT
VAV	VARIABLE AIR VOLUME BOX
VOLTS	VOLTAGE
VFD	VARIABLE FREQUENCY DRIVE
W.C.	WATER COLUMN
W.O.	WALL OPENING
WPD	WATER PRESSURE DROP

PIPE ABBREVIATIONS

CHILLED WATER RETURN	CWR
CHILLED WATER SUPPLY	CWS
COMBUSION FLUE	CF
COMBUSTION AIR INTAKE	CI
CONDENSATE	C
COOLING TOWER RETURN	CTR
COOLING TOWER SUPPLY	CTS
HYDRONIC RETURN	HWR
HYDRONIC SUPPLY	HWS
STEAM CONDENSATE	LPC
STEAM RETURN - HIGH PRESSURE	HPR
STEAM SUPPLY - HIGH PRESSURE	HPS
STEAM SUPPLY - LOW PRESSURE	LPS

HVAC BASIS OF DESIGN (NEW DUCTLESS SPLITS/FPV 6-5)	
SUMMER	
OUTDOOR	91°FDB, 75°F WB
INDOOR	75°FDB, 63°F WB
WINTER	
OUTDOOR	-3°F DB
INDOOR	70°F DB

GENERAL NOTES

1. ALL MECHANICAL WORK SHALL BE IN ACCORDANCE WITH STATE OF INDIANA MECHANICAL CODE, LATEST APPLICABLE EDITION, THE AUTHORITY HAVING JURISDICTION AND AS SPECIFIED (WHICHEVER IS MORE STRINGENT).
2. IF NON-DESIGN BASE EQUIPMENT IS SELECTED, THIS CONTRACTOR SHALL BEAR ANY ADDITIONAL COSTS FOR MODIFICATION TO THE PROPOSED BUILDING SYSTEM CAUSED BY SELECTION OF THE NON-DESIGN BASE EQUIPMENT INCLUDING COSTS FOR ARCHITECT/ENGINEER REVIEW. DEVIATIONS FROM BASIS OF DESIGN THAT AFFECT OTHER TRADES ARE THE RESPONSIBILITY OF THIS CONTRACTOR. ADDITIONAL COSTS TO PROVIDE LARGER ELECTRICAL CIRCUITS, MORE FLOOR SPACE, ADDITIONAL SUPPORTS, ADDITIONAL MATERIALS, ETC. SHALL BE BORNE BY THIS CONTRACTOR. COORDINATE ALL WORK WITH OTHER TRADES.
3. DO NOT SCALE DRAWINGS FOR DIMENSIONS. REFER TO DIMENSIONED DRAWINGS. IF DIMENSIONS CANNOT BE ACCURATELY DETERMINED, REQUEST THE INFORMATION FROM THE ARCHITECT/ENGINEER.
4. KEY NOTES ARE MEANT AS A GENERAL GUIDE FOR TYPICAL LOCATIONS. CONTRACTOR TO PERFORM FULL EXTENT OF WORK REQUIRED TO ACCOMPLISH DESIGN INTENT.
5. CONTRACTOR IS RESPONSIBLE FOR ALL WORK IDENTIFIED ON ALL DRAWINGS AND INFORMATION IN THE PROJECT MANUAL, AS A COMPLETE PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE SPECIFIC SCOPE OF WORK FOR ANY SUBCONTRACTORS FOR THIS PROJECT EXCEPT AS SPECIFICALLY NOTED.
6. CONTRACTOR SHALL PROVIDE ACCESS DOORS IN ALL WALLS AND CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, PLUMBING, OR FIRE PROTECTION ITEMS MAY BE REQUIRED, WHETHER INDICATED ON THE PLANS OR NOT. ACCESS DOORS SHALL BE OF AN APPROPRIATE SIZE REQUIRED FOR EACH APPLICATION. WHERE APPLICABLE, ACCESS DOORS SHALL MATCH THE FIRE/SECURITY RATING OF THE WALL/CEILING ASSEMBLY.
7. DUCT AND PIPING LAYOUTS ARE SCHEMATIC IN NATURE. PROVIDE ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS, AS NECESSARY AND COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENINGS WITH STRUCTURAL TRADES.
8. DUCTWORK:
   A. ALL LISTED DUCTWORK DIMENSIONS ARE CLEAR AIR FLOW DIMENSIONS.
   B. ALL DUCTS IN FINISHED ROOMS AND SPACES SHALL BE CONCEALED IN CHASES OR ABOVE THE CEILINGS, UNLESS OTHERWISE NOTED.
   C. FIELD VERIFY LOCATION OF BEAMS, GENERAL STRUCTURE, LIGHTING, PIPING, ETC., BEFORE FABRICATION AND INSTALLATION OF DUCTWORK COORDINATE ELEVATIONS, OFFSETS, AND TRANSITIONS AS REQUIRED.
   D. MAXIMUM LENGTH OF FLEX DUCT SHALL BE 5'-0". FLEX DUCT SHALL NOT BE USED WHERE DUCTWORK IS EXPOSED. THE LAST ELBOW BEFORE CONNECTION TO AN AIR DEVICE SHALL BE A HARD DUCT.
   E. VOLUME DAMPERS SHALL BE INSTALLED IN ALL BRANCH DUCTS.
   F. THE ELBOWS FOR DUCTWORK SHALL HAVE TURNING VANES UNLESS NOTED OTHERWISE.
   G. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR AIR DEVICE LOCATIONS.
   H. ALL AIR DEVICES IN CMU WALLS SHALL MATCH BLOCK COURSING.
   I. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE RATED WALLS, FLOORS AND SMOKE BARRIERS. CONTRACTOR SHALL PROVIDE FIRE DAMPERS, SMOKE DAMPERS IN ALL DUCTS PENETRATING SAID WALLS/FLOOR, WHETHER INDICATED ON THE MECHANICAL PLANS OR NOT.
9. ALL STRUCTURAL OPENINGS SHALL BE COORDINATED WITH THE STRUCTURAL DRAWING. COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENINGS WITH STRUCTURAL TRADES.
10. ALL HANGER SYSTEMS FOR PIPING, DIFFUSERS, GRILLES AND EQUIPMENT SHALL BE SECURED TO BUILDING STRUCTURAL SYSTEM.
11. COORDINATE ALL WORK WITH EXISTING WORK TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.
12. CONNECTION TO EQUIPMENT SHALL CONFORM TO MANUFACTURER'S SPECIFICATION.
13. ALL MECHANICAL EQUIPMENT REQUIRING NATURAL GAS SHALL BE FURNISHED WITH PRESSURE REGULATOR. THE GAS PRESSURE REGULATOR SHALL REGULATE THE GAS PRESSURE BETWEEN THE INLET AND OPERATING PRESSURE OF THE EQUIPMENT. PROVIDE VENT TO OUTDOOR FROM EACH REGULATOR.
14. HVAC EQUIPMENT SHALL BE CONNECTED TO BUILDING MANAGEMENT SYSTEM.
15. REFER TO DETAIL SHEETS FOR ADDITIONAL INFORMATION ON INSTALLMENT METHODS.
16. ALL CONTROL SETPOINTS AND SETTINGS SHALL BE USER ADJUSTABLE.
17. ALL EXISTING CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES SHALL BE REMOVED AND REPLACED ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS. PROVIDE NEW CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S AND OTHER APPURTENANCES ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.
18. FOR VARIABLE AIR VOLUME BOXES, DIVISION 23 CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING 277 V TRANSFORMERS AND CONTROL WIRIING DOWNSTREAM OF 277:24V STEP DOWN TRANSFORMER. PROVIDE NEW TRANSFORMERS IN PLACE OF EXISTING. DIVISION 26 CONTRACTOR SHALL BE RESPONSIBLE FOR ANY POWER WIRING UPSTREAM OF THE TRANSFORMER. ANY NEW TRANSFORMERS SHALL BE INSTALLED IN NEMA-1 ENCLOSURE.
19. ALL HVAC CONTROL WIRING SHALL BE PROVIDED WITH DIVISION 23 CONTRACTOR UNLESS OTHERWISE NOTED. EXPOSED CONTROL WIRING SHALL BE IN CONDUIT. TEMPERATURE CONTROL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND LOCATING ANY 24V TRANSFORMERS REQUIRED FOR CONTROL COMPONENTS. DIV 26 CONTRACTOR SHALL PROVIDE POWER WIRING UPSTREAM OF THE TRANSFORMER.

GENERAL DEMOLITON NOTES

1. REFER TO DRAWINGS OF ALL OTHER DISCIPLINES FOR ADDITIONAL REMOVALS AND SELECTIVE DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO SELECTIVE DEMOLITION ACTIVITIES. ANY ITEMS NOT INDICATED ON THE DRAWINGS OR SPECIFICATIONS THAT ARE IN CONFLICT WITH CONTRACT WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BID FOR CLARIFICATION.
3. FOR THE DURATION OF THE PROJECT, IF ANY EXISTING ITEM IS DAMAGED DURING CONSTRUCTION, IT SHALL BE REPAIRED AND RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
4. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED, INCLUDING ASSOCIATED REPAIR AND FINISHING TO MATCH ADJACENT SURFACES.
5. CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY ENVIRONMENTAL CONTROL MEASURES INCLUDING ACCEPTABLE AIR QUALITY CONTROL MEASURES, DUST CONTROL, EROSION CONTROL AND OTHER MEASURES REQUIRED FOR PROTECTION OF THE PROPERTY DURING SELECTIVE DEMOLITON AND CONSTRUCTION ACTIVITIES.
6. CONTRACTOR IS SOLELY RESPONSIBLE FOR COORDINATING CONTRACT DRAWINGS WITH FIELD CONDITIONS AND WORK ASSOCIATED WITH EACH TRADE.
7. CONTRACTOR SHALL COORDINATE DEMOLITION ACTIVITIES WITH NEW WORK TO VERIFY DIMENSIONS AND EXTENT OF REMOVALS PRIOR TO BEGINING OF WORK.
8. CONTRACTOR IS RESPONSIBLE FOR REMOVAL, STORAGE AND REINSTALLATION OF REMAINING WALL MOUNTED DEVICES INTENDED FOR REUSE.
9. ALL DEMOLITION WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE STATE OF INDIANA, LOCAL BUILDING CODES, OSHA AND NFPA
10. OWNER RESERVES THE RIGHT TO SALVAGE ANY EQUIPMENT OR MATERIAL INDICATED TO BE DEMOLISHED.
11. PLANS ARE FOR DIAGRAMMATIC PURPOSES ONLY, BASED ON LIMITED SITE OBSERVATIONS. CONTRACTOR TO REMOVE ANY UNUSED / ABANDONED DUCTWORK, EQUIPMENT, PIPING (GAS, REFRIGERANT ETC.), ASSOCIATED ACCESORIES WHETHER INDICATED ON THE PLANS OR NOT. CONTRACTOR TO VERIFY EXTENT OF DEMOLITION ON THE FIELD AND COORDINATE WITH THE ENGINEER (AT NO ADDITIONAL COST TO THE OWNER). PATCH WALLS AND/OR FLOOR TO MATCH ADJACENT CONDITIONS.

NOTE:
ELEMENTS ON THIS DRAWING ARE IDENTIFIED BY VARIOUS COLORS; IF THIS NOTE IS NOT RED, THIS DRAWING IS NOT IN COLOR AND NEEDS TO BE REPRINTED IN COLOR.

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DLZ INDIANA, LLC

2/19/2025
JOSHUA R. APLING — REGISTERED PROFESSIONAL ENGINEER — STATE OF INDIANA

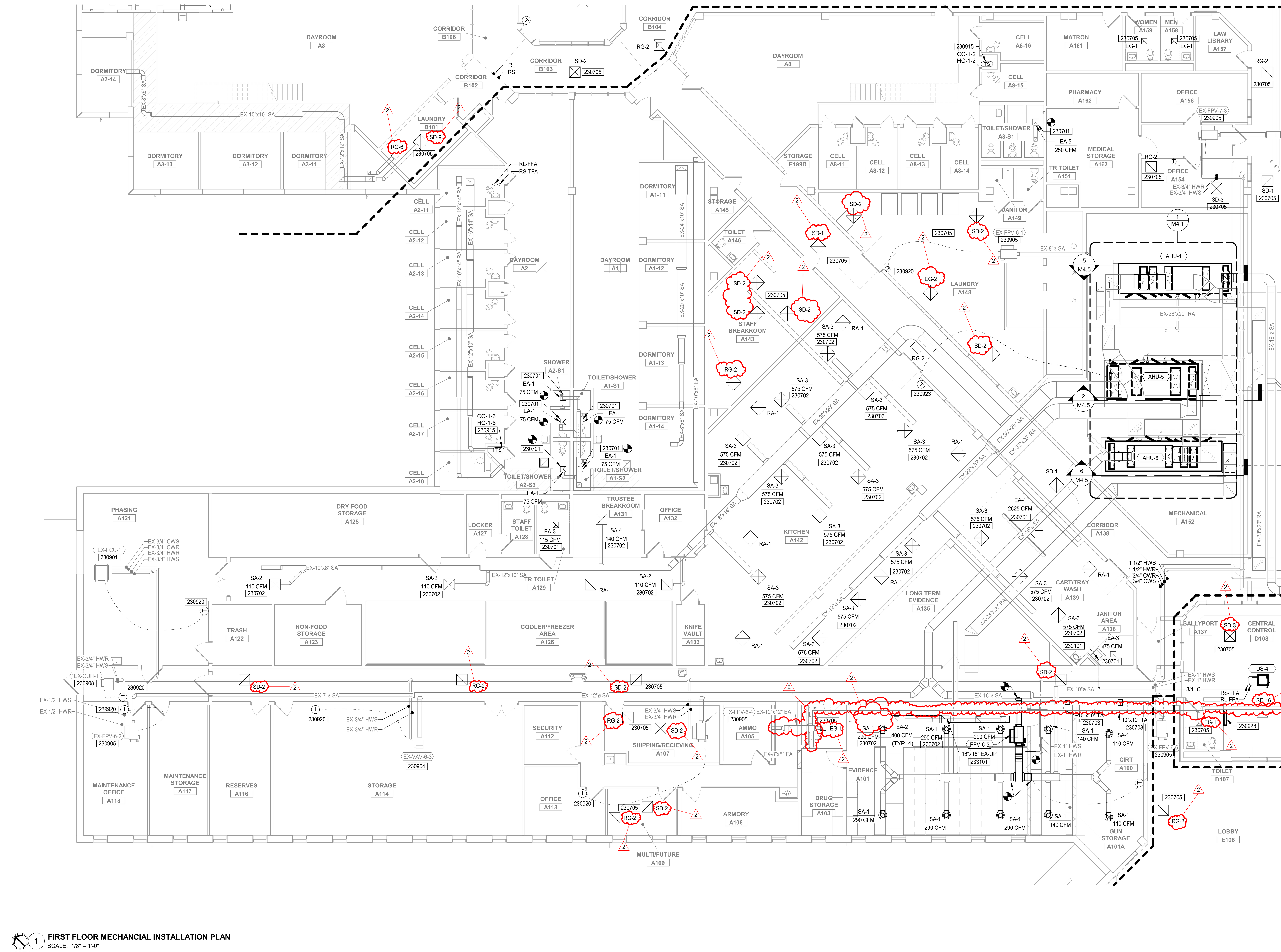
NO.	REVISION	DATE
1	ADDENDUM #01	02-05-2025
2	ADDENDUM #02	02-19-2025

DRAWN: CSH CHK'D: SJS
DESIGNED: CSH
APPR'D: JRA
DATE: JANUARY 8, 2025
PROJECT NUMBER
2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL FACILITY IMPROVEMENTS
2755 STATE ROAD 49

GENERAL INFORMATION

DRAWING NUMBER
M0.1
MECHANICAL



1 FIRST FLOOR MECHANICAL INSTALLATION PLAN
SCALE: 1/8" = 1'-0"
NORTH

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2/19/2025 9:24:26 AM

GENERAL NOTES

A. REFER TO SHEETS G1.1 AND M0.1 FOR ADDITIONAL GENERAL NOTES AND INFORMATION.

B. DUCT AND PIPING LAYOUT ARE SCHEMATIC IN NATURE. PROVIDE ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS AND FITTINGS AS REQUIRED.

C. COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENING AS REQUIRED ON SITE.

D. COORDINATE ALL WORK WITH OTHER TRADES TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.

E. DO NOT SCALE DRAWINGS FOR DIMENSIONS.

F. REFER TO DETAILS SHEETS FOR ADDITIONAL INFORMATION ON INSTALLATION METHODS.

G. ALL EXISTING CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES SHALL BE REMOVED AND REPLACED ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

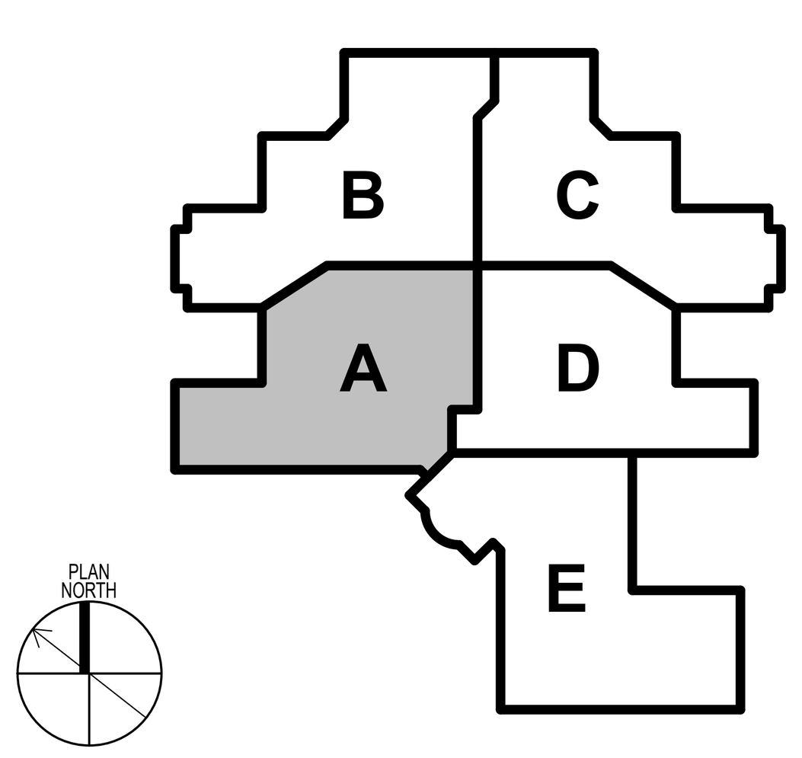
H. PROVIDE NEW CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

KEYNOTES

230701	CONNECT NEW GRILLE TO EXISTING EXHAUST DUCTWORK. LOCATE GRILLE TO ADJUST DUCTWORK AS MINIMALLY AS POSSIBLE.
230702	CONNECT NEW DIFFUSER TO EXISTING DUCTWORK. LOCATE DIFFUSER TO ADJUST DUCTWORK AS MINIMALLY AS POSSIBLE.
230703	PROVIDE ELBOW WITHOUT TURNING VANES FOR TRANSFER AIR DUCT.
230705	REINSTALL EXISTING DIFFUSERS AND GRILLES AND CONNECT TO EXISTING DUCTWORK IN ENTIRE SPACE. ALTERNATE BID: CONNECT NEW DIFFUSERS AND GRILLES TO EXISTING DUCTWORK. PROVIDE DIFFUSER OR GRILLE AS INDICATED ON AIR TERMINAL SCHEDULE.
230901	PROVIDE NEW CONTROLS FOR THE FAN COIL UNIT AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM AS PER 3/M7.1.
230904	PROVIDE NEW CONTROLS FOR THE SHUTOFF TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 1/M7.1.
230905	PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.
230908	PROVIDE NEW CONTROLS FOR HYDRONIC UNIT HEATER AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 7/M7.1.
230915	PROVIDE TEMPERATURE SENSOR INSIDE RETURN DUCTWORK. SENSOR TO CONTROL THE UNITS INDICATED.
230920	PROVIDE THERMOSTAT IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
230923	PROVIDE NEW THERMOSTAT WITH SECURITY COVER. LOCATION INDICATED IS PLACEHOLDER. CONTRACTOR TO FIELD VERIFY THERMOSTAT LOCATION AND REPLACE EXISTING AT SAME LOCATION.
230928	PROVIDE NEW FIREFIGHTER SMOKE CONTROL PANEL IN CENTRAL CONTROL. CONTRACTOR TO CONFIRM LOCATION WITH EXISTING EQUIPMENT.
232101	ROUTE CONDENSATE LINE DOWN TO MOP SINK.
233101	CONNECT DUCTWORK TO EF-23. COORDINATE LOCATION WITH EXISTING ROOF CURB.

NOTE:
ELEMENTS ON THIS DRAWING ARE IDENTIFIED BY VARIOUS COLORS; IF THIS NOTE IS NOT RED, THIS DRAWING IS NOT IN COLOR AND NEEDS TO BE REPRINTED IN COLOR.

KEYPLAN



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DLZ INDIANA, LLC

2/19/2025
JOSHUA R. APLING REGISTERED PROFESSIONAL ENGINEER STATE OF INDIANA

NO.	REVISION	DATE
1	ADDENDUM #01	02-05-2025
2	ADDENDUM #02	02-19-2025

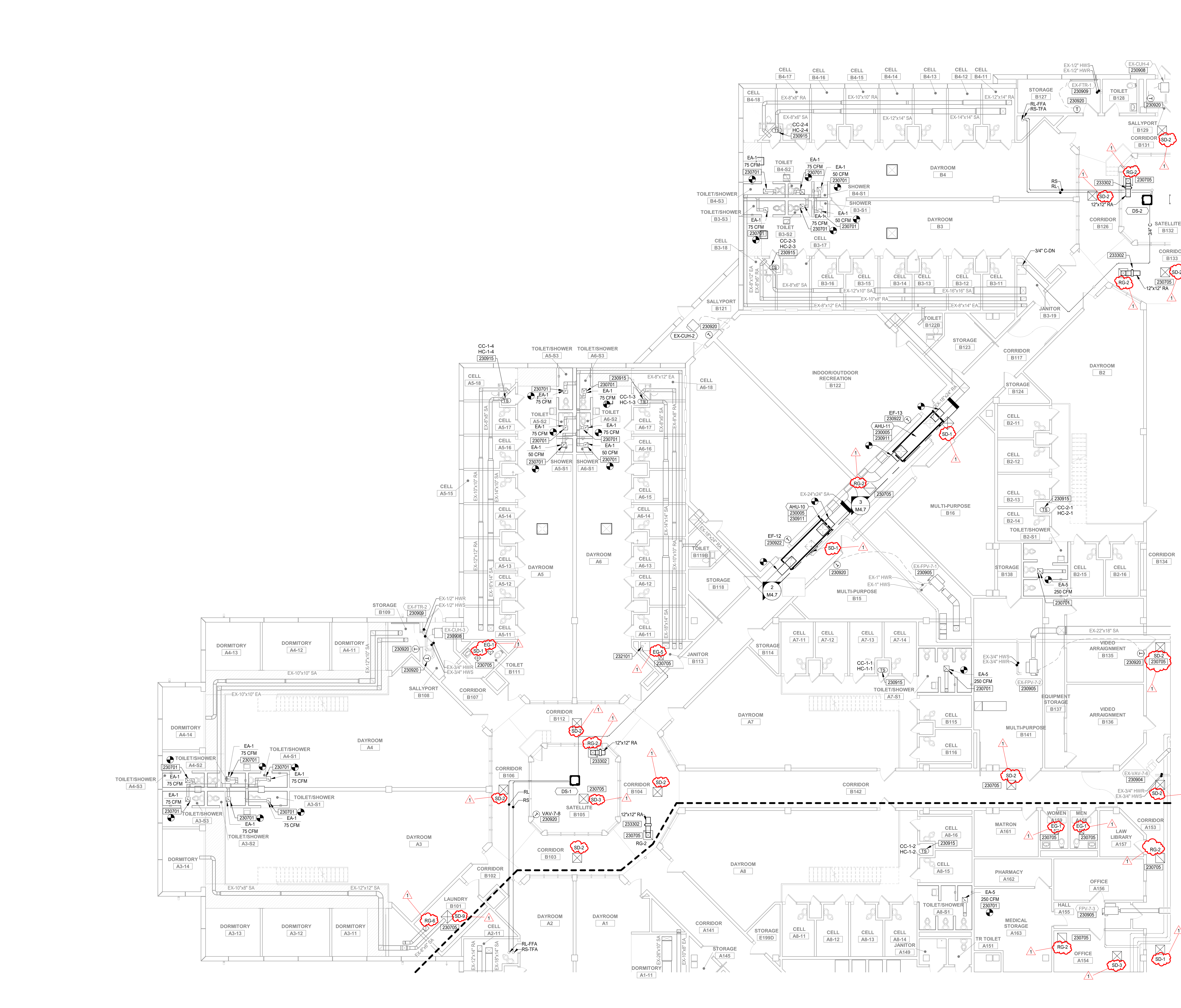
DRAWN: CSH CHK'D: SJS
DESIGNED: CSH
APPRV'D: JRA
DATE: JANUARY 8, 2025

PROJECT NUMBER
2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL FACILITY IMPROVEMENTS
2755 STATE ROAD 49

FIRST FLOOR MECHANICAL INSTALLATION PLAN - AREA A

SHEET NUMBER
M2.1A
MECHANICAL



FIRST FLOOR MECHANICAL INSTALLATION PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO SHEETS G1.1 AND M0.1 FOR ADDITIONAL GENERAL NOTES AND INFORMATION.

B. DUCT AND PIPING LAYOUT ARE SCHEMATIC IN NATURE. PROVIDE ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS AND FITTINGS AS REQUIRED.

C. COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENING AS REQUIRED ON SITE.

D. COORDINATE ALL WORK WITH OTHER TRADES TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.

E. DO NOT SCALE DRAWINGS FOR DIMENSIONS.

F. REFER TO DETAILS SHEETS FOR ADDITIONAL INFORMATION ON INSTALLATION METHODS.

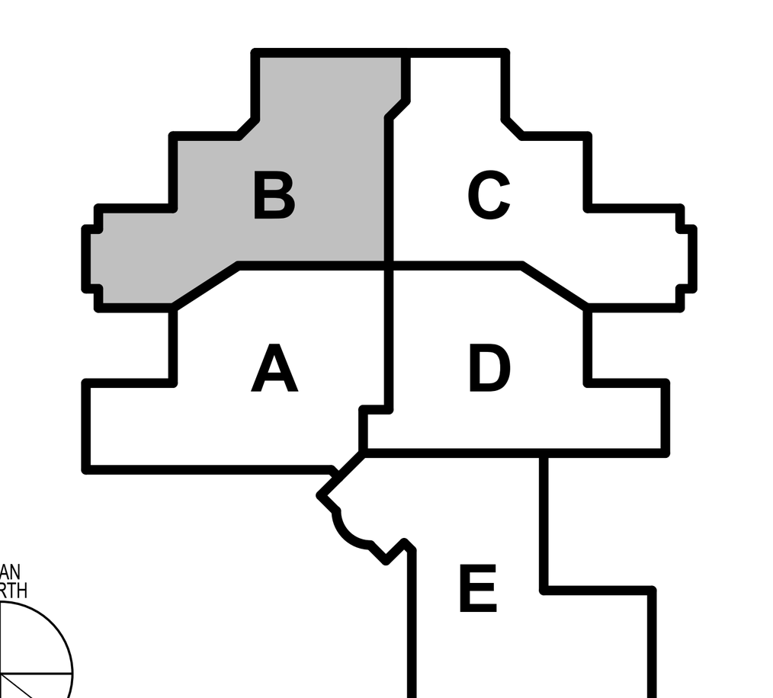
G. ALL EXISTING CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES SHALL BE REMOVED AND REPLACED ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

H. PROVIDE NEW CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

KEYNOTES

230005	INSTALL NEW AHU IN PLACE OF EXISTING AHU. CONNECT TO EXISTING DUCTWORK AND PIPING AS SHOWN. RESIZE EQUIPMENT PAD AS NECESSARY TO MAINTAIN 6" SPACE AROUND PERIMETER OF EQUIPMENT. REFER TO M.4 SERIES FOR MORE INFORMATION.
230701	CONNECT NEW GRILLE TO EXISTING EXHAUST DUCTWORK. LOCATE GRILLE TO ADJUST DUCTWORK AS MINIMALLY AS POSSIBLE.
230705	REINSTALL EXISTING DIFFUSERS AND GRILLES AND CONNECT TO EXISTING DUCTWORK IN ENTIRE SPACE. ALTERNATE BID: CONNECT NEW DIFFUSERS AND GRILLES TO EXISTING DUCTWORK. PROVIDE DIFFUSER OR GRILLE AS INDICATED ON AIR TERMINAL SCHEDULE.
230904	PROVIDE NEW CONTROLS FOR THE SHUTOFF TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 1/M7.1.
230905	PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.
230908	PROVIDE NEW CONTROLS FOR HYDRONIC UNIT HEATER AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 7/M7.1.
230909	PROVIDE NEW CONTROLS FOR FIN TUBE RADIATOR AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 8/M7.6.
230911	PROVIDE NEW CONTROLS FOR CONSTANT VOLUME AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.2.
230915	PROVIDE TEMPERATURE SENSOR INSIDE RETURN DUCTWORK. SENSOR TO CONTROL THE UNITS INDICATED.
230920	PROVIDE THERMOSTAT IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
230922	PROVIDE THERMOSTAT WITH SECURITY COVER IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
232101	ROUTE CONDENSATE LINE DOWN TO MOP SINK.
233302	PROVIDE SMOKE DAMPER ON DUCTWORK FROM RETURN GRILLE. REFER TO M7.7/M7.8 FOR CONTROLS.

KEYPLAN



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2/19/2025

NO.	REVISION	DATE
1	ADDENDUM #02	02-19-2025

DRAWN: CSH CHK'D: SJS
DESIGNED: CSH
APPRV'D: JRA
DATE: JANUARY 8, 2025
PROJECT NUMBER
2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL
FACILITY IMPROVEMENTS
2755 STATE ROAD 49

FIRST FLOOR MECHANICAL INSTALLATION PLAN - AREA B

SHEET NUMBER
M2.1B
MECHANICAL

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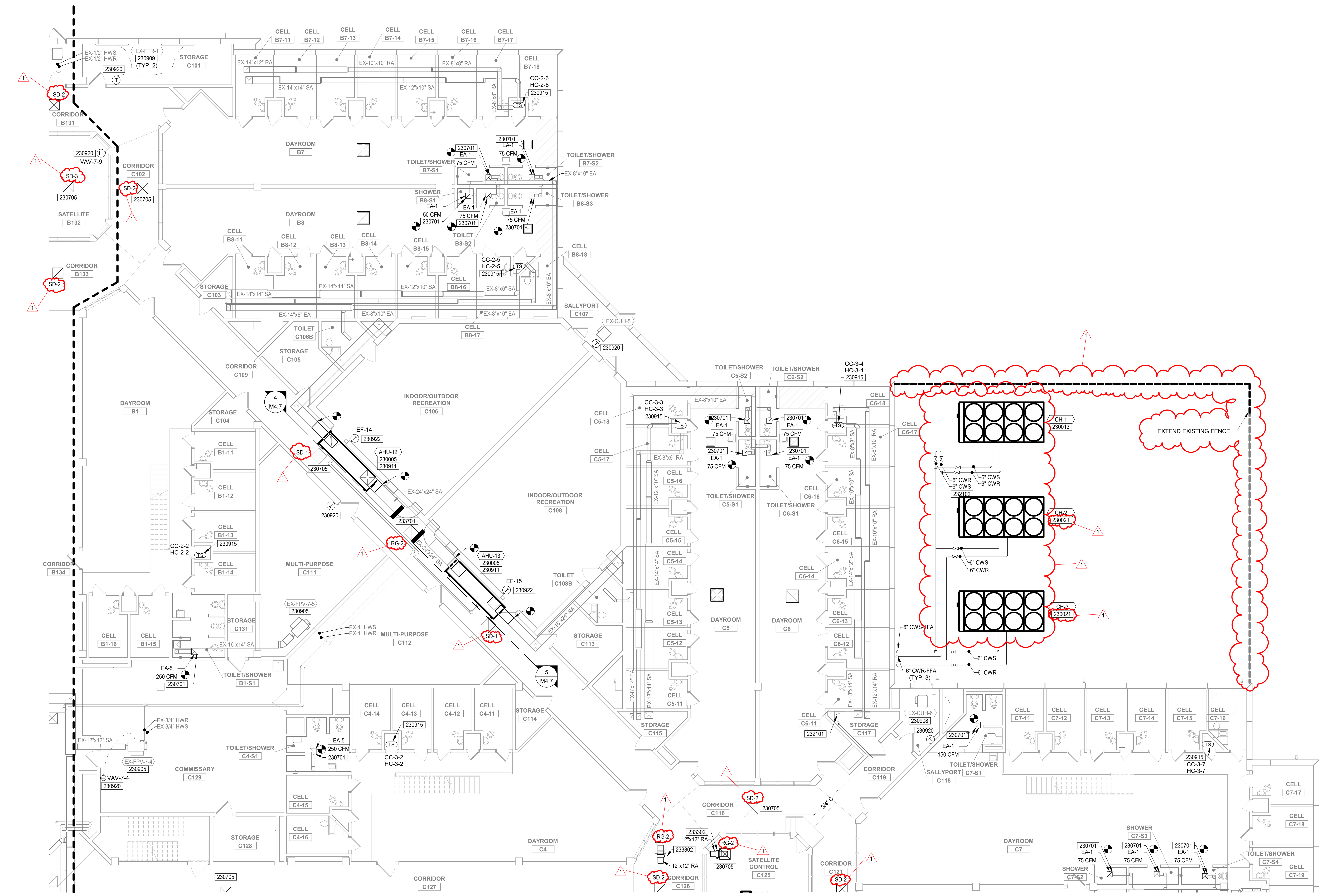

1 FIRST FLOOR MECHANICAL INSTALLATION PLAN - AREA C
SCALE: 1/8" = 1'-0"
NORTH

GENERAL NOTES

A. REFER TO SHEETS G1.1 AND M0.1 FOR ADDITIONAL GENERAL NOTES AND INFORMATION.

B. DUCT AND PIPING LAYOUT ARE SCHEMATIC IN NATURE. PROVIDE ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS AND FITTINGS AS REQUIRED.

C. COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENING AS REQUIRED ON SITE.

D. COORDINATE ALL WORK WITH OTHER TRADES TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.

E. DO NOT SCALE DRAWINGS FOR DIMENSIONS.

F. REFER TO DETAILS SHEETS FOR ADDITIONAL INFORMATION ON INSTALLATION METHODS.

G. ALL EXISTING CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES SHALL BE REMOVED AND REPLACED ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

H. PROVIDE NEW CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

KEYNOTES

230005	INSTALL NEW AHU IN PLACE OF EXISTING AHU. CONNECT TO EXISTING DUCTWORK AND PIPING AS SHOWN. RESIZE EQUIPMENT PAD AS NECESSARY TO MAINTAIN 6" SPACE AROUND PERIMETER OF EQUIPMENT. REFER TO M.4 SERIES FOR MORE INFORMATION.
230013	PROVIDE NEW HOUSING PAD FOR CHILLERS. ADJUST CHILLER YARD FENCING TO EXTEND NORTH TO ALIGN WITH WALL AS INDICATED. REFER TO M5.3 FOR FENCING DETAILS.
230021	RESIZE EXISTING HOUSING PAD TO FIT NEW CHILLER.
230701	CONNECT NEW GRILLE TO EXISTING EXHAUST DUCTWORK. LOCATE GRILLE TO ADJUST DUCTWORK AS MINIMALLY AS POSSIBLE.
230705	REINSTALL EXISTING DIFFUSERS AND GRILLES AND CONNECT TO EXISTING DUCTWORK IN ENTIRE SPACE. ALTERNATE BID: CONNECT NEW DIFFUSERS AND GRILLES TO EXISTING DUCTWORK. PROVIDE DIFFUSER OR GRILLE AS INDICATED ON AIR TERMINAL SCHEDULE.
230905	PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.
230908	PROVIDE NEW CONTROLS FOR HYDRONIC UNIT HEATER AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 7/M7.1.
230909	PROVIDE NEW CONTROLS FOR FIN TUBE RADIATOR AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 8/M7.6.
230911	PROVIDE NEW CONTROLS FOR CONSTANT VOLUME AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.2.
230915	PROVIDE TEMPERATURE SENSOR INSIDE RETURN DUCTWORK. SENSOR TO CONTROL THE UNITS INDICATED.
230920	PROVIDE THERMOSTAT IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
230922	PROVIDE THERMOSTAT WITH SECURITY COVER IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
232101	ROUTE CONDENSATE LINE DOWN TO MOP SINK.
232102	PROVIDE STUB-OUT WITH SHUTOFF VALVES FOR EMERGENCY CHILLED WATER CONNECTION. CAP OPEN ENDS.
233302	PROVIDE SMOKE DAMPER ON DUCTWORK FROM RETURN GRILLE. REFER TO M7.7/M7.8 FOR CONTROLS.
233701	REINSTALL EXISTING RETURN GRILLE IN SAME LOCATION AS PREVIOUSLY.

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2/19/2025

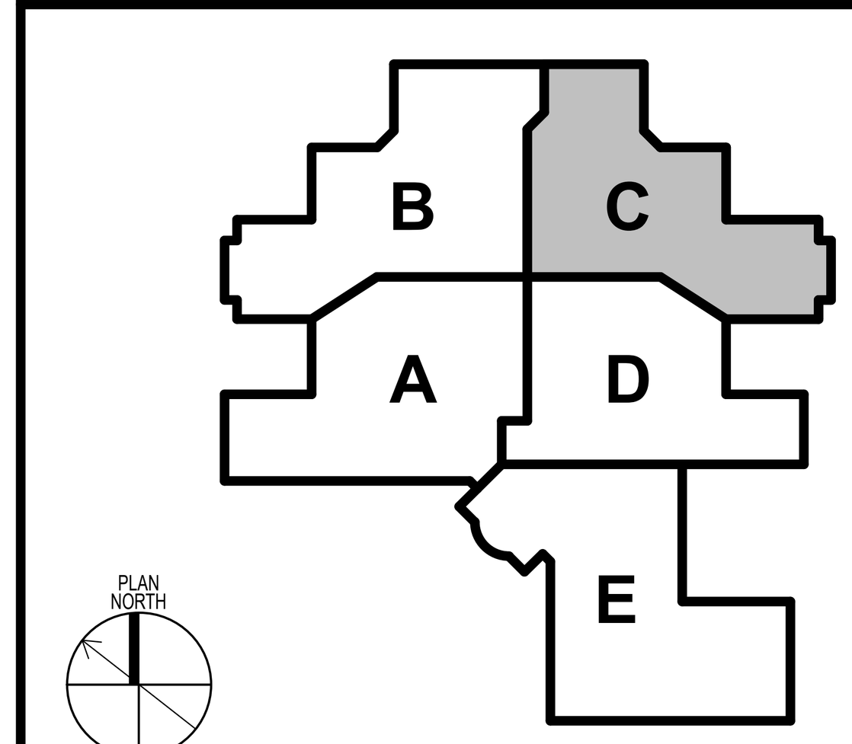
NO.	REVISION	DATE
1	ADDENDUM #02	02-19-2025

DRAWN: CSH CHK'D: SJS
DESIGNED: CSH
APPRV'D: JRA
DATE: JANUARY 8, 2025
PROJECT NUMBER
2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL FACILITY IMPROVEMENTS
2755 STATE ROAD 49

FIRST FLOOR MECHANICAL INSTALLATION PLAN - AREA C

KEYPLAN



SHEET NUMBER
M2.1C
MECHANICAL

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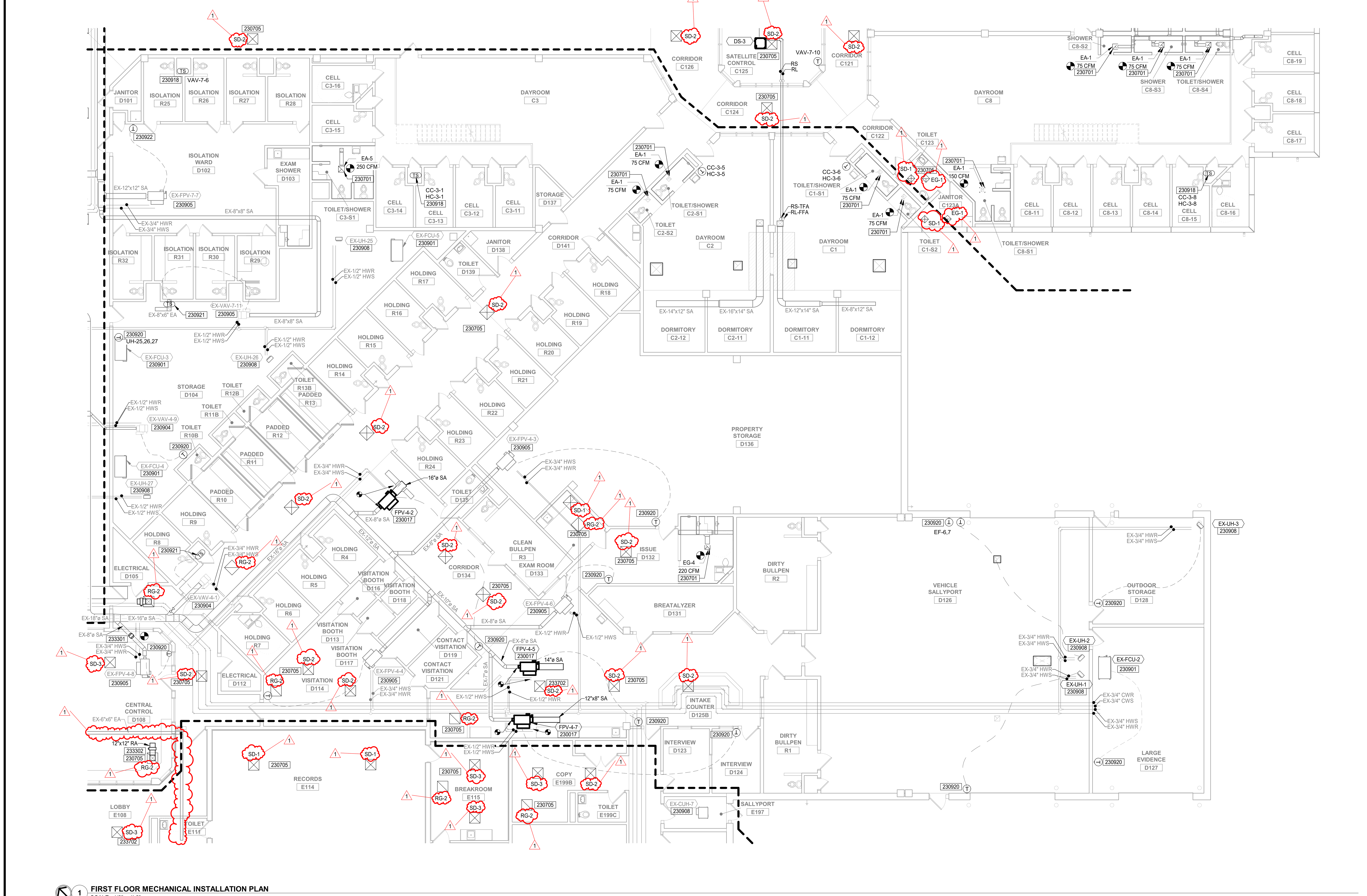


FIRST FLOOR MECHANICAL INSTALLATION PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. REFER TO SHEETS G1.1 AND M0.1 FOR ADDITIONAL GENERAL NOTES AND INFORMATION.

B. DUCT AND PIPING LAYOUT ARE SCHEMATIC IN NATURE. PROVIDE ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS AND FITTINGS AS REQUIRED.

C. COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENING AS REQUIRED ON SITE.

D. COORDINATE ALL WORK WITH OTHER TRADES TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.

E. DO NOT SCALE DRAWINGS FOR DIMENSIONS.

F. REFER TO DETAILS SHEETS FOR ADDITIONAL INFORMATION ON INSTALLATION METHODS.

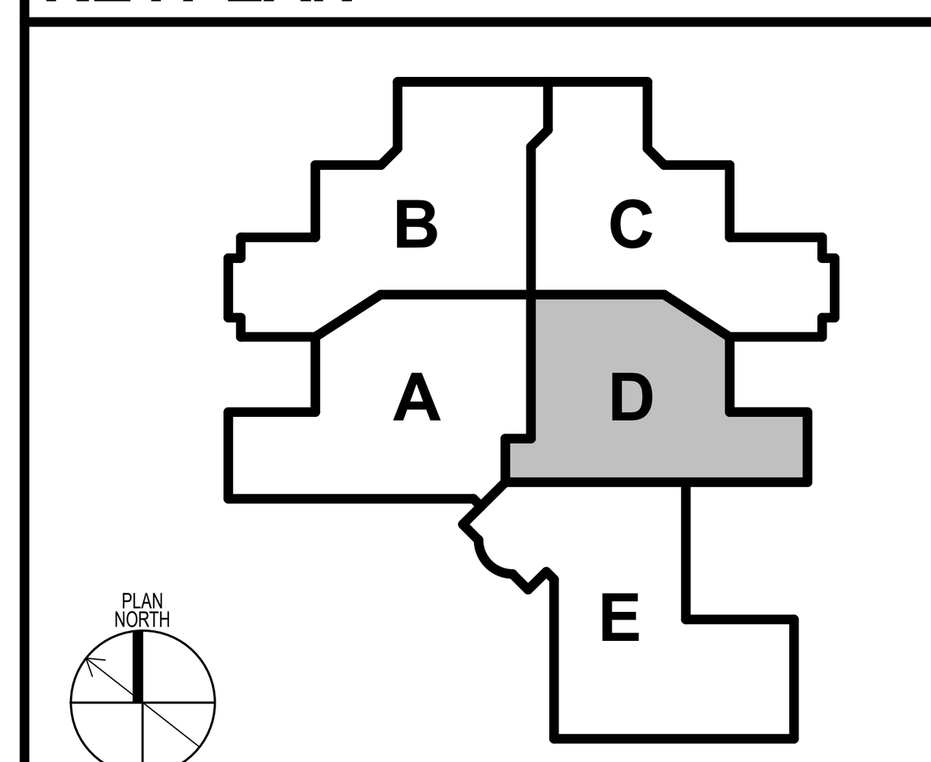
G. ALL EXISTING CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES SHALL BE REMOVED AND REPLACED ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

H. PROVIDE NEW CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

KEYNOTES

230017	CONNECT NEW VAV BOX TO EXISTING DUCTWORK AND PIPING. PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.
230701	CONNECT NEW GRILLE TO EXISTING EXHAUST DUCTWORK. LOCATE GRILLE TO ADJUST DUCTWORK AS MINIMALLY AS POSSIBLE.
230705	REINSTALL EXISTING DIFFUSERS AND GRILLES AND CONNECT TO EXISTING DUCTWORK IN ENTIRE SPACE. ALTERNATE BID: CONNECT NEW DIFFUSERS AND GRILLES TO EXISTING DUCTWORK. PROVIDE DIFFUSER OR GRILLE AS INDICATED ON AIR TERMINAL SCHEDULE.
230901	PROVIDE NEW CONTROLS FOR THE FAN COIL UNIT AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM AS PER 3/M7.1.
230904	PROVIDE NEW CONTROLS FOR THE SHUTOFF TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 1/M7.1.
230905	PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.
230908	PROVIDE NEW CONTROLS FOR HYDRONIC UNIT HEATER AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 7/M7.1.
230918	PROVIDE TEMPERATURE SENSOR INSIDE RETURN DUCTWORK. REPAIR OR REPLACE INSULATION AFFECTED BY TEMPERATURE SENSOR INSTALLATION. SENSOR TO CONTROL THE UNITS INDICATED.
230920	PROVIDE THERMOSTAT IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
230921	PROVIDE TEMPERATURE SENSOR IN EXISTING EXHAUST DUCTWORK.
230922	PROVIDE THERMOSTAT WITH SECURITY COVER IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.
233301	PROVIDE NEW SMOKE DAMPER ON DUCT UPSTREAM OF VAV BOX. REFER TO M7.7/M7.8 FOR CONTROLS.
233302	PROVIDE SMOKE DAMPER ON DUCTWORK FROM RETURN GRILLE. REFER TO M7.7/M7.8 FOR CONTROLS.
233702	INSTALL NEW SUPPLY DIFFUSER IN SAME LOCATION AS PREVIOUSLY. RECONNECT TO EXISTING DUCTWORK.

KEYPLAN



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DLZ INDIANA, LLC

2/19/2025

NO.	REVISION	DATE
1	ADDENDUM #02	02-19-2025

DRAWN: CSH CHK'D: SJS
DESIGNED: CSH
APPR'D: JRA
DATE: JANUARY 8, 2025
PROJECT NUMBER 2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL FACILITY IMPROVEMENTS
2755 STATE ROAD 49

FIRST FLOOR MECHANICAL INSTALLATION PLAN - AREA D

SHEET NUMBER
M2.1D
MECHANICAL

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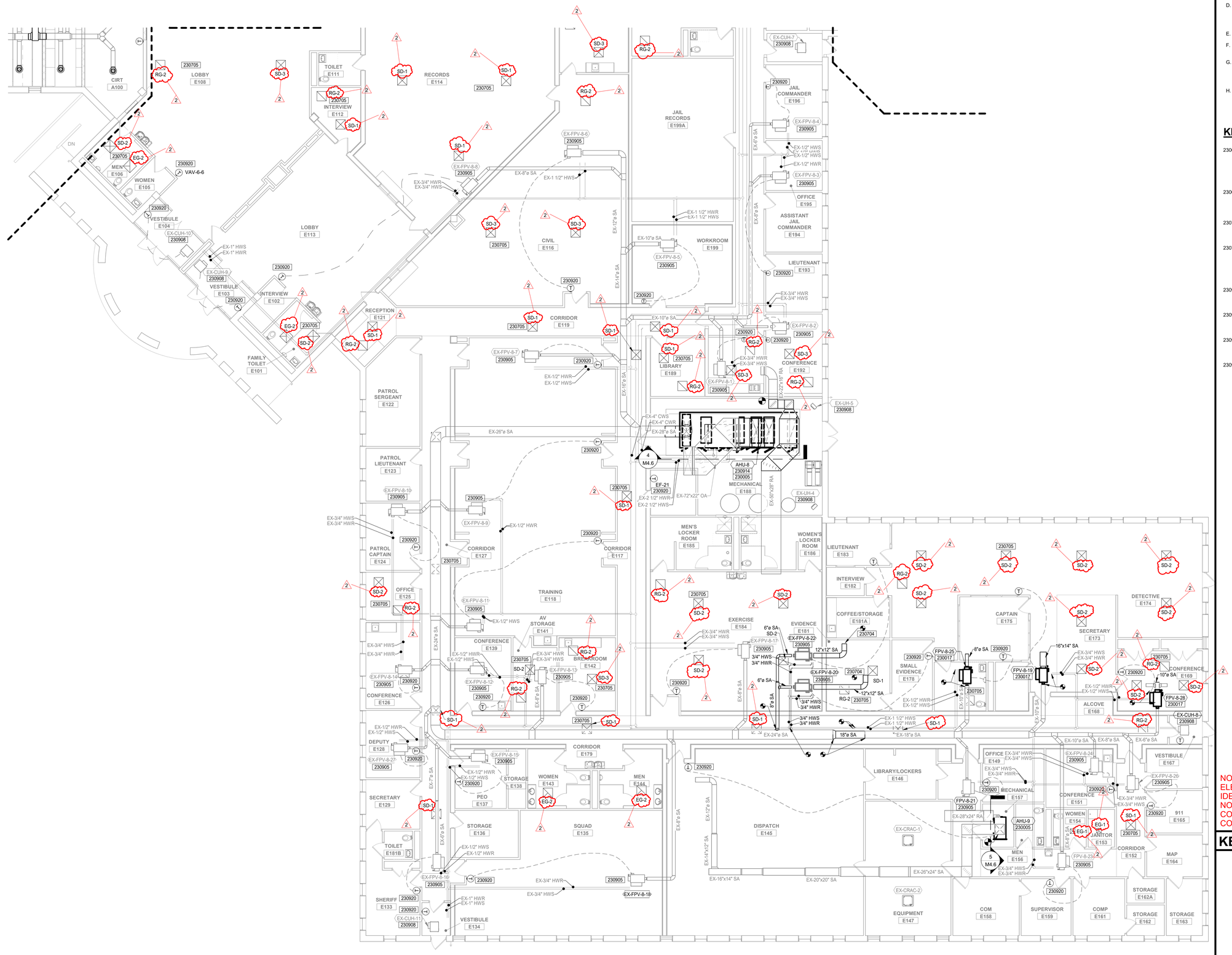

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2/19/2025 9:24:59 AM

1 FIRST FLOOR MECHANCIAL INSTALLATION PLAN - AREA E
SCALE: 1/8" = 1'-0"
NORTH

GENERAL NOTES

A. REFER TO SHEETS G1.1 AND M0.1 FOR ADDITIONAL GENERAL NOTES AND INFORMATION.

B. DUCT AND PIPING LAYOUT ARE SCHEMATIC IN NATURE. PROVIDE ADDITIONAL TRANSITIONS, ELBOWS, OFFSETS AND FITTINGS AS REQUIRED.

C. COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENING AS REQUIRED ON SITE.

D. COORDINATE ALL WORK WITH OTHER TRADES TO PERMIT ACCESS AND SERVICE CLEARANCES TO ALL SYSTEMS. COORDINATE DUCT WITH ELECTRICAL J-BOXES TO PREVENT OBSTRUCTIONS.

E. DO NOT SCALE DRAWINGS FOR DIMENSIONS.

F. REFER TO DETAILS SHEETS FOR ADDITIONAL INFORMATION ON INSTALLATION METHODS.

G. ALL EXISTING CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES SHALL BE REMOVED AND REPLACED ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

H. PROVIDE NEW CONTROLS INCLUDING SENSORS, CONTROL VALVES, ACTUATORS, PANELS, VFD'S, AND OTHER APPURTENANCES ACCORDING TO SCHEMATICS ON CONTROL DRAWINGS.

KEYNOTES

230005 INSTALL NEW AHU IN PLACE OF EXISTING AHU. CONNECT TO EXISTING DUCTWORK AND PIPING AS SHOWN. RESIZE EQUIPMENT PAD AS NECESSARY TO MAINTAIN 6" SPACE AROUND PERIMETER OF EQUIPMENT. REFER TO M.4 SERIES FOR MORE INFORMATION.

230017 CONNECT NEW VAV BOX TO EXISTING DUCTWORK AND PIPING. PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.

230704 INSTALL NEW DUCTWORK FROM FPV TO EXISTING. VIELD VERIFY TO MATCH TO EXISTING DUCTWORK SIZE.

230705 REINSTALL EXISTING DIFFUSERS AND GRILLES AND CONNECT TO EXISTING DUCTWORK IN ENTIRE SPACE. ALTERNATE BID: CONNECT NEW DIFFUSERS AND GRILLES TO EXISTING DUCTWORK. PROVIDE DIFFUSER OR GRILLE AS INDICATED ON AIR TERMINAL SCHEDULE.

230905 PROVIDE NEW CONTROLS FOR FAN POWERED TYPE VAV BOX AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.1.

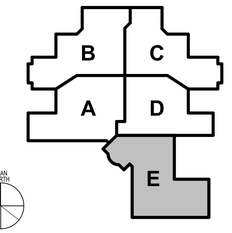
230908 PROVIDE NEW CONTROLS FOR HYDRONIC UNIT HEATER AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 7/M7.1.

230914 PROVIDE NEW CONTROLS FOR VAV AHU AND INTERFACE WITH BUILDING MANAGEMENT SYSTEM. REFER TO DETAIL 2/M7.5.

230920 PROVIDE THERMOSTAT IN SAME LOCATION AS EXISTING. MATCH EXISTING WALL CONDITIONS AROUND THERMOSTAT IF DIMENSIONS DO NOT MATCH.

NOTE:
ELEMENTS ON THIS DRAWING ARE IDENTIFIED BY VARIOUS COLORS; IF THIS NOTE IS NOT RED, THIS DRAWING IS NOT IN COLOR AND NEEDS TO BE REPRINTED IN COLOR.

KEYPLAN



DLZ
ARCHITECTURE • ENGINEERING • PLANNING
SURVEYING • CONSTRUCTION SERVICES
DLZ INDIANA, LLC

2/19/2025
JOSEPH R. APLING — REGISTERED PROFESSIONAL ENGINEER — STATE OF INDIANA

NO.	REVISION	DATE
1	ADDENDUM #01	02-05-2025
2	ADDENDUM #02	02-19-2025

DRAWN: CSH | CHK'D: SJS
DESIGNED: CSH
APPRV'D: JRA
DATE: JANUARY 8, 2025

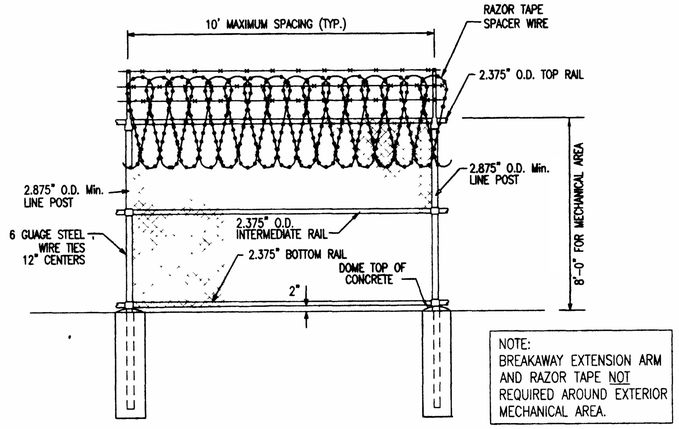
PROJECT NUMBER
2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL
FACILITY IMPROVEMENTS
2755 STATE ROAD 49

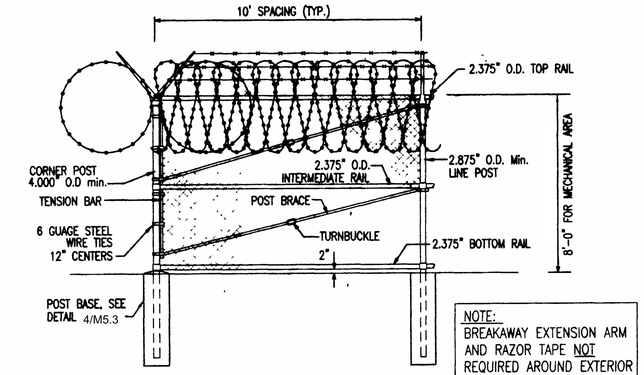
FIRST FLOOR MECHANICAL INSTALLATION PLAN - AREA E

SHEET NUMBER
M2.1E

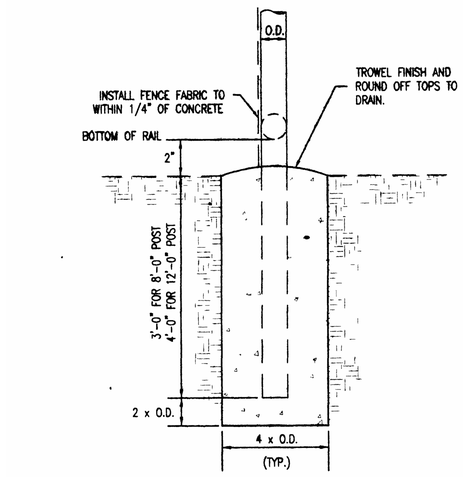
MECHANICAL



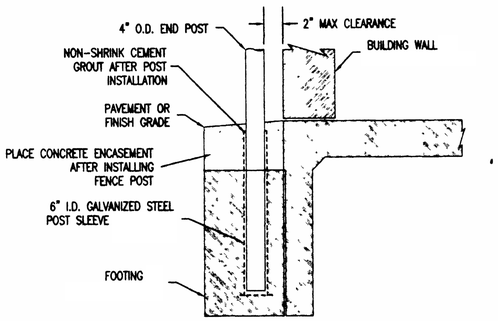
5 **CHAIN LINK FENCE DETAIL**
SCALE: N.T.S.



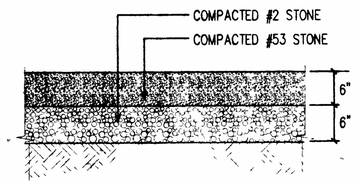
3 **CORNER FENCE DETAIL**
SCALE: N.T.S.



4 **FENCE POST BASE DETAIL**
SCALE: N.T.S.



2 **FENCE ADJACENT TO BUILDING DETAIL**
SCALE: N.T.S.



1 **STONE PAVEMENT DETAIL**
SCALE: N.T.S.

NOTE:
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ARCHITECTURE • ENGINEERING • PLANNING
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DLZ INDIANA, LLC

2/19/2025
JOSHUA R. APLING REGISTERED PE 10009274 STATE OF INDIANA PROFESSIONAL ENGINEER

NO.	REVISION	DATE
1	ADDENDUM #02	02-19-2025

DRAWN: CSH CHK'D: SJS
DESIGNED: CSH
APPRV'D: JRA
DATE: JANUARY 8, 2025

PROJECT NUMBER 2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL
FACILITY IMPROVEMENTS
2755 STATE ROAD 49

MECHANICAL DETAILS - 3

DRAWING NUMBER
M5.3
MECHANICAL

AIR COOLED CHILLER SCHEDULE

TAG		MANUFACTURER	MODEL	NOMINAL TONS	EER	IPLV	FLUID TYPE	FLOW RATE (GPM) MINIMUM	FLOW RATE (GPM) DESIGN	WATER PD (FT H2O) TOTAL PD	WATER PD (FT H2O) EVAPORATOR PD	WATER TEMPERATURE (°F) ENTERING	WATER TEMPERATURE (°F) LEAVING	REFRIGERANT TYPE	NUMBER OF REFRIGERANT CIRCUITS	NO. OF COMPRESSORS	ELECTRICAL DATA VOLTAGE	PHASE	FREQUENCY (HZ)	STARTER TYPE	MCA	MOCP	DIMENSIONS (IN) LENGTH	WIDTH	HEIGHT	WEIGHT (LBS)	NOTES
CH	1	YORK	YLAA0136SJ46XFB	122.6	9.815	17.68	30% PROPYLENE GLYCOL	115	305.1	23.3	15.1	55	45	R454B	2	6	460	3	60	ACROSS THE LINE	290	300	187	88	94	7165	1,2,3,4,5,6,7,8,9,10
CH	2	YORK	YLAA0136SJ46XFB	122.6	9.815	17.68	30% PROPYLENE GLYCOL	115	305.1	23.3	15.1	55	45	R454B	2	6	460	3	60	ACROSS THE LINE	290	300	187	88	94	7165	1,2,3,4,5,6,7,8,9,10
CH	3	YORK	YLAA0136SJ46XFB	122.6	9.815	17.68	30% PROPYLENE GLYCOL	115	305.1	23.3	15.1	55	45	R454B	2	6	460	3	60	ACROSS THE LINE	290	300	187	88	94	7165	1,2,3,4,5,6,7,8,9,10

NOTES:
1. PROVIDE STARTER/DISCONNECT PER DIVISION 26 SPECIFICATIONS AND MECHANICAL EQUIPMENT - ELECTRICAL CONNECTIONS SCHEDULE ON ELECTRICAL DRAWINGS.
2. PROVIDE DISCONNECT IN NEMA 3R RATED ENCLOSURE AS PER DIVISION 26 SPECIFICATIONS.
3. UNIT SHALL BE RATED FOR 30% PROPYLENE GLYCOL.
4. PROVIDE ACCESSORIES AS NEEDED FOR LOW AMBIENT OPERATION. UNITS SHALL BE PROVIDED WITH HIGH EFFICIENCY FANS TO ALLOW FOR UNITS TO OPERATE VIA SOUND REDUCTION MODE. PROVIDE FACTORY INSTALLED ACOUSTICAL BLANKETS ON EACH COMPRESSOR FOR SOUND REDUCTION.
5. UNIT SHALL HAVE A SINGLE POWER POINT ELECTRICAL CONNECTION. PROVIDE 10A, 115 V GFCI OUTLET IN CONTROL PANEL FOR SERVICING THE UNIT. OUTLET SHALL BE POWERED VIA SINGLE POWER POINT CONNECTION.
6. PROVIDE EVAPORATOR HEATER AND INSULATION FOR PROTECTION OF EVAPORATOR COIL. EVAPORATOR HEATER CIRCUIT SHALL BE FACTORY WIRED TO 115 V CIRCUIT IN CONTROL BOX.
7. PROVIDE FACTORY INSTALLED WATER FLOW SWITCH TO PREVENT EVAPORATOR FREEZEUP DURING LOW OR NO FLOW CONDITIONS.
8. UNIT SHALL BE PROVIDED WITH LOUVERS TO PROTECT AGAINST HAIL GUARD.
9. REFER TO DETAIL 1/M5.2 AND 16/M5.1 FOR ADDITIONAL INFORMATION.
10. REFER TO M7.3 FOR CONTROLS.

FAN POWERED VAV SCHEDULE

TAG		MANUFACTURER	MODEL	SIZE	INLET DIAMETER (IN)	AIR FLOW (CFM) FAN FLOW	MAX PRIMARY	MIN PRIMARY	DOWNSTREAM SP (IN WG)	COIL CAPACITY (MBH)	MAX COIL APD (IN WG)	WATER PRESSURE DROP (FT WG)	WATER FLOW (GPM)	WATER TEMPERATURE (°F) ENTERING	LEAVING	FAN HP	FAN VOLTAGE	FAN PHASE	NOTES
FPV	4-2	PRICE	FDC	30	8	1100	1100	90	0.5	41.6	0.32	1.54	2.26	180	150	1/2	277	1	1,2,3,4
FPV	4-5	PRICE	FDC	20	8	690	690	60	0.55	26.1	0.14	0.41	1.07	180	150	1/3	277	1	1,2,3,4
FPV	4-7	PRICE	FDC	10	8	590	590	270	0.5	22.3	0.34	0.27	1.09	180	150	1/3	277	1	1,2,3,4
FPV	6-5	PRICE	FDC	60	14	2180	2180	1080	0.6	45.6	0.24	0.27	1.11	180	150	2@3/4	277	1	1,2,3,4
FPV	8-19	PRICE	FDC	50	12	1625	1625	150	0.7	61.4	0.33	1.27	3.17	180	150	1	277	1	1,2,3,4
FPV	8-25	PRICE	FDC	10	4	160	160	15	0.5	6	0.04	0.01	0.2	180	150	1/3	277	1	1,2,3,4
FPV	8-28	PRICE	FDC	10	5	370	370	180	0.5	14	0.15	0.07	0.51	180	150	1/3	277	1	1,2,3,4

NOTES:
1. PROVIDE STARTER/DISCONNECT PER DIVISION 26 SPECIFICATIONS AND MECHANICAL EQUIPMENT - ELECTRICAL CONNECTIONS SCHEDULE ON ELECTRICAL DRAWINGS.
2. REFER TO DETAIL 11/M5.1.
3. REFER TO 2/M7.1 FOR CONTROLS.
4. PROVIDE 2-WAY VALVE FOR HEATING COIL.

GLYCOL FEED TANK SCHEDULE

TAG		MANUFACTURER	MODEL	SYSTEM SERVED	DIAMETER (IN)	HEIGHT (IN)	TANK VOLUME (GAL)	HORSE POWER (HP)	NOTES
GFT	1	WESSELS	GMP-15050	CW	34	45	50	1/2	1,2,3,4,5

NOTES:
1. EQUIPMENT SHALL BE RATED FOR PROPYLENE GLYCOL.
2. PROVIDE LOW WATER CUT-OFF ALARM, HIGH LEVEL ALARM, HOA CONTROLS, MAGNETIC STARTER, PRESSURE GAUGE AND SYSTEM ISOLATION VALVE.
3. PROVIDE 120V CIRCUIT FOR GLYCOL PUMP. UNIT SHALL BE ACCOMPANIED WITH A REMOTE ALARM (LIGHT AND HORN). UNIT SHALL HAVE A SINGLE POWER POINT CONNECTION. REMOTE ALARMS SHALL BE POWERED THROUGH THE SAME ELECTRICAL CONNECTION. COORDINATE LOCATION OF REMOTE ALARM WITH THE OWNER.
4. REFER TO DETAIL 12/M5.1 FOR ADDITIONAL INFORMATION.
5. REFER TO DETAIL 1/M5.2 FOR ADDITIONAL INFORMATION.

DUCTLESS SPLIT INDOOR UNIT SCHEDULE

TAG		MANUFACTURER	MODEL	AIRFLOW (CFM)	RATED COOLING CAPACITY (MBH)	RATED HEATING CAPACITY (MBH)	ELECTRICAL DATA VOLTAGE	PHASE	MCA	MOCP	WEIGHT (LBS)	NOTES
DS	1	TRANE	PLA-AE12NL	530	12	10.1	208	1	1.0	15	225	1,2,3,4
DS	2	TRANE	PLA-AE12NL	530	12	10.1	208	1	1.0	15	225	1,2,3,4
DS	3	TRANE	PLA-AE12NL	530	12	10.1	208	1	1.0	15	225	1,2,3,4
DS	4	TRANE	PLA-AE24NL	810	24	13	208	1	1.0	25	225	1,2,3,4

NOTES:
1. REFER TO DETAIL 8/M5.1.
2. PROVIDE CONDENSATE PUMP WITH BUILT-IN CHECK VALVE.
3. INDOOR UNIT IS POWERED BY OUTDOOR UNIT.
4. UNIT IS INTENDED TO BACK-UP FOR EXISTING SYSTEM. REFER TO M7.7 AND M7.8 FOR CONTROLS. PROVIDE CONTROLS FOR UNITS TO TURN ON WHEN PRIMARY VAV SYSTEM TURNS OFF.

AIR COOLED CONDENSING UNIT SCHEDULE

TAG		MANUFACTURER	MODEL	EQUIPMENT SERVED	NOMINAL TONS	DESIGN AMBIENT TEMP. (°F)	SEER	REF. TYPE	ELECTRICAL DATA VOLTAGE	PHASE	FREQUENCY (HZ)	MCA	MOCP	WEIGHT (LBS)	NOTES
ACC	1	TRANE	PUZ-AK12NL	DS-1	1	95	27.0	R-454B	208	1	60	11.0	28	104	1,2,3,4,5
ACC	2	TRANE	PUZ-AK12NL	DS-2	1	95	27.0	R-454B	208	1	60	11.0	28	104	1,2,3,4,5
ACC	3	TRANE	PUZ-AK12NL	DS-3	1	95	27.0	R-454B	208	1	60	11.0	28	104	1,2,3,4,5
ACC	4	TRANE	PUZ-AK24NL	DS-4	2	95	24.2	R-454B	208	1	60	19.0	26	179	1,2,3,4,5
ACC	9	YORK	KC120C00A4GLB1	AHU-9	10	95	15.5	R-454B	460	3	60	20.5	30	435	1,2,3,4,6

NOTES:
1. PROVIDE STARTER/DISCONNECT AS PER DIVISION 26 SPECIFICATIONS AND MECHANICAL EQUIPMENT - ELECTRICAL CONNECTIONS SCHEDULE ON ELECTRICAL DRAWINGS.
2. PROVIDE CRANKCASE HEATER, HAIL GUARD, LOW-AMBIENT KIT, WINTER START KIT AND WIND BAFFLE.
3. SIZE AND INSTALL REFRIGERANT PIPING AS PER MANUFACTURER'S RECOMMENDATIONS.
4. REFER TO DETAIL 8/M5.1 FOR ADDITIONAL INFORMATION.
5. UNIT IS INTENDED TO BACK-UP FOR EXISTING SYSTEM. REFER TO M7.7 AND M7.8 FOR CONTROLS.
6. ALTERNATE BID ITEM.

DUCT MOUNTED COIL SCHEDULE

TAG		MANUFACTURER	MODEL	CFM	COOLING COIL TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	MAX AIR PD (IN H20)	WATER PD (IN H20)	FLOW (GPM)	ROWS	EWT (°F)	LWT (°F)	EAT DB/WB (°F)	LAT DB/WB (°F)	CONTROL VALVE	HEATING COIL TOTAL CAPACITY (MBH)	MAX AIR PD (IN H20)	WATER PD (IN H20)	FLOW (GPM)	ROWS	EWT (°F)	LWT (°F)	EAT DB (°F)	LAT DB (°F)	CONTROL VALVE	WIDTH	LENGTH	HEIGHT	WEIGHT (LBS)	AREA SERVED	NOTES
DC	1-1	YORK	XTI-33X39	1985	46	45	0.65	6.4	12.0	8	45	55	75/60.4	53.3/52.0	2-WAY	102	0.11	0.4	7.0	2	180	150	55.0	102.6	2-WAY	48	33	39	706	BLOCK A7	1,2
DC	1-2	YORK	XTI-33X39	2065	46	46	0.68	6.4	12.0	8	45	55	75/60.4	53.6/52.1	2-WAY	104	104	0.4	7.0	2	180	150	55.0	101.7	2-WAY	48	33	39	706	BLOCK A8	1,2
DC	1-3	YORK	XTI-33X39	1775	37	37	0.34	4.7	10.0	8	45	55	75/60.4	55.0/52.8	2-WAY	93	0.09	0.3	6.0	2	180	150	55.0	103.5	2-WAY	48	33	39	680	BLOCK A6	1,2
DC	1-4	YORK	XTI-33X39	1720	31	31	0.24	3.0	9.0	6	45	55	75/60.4	57.6/53.8	2-WAY	92	0.09	0.3	6.0	2	180	150	55.0	104.4	2-WAY	46	33	39	615	BLOCK A5	1,2
DC	1-5	YORK	XTI-33X39	1755	37	37	0.33	4.7	10.0	8	45	55	75.0/60.4	54.9/52.7	2-WAY	93	0.09	0.3	6.0	2	180	150	55.0	103.8	2-WAY	48	33	39	680	BLOCK A1	1,2
DC	1-6	YORK	XTI-33X36	1580	33	33	0.32	3.8	9.0	8	45	55	75.0/60.4	55.0/52.7	2-WAY	77	0.12	0.1	5.0	2	180	150	55.0	100.3	2-WAY	48	33	36	644	BLOCK A2	1,2
DC	1-7	YORK	XTI-36X39	2465	52	52	0.4	3.8	16.0	8	45	55	75.0/60.4	55.0/52.7	3-WAY	120	0.12	0.2	8.0	2	180	150	55.0	100.1	3-WAY	48	36	39	747	BLOCK A4	1,2
DC	1-8	YORK	XTI-36X42	2800	58	58	0.41	4.4	17.0	8	45	55	75.0/60.4	55.2/52.8	3-WAY	137	0.12	0.3	9.0	2	180	150	55.0	100.3	3-WAY	48	36	42	785	BLOCK A3	1,2
DC	2-1	YORK	XTI-33X39	2075	41	39	0.45	4.9	12.0	6	45	55	75.0/62.7	57.4/55.9	2-WAY	103	0.13	0.2	7.0	2	180	150	55.0	100.8	2-WAY	46	33	39	627	BLOCK B2	1,2
DC	2-2	YORK	XTI-33X39	2055	42	39	0.5	4.9	12.0	6	45	55	75.0/62.7	57.0/55.6	2-WAY	102	0.13	0.2	7.0	2	180	150	55.0	101.1	2-WAY	46	33	39	630	BLOCK B1	1,2
DC	2-3	YORK	XTI-33X39	1725	36	33	0.34	3.6	10.0	6	45	55	75.0/62.7	56.8/55.6	2-WAY	85	0.09	0.1	6.0	2	180	150	55.0	100.4	2-WAY	46	33	39	626	BLOCK B3	1,2
DC	2-4	YORK	XTI-33X36	1535	31	29	0.34	2.9	9.0	6	45	55	75.0/62.7	56.9/55.7	3-WAY	75	0.11	0.1	5.0	2	180	150	55.0	100.0	3-WAY	46	33	36	593	BLOCK B4	1,2
DC	2-5	YORK	XTI-33X39	1725	36	33	0.34	3.6	10.0	6	45	55	75.0/62.7	56.8/55.6	2-WAY	85	0.09	0.1	6.0	2	180	150	55.0	100.4	2-WAY	46	33	39	626	BLOCK B8	1,2
DC	2-6	YORK	XTI-33X36	1545	31	29	0.34	2.9	9.0	6	45	55	75.0/62.7	57.0/55.7	3-WAY	75	0.11	0.1	5.0	2	180	150	55.0	99.8	2-WAY	46	33	36	593	BLOCK B7	1,2
DC	3-1	YORK	XTI-33X39	2085	42	40	0.49	4.9	12.0	6	45	55	75.0/62.3	56.8/55.3	2-WAY	103	0.13	0.2	7.0	2	180	150	55.0	100.7	2-WAY	46	33	39	630	BLOCK C3	1,2
DC	3-2	YORK	XTI-33X39	1985	40	38	0.41	4.9	12.0	6	45	55	75.0/62.3	56.8/55.2	2-WAY	101	0.12	0.2	7.0	2	180	150	55.0	102.0	2-WAY	46	33	39	627	BLOCK C4	1,2
DC	3-3	YORK	XTI-33X39	1800	36	34	0.35	3.6	10.0	6	45	55	75.0/62.3	56.9/55.3	2-WAY	90	0.1	0.1	6.0	2	180	150	55.0	101.1	2-WAY	46	33	39	627	BLOCK C5	1,2
DC	3-4	YORK	XTI-30X36	1590	34	32	0.6	4.9	11.0	6	45	55	75.0/62.3	56.0/54.8	2-WAY	78	0.11	0.3	5.0	2	180	150	55.0	100.3	2-WAY	46	30	36	565	BLOCK C6	1,2
DC	3-5	YORK	XTI-33X36	1480	32	30	0.41	2.9	9.0	6	45	55	75.0/62.3	55.7/54.7	2-WAY	71	0.09	0.1	5.0	2	180	150	55.0	99.6	2-WAY	46	33	36	606	BLOCK C2	1,2
DC	3-6	YORK	XTI-27X30	960	26	22	0.52	4.1	10.0	6	45	55	75.0/62.3	53.4/52.5	2-WAY	48	0.16	0.1	3.5	2	180	150	55.0	101.2	2-WAY	46	27	30	476	BLOCK C1	1,2
DC	3-7	YORK	XTI-39X42	2850	68	60	0.56	6.0	17.0	6	45	55	75.0/62.3	55.2/53.9	2-WAY	141	0.18	0.3	10.0	2	180	150	55.0	100.8	3-WAY	46	39	42	767	BLOCK C7	1,2
DC	3-8	YORK	XTI-42X42	3120	75	66	0.53	5.8	18.0	6	45	55	75.0/62.3	55.1/53.8	3-WAY	158	0.17	0.6	10.0	2	180	150	55.0	101.9	3-WAY	46	42	42	813	BLOCK C8	1,2

NOTES:
1. REFER TO 5/M7.2 FOR CONTROLS.
2. COOLING COILS RATED FOR 30% PROPYLENE GLYCOL.

AIR TERMINAL SCHEDULE

TAG	MANUFACTURER	MODEL	CFM RANGE	PANEL SIZE (IN)	NECK SIZE (IN)	STYLE	INSTALLATION	FINISH	PRESSURE (IN.)	NC	THROW	NOTES
EA-1	PRICE	MSRRP	0-150	8x8	-	MAXIMUM SECURITY	CEILING	BRUSHED ALUMINUM	0.124	25	-	3
EA-2	PRICE	80 SERIES	0-720	12X12	-	EGGCRATE	DUCT	WHITE POWDER COAT	0.085	20	-	-
EA-3	PRICE	80 SERIES	0-720	12X12	-	EGGCRATE	CEILING	BRUSHED ALUMINUM	0.085	20	-	-
EA-4	PRICE	80 SERIES	0-2625	24X24	-	EGGCRATE	CEILING	BRUSHED ALUMINUM	0.085	20	-	-
EA-5	PRICE	MSRRP	0-250	14X14	-	MAXIMUM SECURITY	CEILING	BRUSHED ALUMINUM	0.124	25	-	2,3
EG-1	PRICE	80 SERIES	0-720	12X12	-	EGGCRATE	CEILING	BRUSHED ALUMINUM	0.085	20	-	3
RA-1	PRICE	80 SERIES	0-2500	24X24	-	EGGCRATE	CEILING	BRUSHED ALUMINUM	0.085	20	-	-
SA-1	PRICE	RCD	0-550	12 Ø	8	ROUND CONE	DUCT	WHITE POWDER COAT	0.085	23	7	-
SA-2	PRICE	SCD	0-175	24X24	6	SQUARE CONE	CEILING	WHITE POWDER COAT	0.076	19	7	-
SA-3	PRICE	SCD	0-620	24X24	12	SQUARE CONE	CEILING	BRUSHED ALUMINUM	0.091	24	8	-
SA-4	PRICE	SCD	0-275	24X24	8	SQUARE CONE	CEILING	WHITE POWDER COAT	0.065	19	9	-
EG-1	PRICE	80 SERIES	0-720	12X12	-	EGGCRATE	CEILING	WHITE POWDER COAT	0.085	20	-	1
EG-2	PRICE	80 SERIES	0-2625	24X24	-	EGGCRATE	CEILING	BRUSHED ALUMINUM	0.085	20	-	1
EG-4	PRICE	MSRRP	0-250	14X14	-	MAXIMUM SECURITY	CEILING	BRUSHED ALUMINUM	0.124	25	-	1
EG-5	PRICE	MSRRP	0-250	12X12	-	EGGCRATE	CEILING	WHITE POWDER COAT	0.124	25	-	1
RG-2	PRICE	80 SERIES	0-2500	24X24	-	EGGCRATE	CEILING	WHITE POWDER COAT	0.085	20	-	1
RG-6	PRICE	MSRRP	0-250	14X14	-	MAXIMUM SECURITY	CEILING	WHITE POWDER COAT	0.124	25	-	1
SD-1	PRICE	SCD	0-150	24X24	6	SQUARE CONE	CEILING	WHITE POWDER COAT	0.076	19	7	1
SD-2	PRICE	SCD	0-225	24X24	8	SQUARE CONE	CEILING	WHITE POWDER COAT	0.065	19	7	1
SD-3	PRICE	SCD	0-380	24X24	10	SQUARE CONE	CEILING	WHITE POWDER COAT	0.091	24	8	1
SD-9	PRICE	MSRRCD	0-195	16X16	8	MAXIMUM SECURITY	CEILING	WHITE POWDER COAT	0.022	-	11	1,2
SD-16	PRICE	SCD	0-575	24X24	12	SQUARE CONE	CEILING	WHITE POWDER COAT	0.091	24	9	1

NOTES:
1. AIR TERMINAL REPLACEMENT PART OF ALTERNATE BID.
2. PROVIDE WITH SECURITY BARS.
3. PROVIDE FRONT OPERATED DAMPER.

EXPANSION TANK SCHEDULE

TAG		MANUFACTURER	MODEL	SYSTEM SERVED	TANK FILL TEMPERATURE (°F)	TANK MAX TEMPERATURE (°F)	TANK FILL PRESSURE (PSI)	TANK MAX PRESSURE (PSI)	REQUIRED TANK VOLUME (GAL)	REQUIRED ACCEPTANCE VOLUME (GAL)	TANK ORIENTATION	TANK TYPE	NOTES
ET	1	BELL & GOSSETT	D280	CW	40	100	60	80	190	40	VERTICAL	DIAPHRAGM	1,2,3

NOTES:
1. TANK TO BE ASME RATED.
2. EQUIPMENT SHALL BE RATED FOR 30% PROPYLENE GLYCOL.
3. REFER TO DETAIL 1/M5.2 FOR ADDITIONAL INFORMATION

EXHAUST FAN SCHEDULE

TAG		MANUFACTURER	MODEL	ROOM SERVED	DRIVE TYPE	AIRFLOW (CFM)	EXTERNAL SP (IN WG)	MOTOR (RPM)	MOTOR (HP)	ELECTRICAL DATA VOLTAGE	PHASE	FLA	WEIGHT (LBS)	NOTES
EF	1	GREENHECK	G-090-VG	KITCHEN TOILETS	DIRECT	585	0.46	1680	1/10	115	1	1.5	41	1,2,3,4
EF	2	GREENHECK	GB-160	BOOKING CELLS	BELT	1535	0.45	828	1/3	115	1	7.2	90	1,2,3,4
EF	3	GREENHECK	G-095-VG	AMMO	DIRECT	685	0.52	1640	1/6	115	1	2.8	43	1,2,3,4
EF	4	GREENHECK	G-090-VG	LOBBY TOILETS	DIRECT	460	0.41	1459	1/10	115	1	1.5	41	1,2,3,4
EF	5	GREENHECK	G-120-VG	BOOKING BULLPENS	DIRECT	1015	0.44	1127	1/4	115	1	3.8	67	1,2,3,4
EF	6	GREENHECK	GB-160	SALLYPORT	BELT	2000	0.34	868	1/3	115	1	7.2	90	1,2,3,4
EF	7	GREENHECK	GB-160	SALLYPORT	BELT	2000	0.34	969	1/3	115	1	7.2	90	1,2,3,4
EF	8	GREENHECK	G-095-VG	EXERCISE TOILETS	DIRECT	660	0.5	1600	1/6	115	1	2.8	43	1,2,3,4
EF	9	GREENHECK	GB-200	KITCHEN CART WASH	BELT	2625	0.41	680	1/2	115	1	9.8	120	1,2,3,4
EF	10	GREENHECK	G-095-VG	DISPATCH TOILETS	DIRECT	575	0.45	1474	1/6	115	1	2.8	43	1,2,3,4
EF	11	GREENHECK	G-095-VG	ADMIN TOILETS	DIRECT	475	0.41	1347	1/6	115	1	2.8	43	1,2,3,4
EF	12	GREENHECK	GB-160	REC	BELT	2000	0.34	868	1/3	115	1	7.2	90	1,2,3,4
EF	13	GREENHECK	GB-160	REC	BELT	2000	0.34	868	1/3	115	1	7.2	90	1,2,3,4
EF	14	GREENHECK	GB-160	REC	BELT	2000	0.34	868	1/3	115	1	7.2	90	1,2,3,4
EF	15	GREENHECK	GB-160	REC	BELT	2000	0.34	868	1/3	115	1	7.2	90	1,2,3,4
EF	16	GREENHECK	G-095-VG	LAUNDRY TOILETS	DIRECT	700	0.53	1664	1/6	115	1	2.8	43	1,2,3,4
EF	17	GREENHECK	GB-130	ISOLATION CELLS	BELT	1335	0.53	1225	1/4	115	1	5.8	70	1,2,3,4
EF	18	GREENHECK	G-140-B	EVIDENCE	DIRECT	1400	0.62	1140	1/3	115	1	7.2	83	1,2,3,4
EF	19	GREENHECK	G-140-B	SMALL EVIDENCE	DIRECT	1400	0.62	1140	1/3	115	1	7.2	83	1,2,3,4
EF	20	GREENHECK	GB-160	MECHANICAL	BELT	1980	0.58	988	1/2	115	1	9.8	87	1,2,3,4
EF	21	GREENHECK	G-080-VG	RADIO/TRANS	DIRECT	200	0.31	1262	1/10	115	1	1.5	40	1,2,3,4
EF	22	GREENHECK	G-095-VG	MAINT OFFICE	DIRECT	300	0.48	1326	1/6	115	1	2.8	43	1,2,3,4
EF	23	GREENHECK	G-160-VG	LONG TERM EVIDENCE STORAGE	DIRECT	1600	0.59	911	1	480	3	3.2	90	1,2,3,4
EF	24	CAPTIVEAIRE	DU180HFA	KITCHEN HOOD	DIRECT	2708	1.5	1268	2	480	3	3.3	215	4,5,6,7
EF	25	CAPTIVEAIRE	DU180HFA	KITCHEN HOOD	DIRECT	2708	1.5	1268	2	480	3	3.3	215	4,5,6,7
EF	26	CAPTIVEAIRE	DU180HFA	KITCHEN HOOD	DIRECT	2708	1.5	1268	2	480	3	3.3	215	4,5,6,7
EF	27	GREENHECK	CUBE-200-VGD	DISHWASHER EXHAUST	DIRECT	750	0.5	1032	0.25	115	1	3.8	71	1,2,3,4

2

NOTES:
1. PROVIDE STARTER AND DISCONNECT AS PER DIVISION 26 SPECIFICATIONS AND MECHANICAL EQUIPMENT - ELECTRICAL CONNECTIONS SCHEDULE.
2. REFER TO DETAIL 9/M5.1 FOR ADDITIONAL INFORMATION.
3. REFER TO CONTROLS ON DRAWING M7.1.
4. REUSE EXISTING ROOF CURB.
5. PROVIDE GREASE CUP WITH DRAIN.
6. PROVIDE VFD/DISCONNECT AS PER DIVISION 26 SPECIFCATIONS AND MECHANICAL EQUIPMENT - ELECTRICAL CONNECTIONS SCHEDULE.
7. UNIT SHALL BE PROVIDED WITH MANUFACTURER CONTROLS VIA A PROGRAMMABLE CONTROLLER. UNIT AND CONTROLS SHALL BE BACNET COMPATIBLE.

SMOKE EXHAUST FAN SCHEDULE

TAG		MANUFACTURER	MODEL	AREA SERVED	AIRFLOW (CFM)	EXTERNAL SP (IN WG)	MOTOR (RPM)	MOTOR (HP)	ELECTRICAL DATA VOLTAGE	PHASE	FLA	WEIGHT (LBS)	NOTES
SEF	1	GREENHECK	CUBE-130	CELLBLOCK A1	1295	0.125	1022	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	2	GREENHECK	CUBE-130	CELLBLOCK A2	1200	0.125	957	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	3	GREENHECK	QEI-27	CELLBLOCK A3	10130	0.875	887	3	460	3	4.8	674	1, 2, 3, 4
SEF	4	GREENHECK	QEI-27	CELLBLOCK A4	10315	0.875	897	3	460	3	4.8	674	1, 2, 3, 4
SEF	5	GREENHECK	CUBE-130	CELLBLOCK A5	1180	0.125	944	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	6	GREENHECK	CUBE-130	CELLBLOCK A6	965	0.125	802	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	7	GREENHECK	QEID-18-95	CELLBLOCK B1	3805	0.875	1170	1	460	3	2.1	244	1, 2, 3, 4
SEF	8	GREENHECK	QEID-18-95	CELLBLOCK B2	3805	0.875	1170	1	460	3	2.1	244	1, 2, 3, 4
SEF	9	GREENHECK	CUBE-130	CELLBLOCK B3	1070	0.125	871	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	10	GREENHECK	CUBE-130	CELLBLOCK B4	1300	0.125	1025	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	11	GREENHECK	CUBE-130	CELLBLOCK B7	1180	0.125	944	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	12	GREENHECK	CUBE-130	CELLBLOCK B8	955	0.125	796	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	13	GREENHECK	CUBE-130	CELLBLOCK C1	890	0.125	755	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	14	GREENHECK	GB-099	CELLBLOCK C2	370	0.125	692	0.25	115	1	5.8	69	1, 2, 3, 4
SEF	15	GREENHECK	QEI-27	CELLBLOCKS C3/C8	10545	0.875	910	3	460	3	4.8	674	1, 2, 3, 4
SEF	16	GREENHECK	QEI-27	CELLBLOCKS C4/C7	10470	0.875	906	3	460	3	4.8	674	1, 2, 3, 4
SEF	17	GREENHECK	CUBE-130	CELLBLOCK C5	830	0.125	717	0.25	115	1	5.8	75	1, 2, 3, 4
SEF	18	GREENHECK	CUBE-130	CELLBLOCK C6	1135	0.125	914	0.25	115	1	5.8	75	1, 2, 3, 4

NOTES:
1. PROVIDE STARTER/DISCONNECT AS PER DIVISION 26 SPECIFICATIONS AND REFER TO MECHANICAL EQUIPMENT - ELECTRICAL CONNECTIONS SCHEDULE ON ELECTRICAL DRAWINGS.
2. REFER TO CONTROLS ON DRAWINGS M7.7 AND M7.8.
3. REFER TO DETAIL 10/M5.1 FOR ADDITIONAL INFORMATION.
4. FANS SHALL BE UL LISTED FOR SMOKE CONTROL.

NOTE:
ELEMENTS ON THIS DRAWING ARE IDENTIFIED BY VARIOUS COLORS; IF THIS NOTE IS NOT RED, THIS DRAWING IS NOT IN COLOR AND NEEDS TO BE REPRINTED IN COLOR.

DLZ
ARCHITECTURE • ENGINEERING • PLANNING
SURVEYING • CONSTRUCTION SERVICES
DLZ INDIANA, LLC

2/19/2025
JOSHUA R. APLING
REGISTERED PE 10910274
STATE OF INDIANA
PROFESSIONAL ENGINEER

NO.	REVISION	DATE
1	ADDENDUM #01	02-05-2025
2	ADDENDUM #02	02-19-2025

DRAWN: CSH CHK'D: SJS
DESIGNED: CSH
APPRV'D: JRA
DATE: JANUARY 8, 2025
PROJECT NUMBER
2363-1104-90

PORTER COUNTY BOARD OF COMMISSIONERS
PORTER COUNTY SHERIFF'S OFFICE & JAIL
FACILITY IMPROVEMENTS
2755 STATE ROAD 49

MECHANICAL EQUIPMENT SCHEDULES - II

DRAWING NUMBER
M6.2
MECHANICAL

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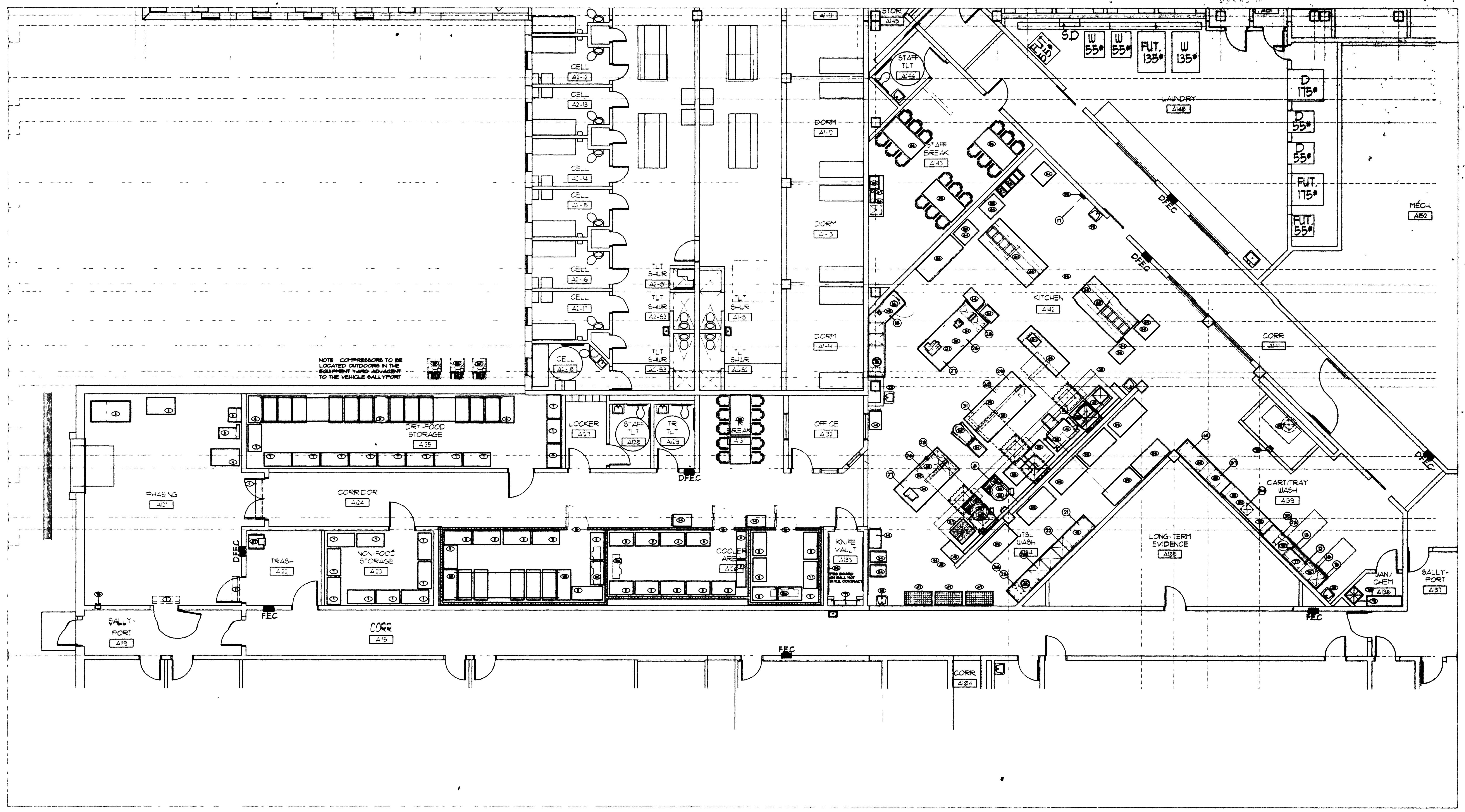
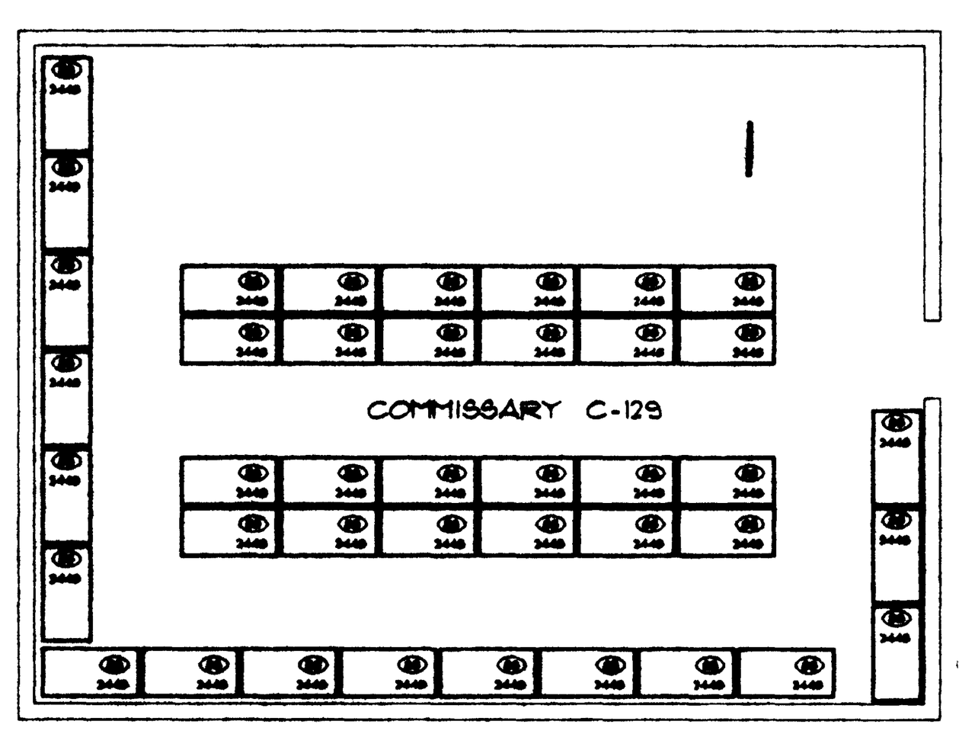
2/19/2025 9:25:03 AM





EQUIPMENT SCHEDULE

MARK	QUAN.	DESCRIPTION	MANUFACTURER & MODEL
1	1	AIR CURTAIN	MARS 72 NCH
2	2	AIR CURTAIN	MARS 48 NCH
3	1	TRASH BIN, MOBILE	RUBBERMAID 1315
4	2	PLATFORM TRUCK, MOBILE	RUBBERMAID 4471
5	1	BEAM SCALE	BY OWNER
6	1	CHECKERS DESK	LYON 2250
7	LOT	DUNNAGE PLATFORM	NEW AGE 2009
8	LOT	HI DENSITY SHELF SYSTEM	METRO MAX TOP TRACK
9			
10	LOT	HI DENSITY SHELF SYSTEM	METRO MAX TOP TRACK
11	LOT	SHELF UNIT, MOBILE	METRO MAX
12			
13	LOT	WALK IN COOLER-FREEZER	ELLIOTT WILLIAMS
13A	1	COOLER COIL A	BOHN ADT-520
13B	1	COOLER COIL B	BOHN LP-90
13C	1	FREEZER COIL C	BOHN LET-120
13D	1	COOLER COMPRESSOR A	COPELAND E3AMA075
13E	1	COOLER COMPRESSOR B	COPELAND C3AMA100
13F	1	FREEZER COMPRESSOR C	COPELAND CJAL0300
14	5	UTILITY CART, MOBILE	NEW AGE NS745
15	1	DISPOSER	IN SINK ERATOR SS125/CC101
16	1	VEGETABLE PREPARATION SINK	NORTHERN STAINLESS
17			
18			
19	1	WORK TABLE, MOBILE	NORTHERN STAINLESS
20			
21	1	SLICER	HOBART 2912
22	1	ISLAND WORK CENTER	NORTHERN STAINLESS
23	LOT	HAND SINK, STAINLESS STEEL	BY DIVISION 15.

EQUIPMENT SCHEDULE

MARK	QUAN.	DESCRIPTION	MANUFACTURER & MODEL
24	1	BAGGER	AUTO BAG HB25
25	1	ISLAND WORK CENTER	NORTHERN STAINLESS
26			
27			
28	1	ISLAND WORK TABLE	NORTHERN STAINLESS
29	5	INGREDIENT BIN, MOBILE	RUBBERMAID 3602
30			
31	1	FOOD PROCESSOR	HOBART FP350
32	1	CAN OPENER, ELECTRIC	EDLUND 270
33	1	CAN OPENER, MANUAL	EDLUND S11
34	4	PAN RACK, MOBILE	CRES COR 200-1841
35	1	COMBI OVEN STEAMER	BLODGETT COS-1015
36	2	KETTLE, 40 GALLON	GROEN HH4-40
37	1	RANGE, MOBILE	SOUTH BEND 1363-1
38	3	DRAIN TROUGH	NORTHERN STAINLESS
39	1	CONVECTION OVEN, MOBILE	SOUTH BEND GS-25-CC
40			
41	1	TILT SKILLET	GROEN NHFP-4
42	2	GRIDDLE WITH STAND, MOBILE	LANG GGB-36TI
43	1	UTILITY RACEWAY	AVTEC EID
44	1	WALL VENTILATION SYSTEM	AVTEC
45	1	FIRE CONTROL SYSTEM	AVTEC MIST A FIRE
46	1	PASS THRU FOOD WARMER	SECO S-2203-1/NORTHERN
47	3	PAN STORAGE RACK, MOBILE	METRO MAX
48	1	DISPOSER	IN SINK ERATOR SS125/CC101
49	1	UTENSIL WASHING SINK	NORTHERN STAINLESS
50			
51	1	CONVEYOR TOASTER	SAVORY C-40VS
52	1	TOASTER TABLE, MOBILE	NORTHERN STAINLESS

EQUIPMENT SCHEDULE

MARK	QUAN.	DESCRIPTION	MANUFACTURER & MODEL
53	1	REFRIGERATOR, REACH IN	VICTORY RSA-3D-S7
54	1	ICE MAKER WITH BIN	MANITOWOC QD-0602A/S570
55	1	FILL STATION	NORTHERN STAINLESS
56	2	CONTAINER RACK, MOBILE	METRO MAX
57	LOT	WATER-ICE BEVERAGE CONTAINER	CAMBRO 500LCD
58 58A	2 2	HOT BOX STORAGE UNIT, MOBILE COLD TRAY STORAGE UNIT, MOBILE	CRES COR CRES COR
59	8	TRAY DELIVERY CART	CRES COR
60			
61	1	COLD FOOD TABLE	COLOR POINT 60-CFM
62	1	HOT FOOD TABLE	COLOR POINT 5E4-CPA
63	2	UTILITY TABLE, MOBILE	COLOR POINT 60-ST
64	500	TRAY SYSTEM	JONES ZYLON
65	1	MIXER, 60 QT.	HOBART H600
66	1	COUNTER W/CAB. BASE	NORTHERN STAINLESS
67	1	COFFEE BREWER	BUNN O MATIC VPS
68	1	MICRO WAVE OVEN	PANASONIC NE8051
69	LOT	WALL PEGBOARD	NOT IN K.E. CONTRACT
70			
71	1	KNIFE STORAGE CABINET	NORTHERN STAINLESS
72	1	SHELF UNIT	BY OTHERS
73	1	MOP SINK	BY DIVISION 15
74			
75	2	HOT & COLD WATER HOSE STATION	BY DIVISION 15
76	1	SOILED DISHTABLE	NORTHERN STAINLESS
77	1	RACKING SHELF	NORTHERN STAINLESS
78	1	DISPOSER	IN SINK ERATOR 05500/CC101
79	1	DISHWASHER	HOBART CRS-86A
80			
81	1	DISHWASHER EXHAUST SYSTEM	MASTER AIR CDER

EQUIPMENT SCHEDULE

MARK	QUAN.	DESCRIPTION	MANUFACTURER & MODEL
82	1	DETERGENT INJECTOR	BY SOAP VENDOR
83	1	BOOSTER HEATER	HATCO S36
84	1	CLEAN DISHTABLE	NORTHERN STAINLESS
85	1	CART WASH VENT SYSTEM	BY DIVISION 15
86	LOT	TABLE & CHAIR	NOT IN K.E. CONTRACT
87	1	CAN CRUSHER	BY OWNER
88	41	COMMISSARY SHELF UNIT	METRO SUPER ERECTA SHELF
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SCHENKELSHULTZ
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9100 Keystone Crossing, Suite 700, Indianapolis, IN 46240, voice 317-574-6975, fax 317-574-6979
8250 College Parkway, Suite 203, Ft. Myers, FL 33919, voice 941-481-0200, fax 941-481-3303
227 W Trade St, Suite 2260, Charlotte, NC 28202, voice 704-372-7700, fax 704-372-7704
6814 [illegible] Parkway, Suite 250, Overland Park, KS [illegible], voice 219-424-[illegible], fax 219-424-[illegible]

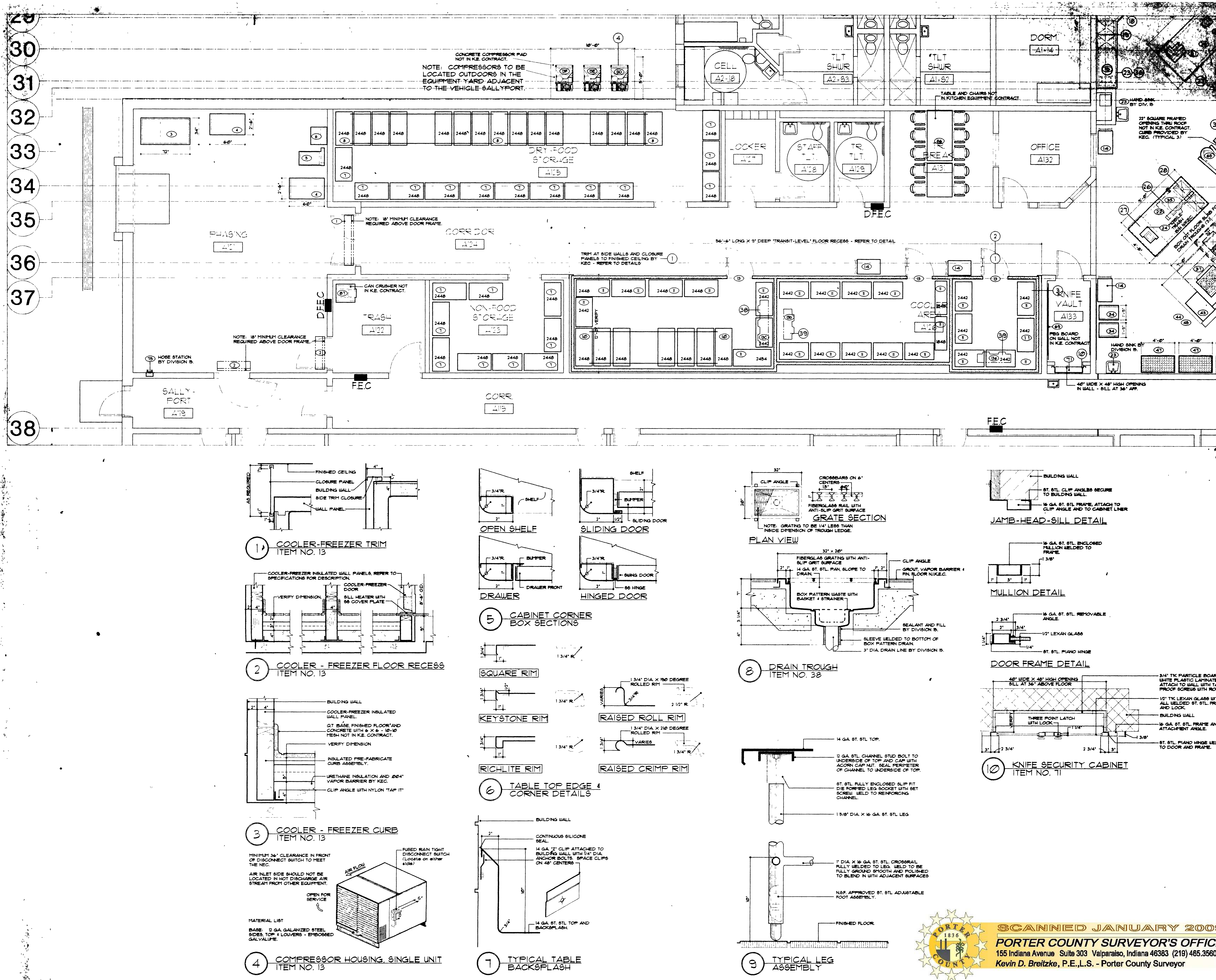
THE NEW
PORTER COUNTY JAIL
VALPARAISO INDIANA

KITCHEN EQUIPMENT PLAN

revisions:

drawn: PTV
checked: TJT
date: 01-04-00
comm. no.: 9622

FS.1

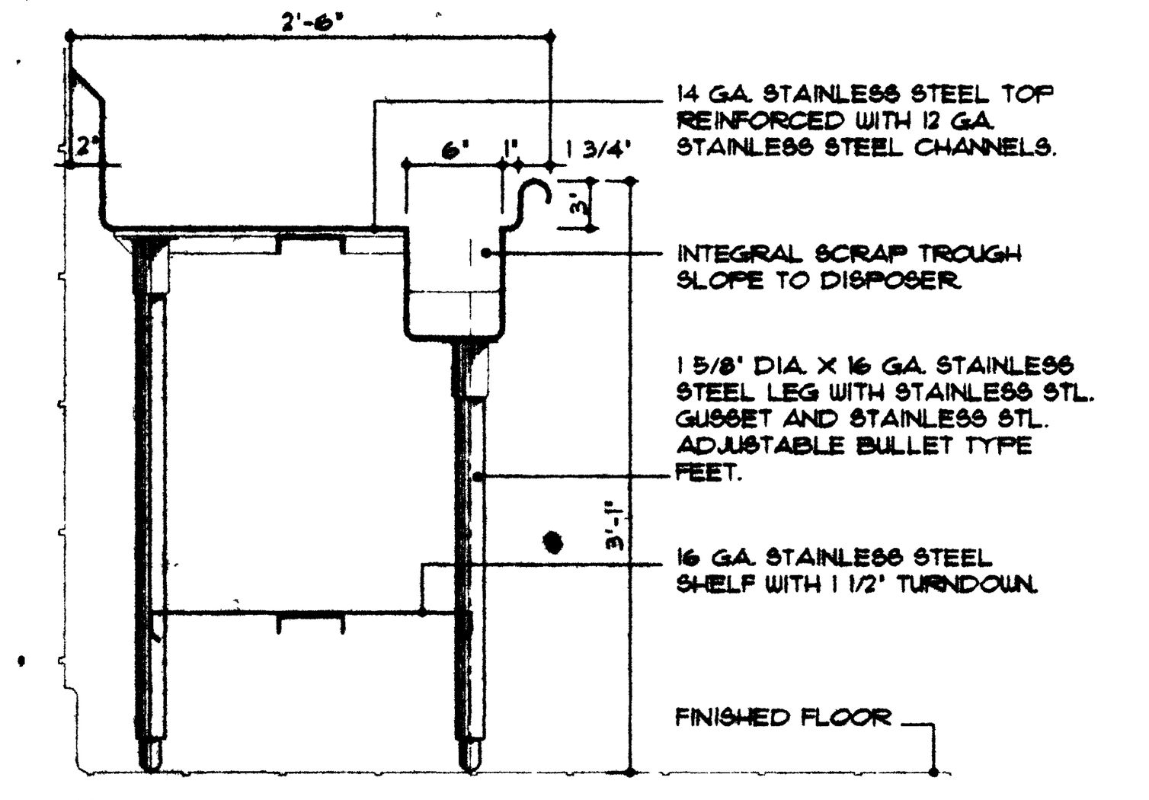


SCHENKEL SHULTZ
ARCHITECTURE

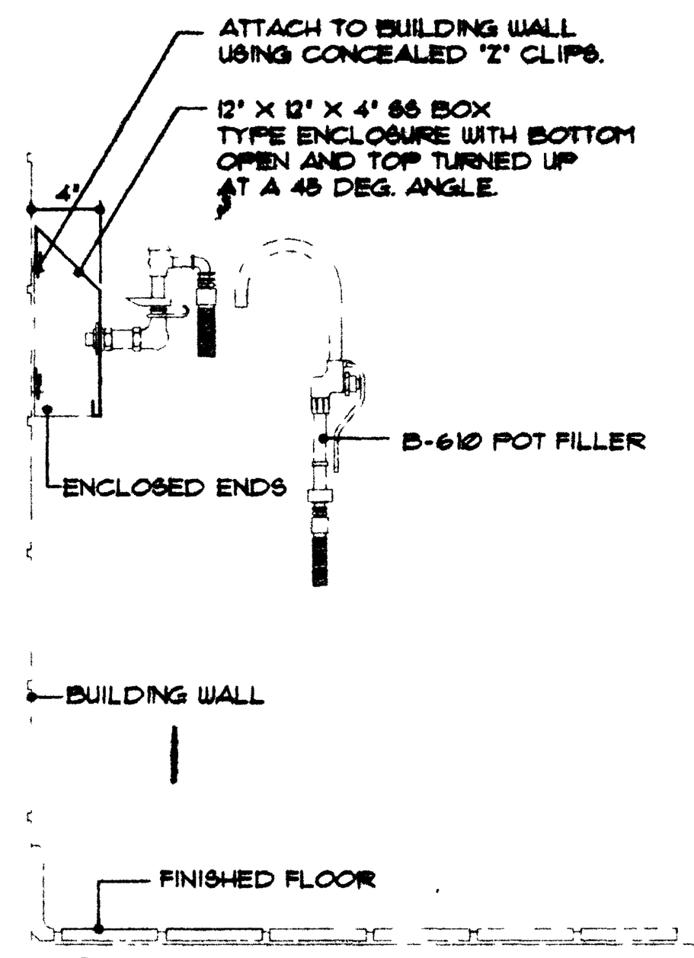
THE NEW PORTER COUNTY JAIL
VALPARAISO INDIANA

KITCHEN EQUIPMENT PLAN

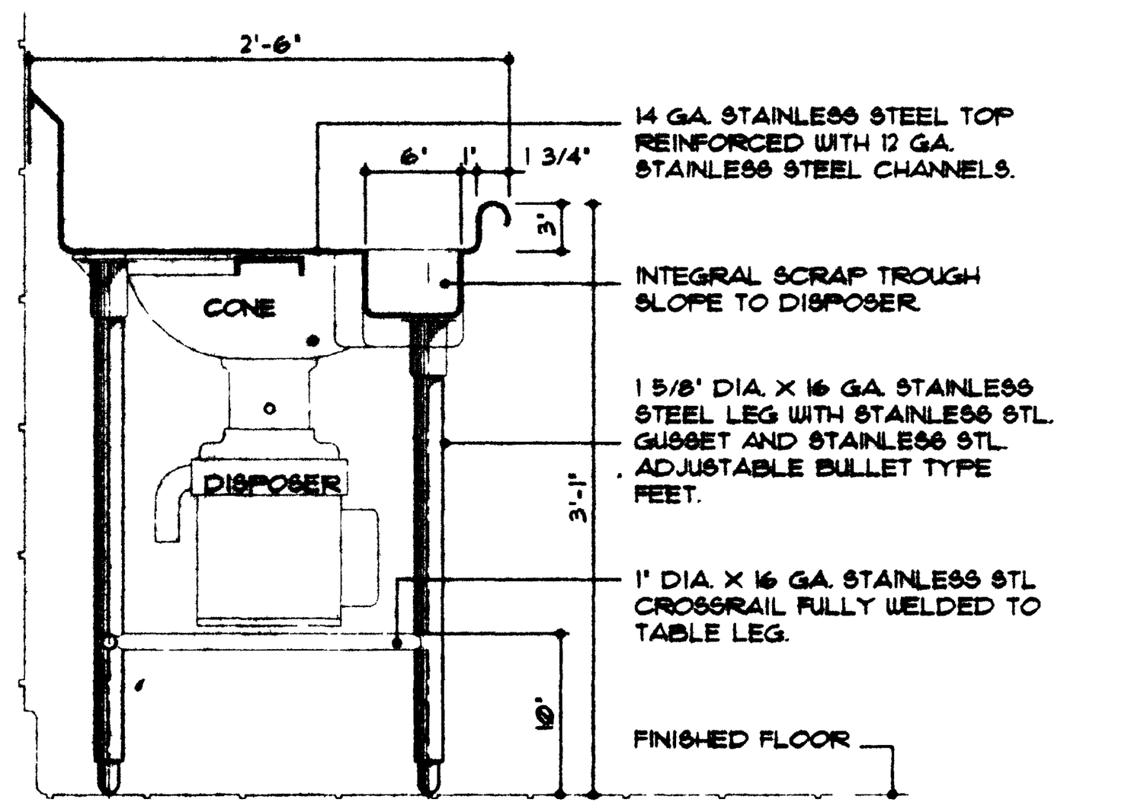
FS.2



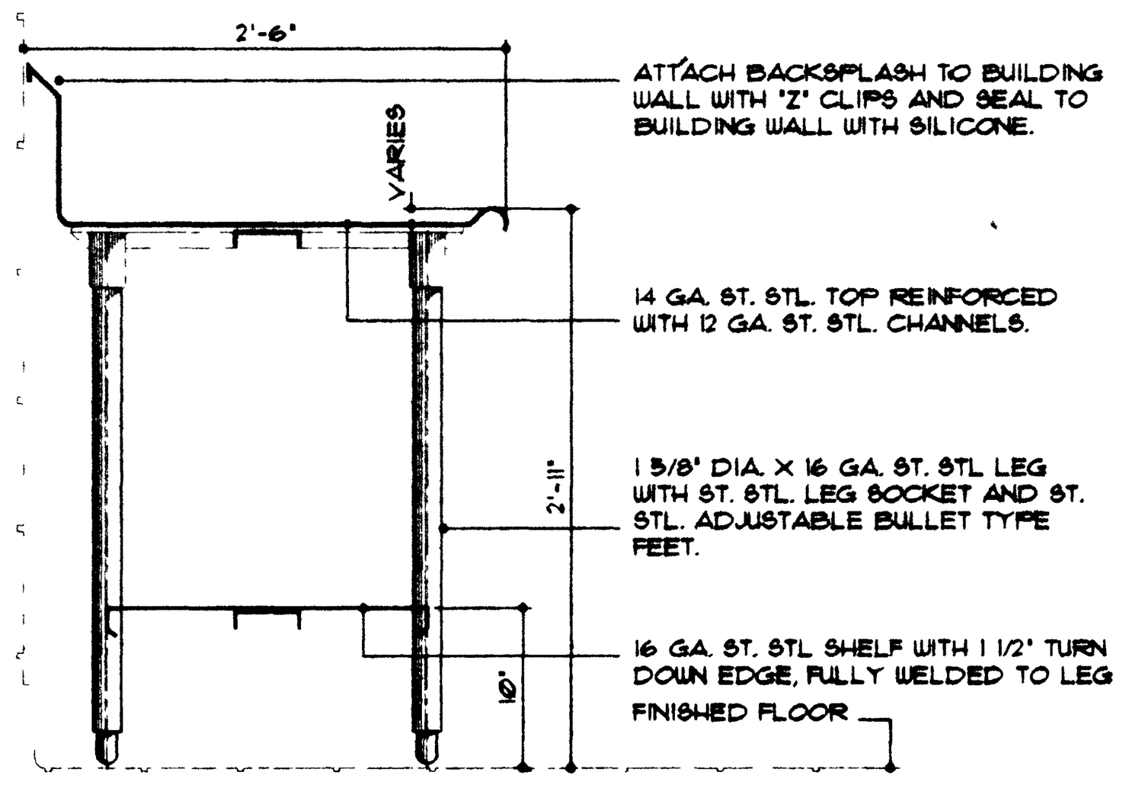
12 DISHTABLE W/TROUGH
ITEM NO. 76 and 77



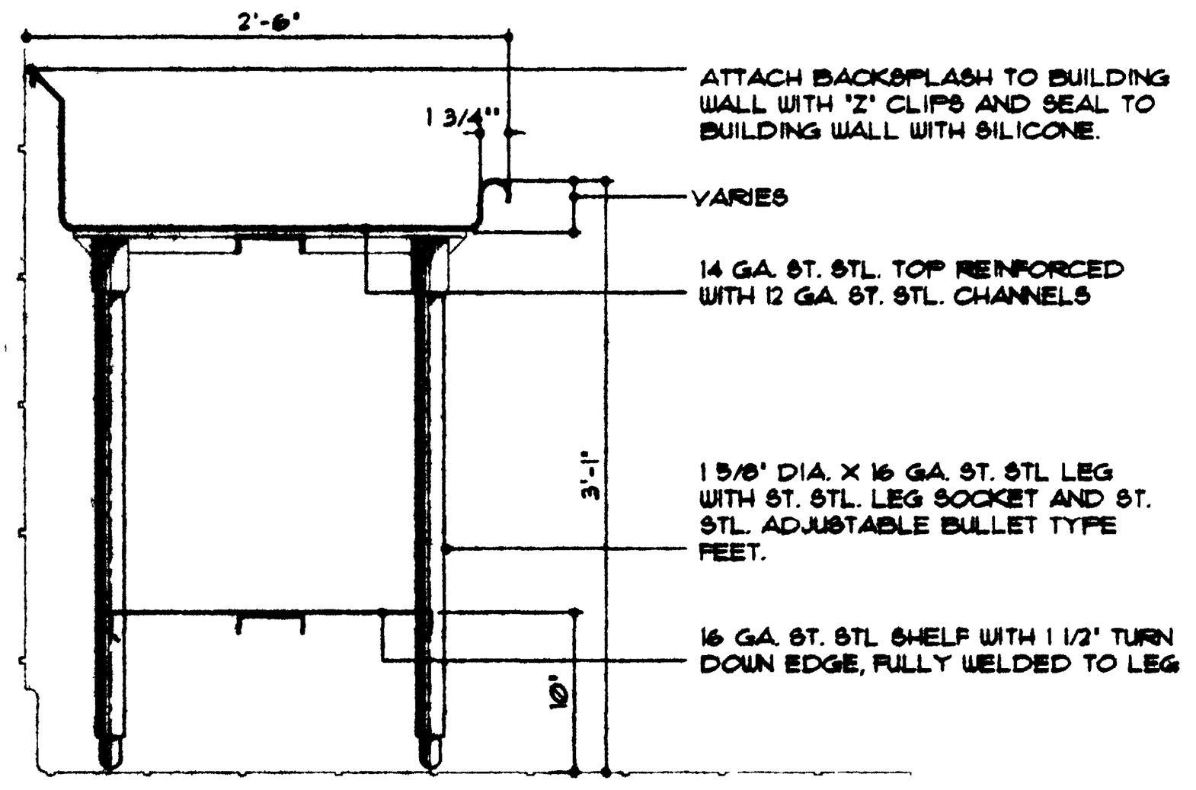
17 PFILL STATION W/ENCLOSURE
ITEM NO. 55



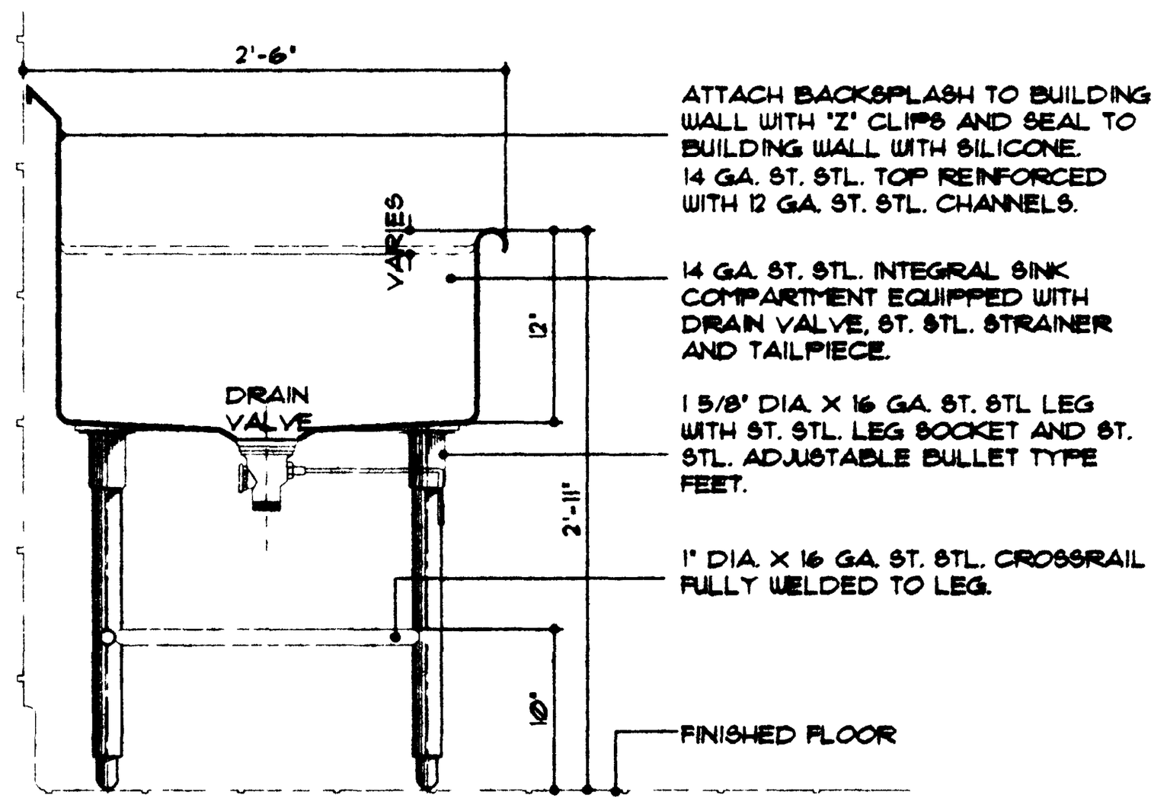
13 DISHTABLE W/TROUGH
ITEM NO. 76



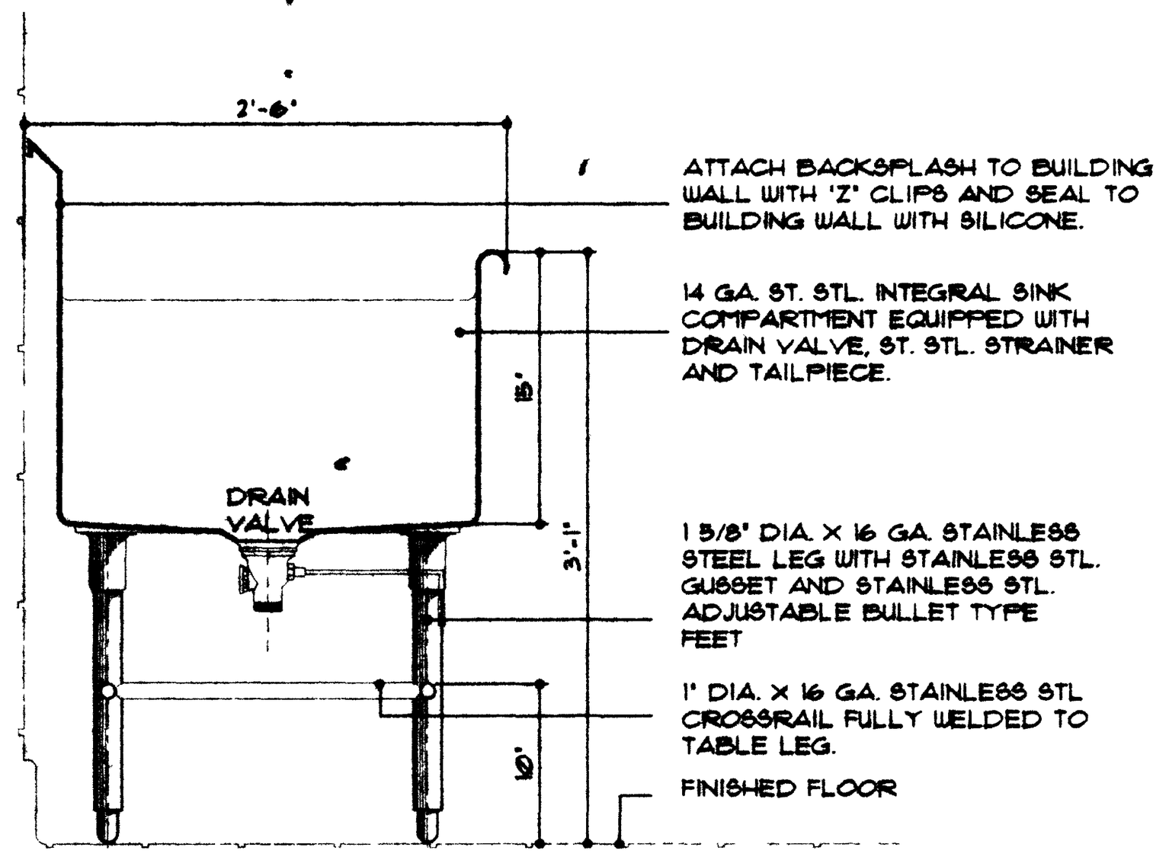
18 PREPARATION TABLE
ITEM NO. 16



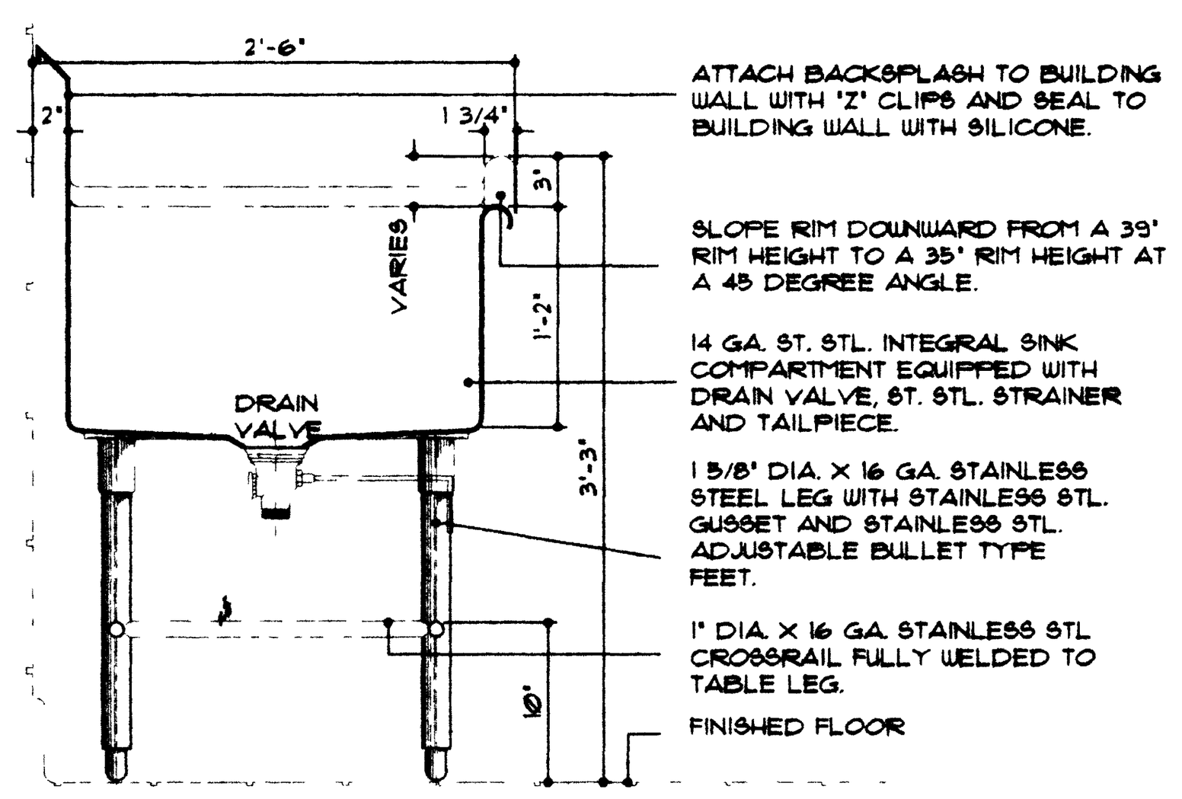
14 CLEAN DISHTABLE
ITEM NO. 84



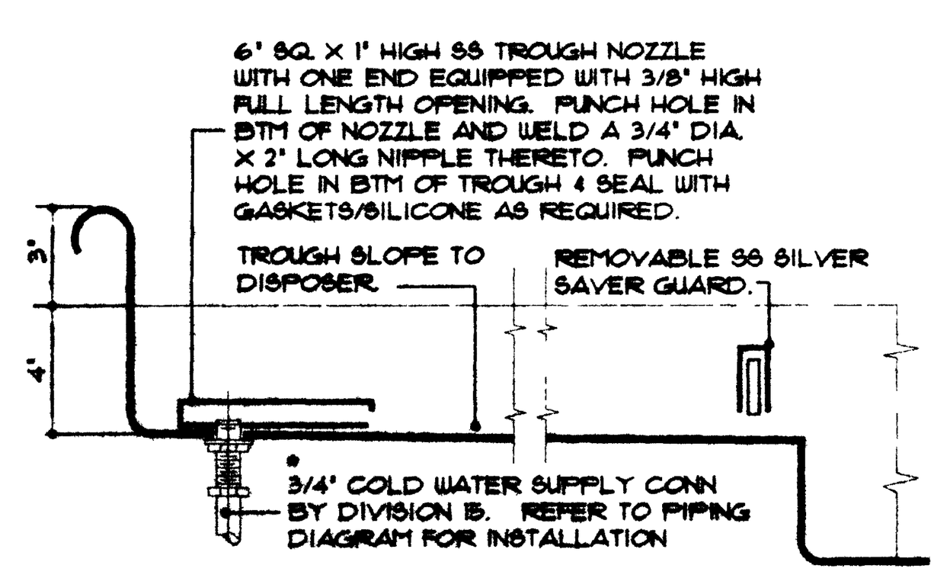
19 PREPARATION SINK
ITEM NO. 16



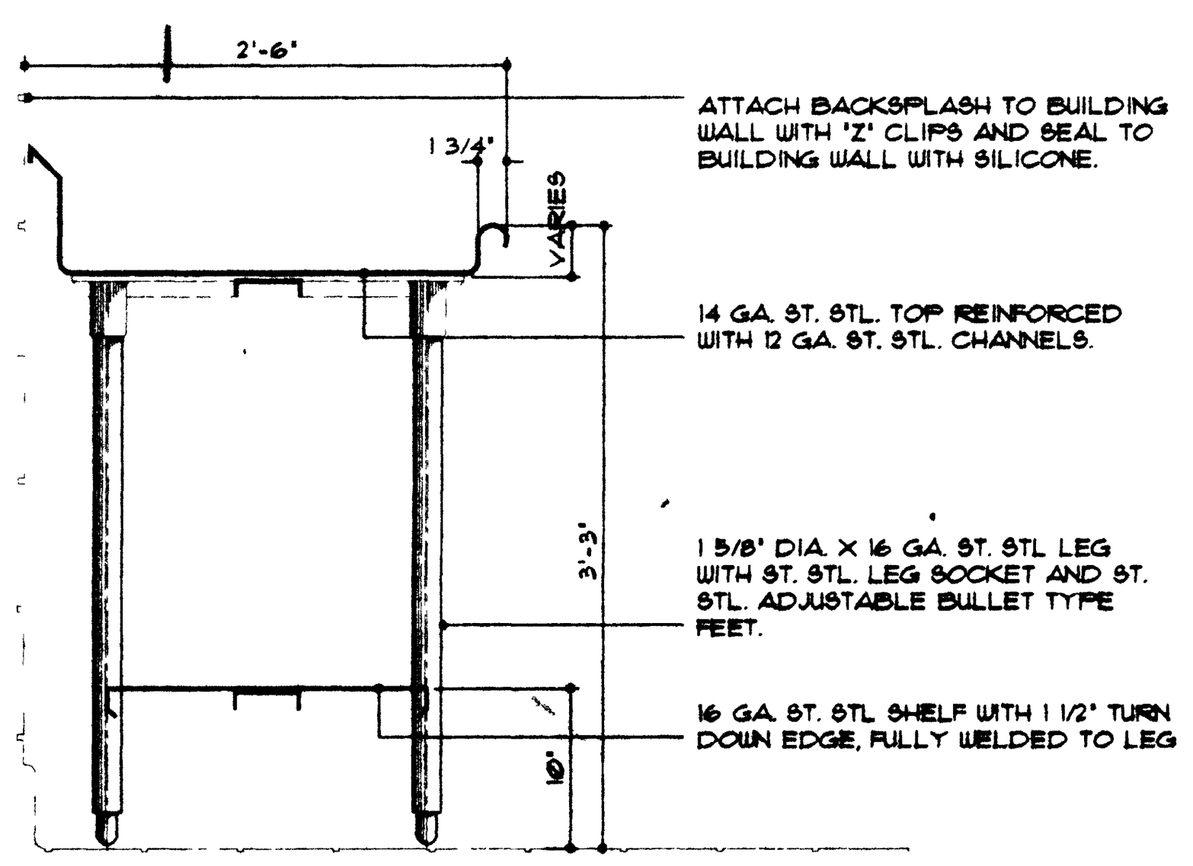
15 SOILED DISHTABLE
ITEM NO. 76



20 UTENSIL WASHING SINK
ITEM NO. 49



16 TYPICAL DISHTABLE
SCRAP TROUGH



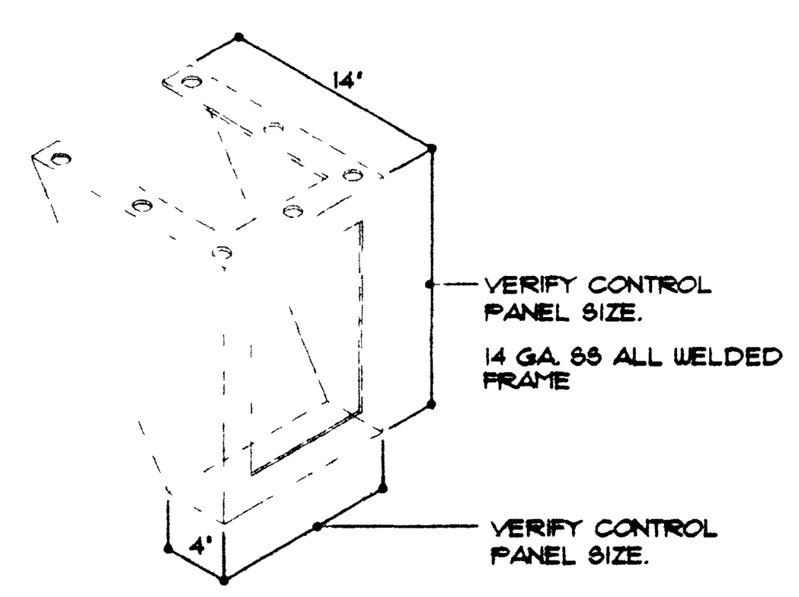
21 UTENSIL WASHING SINK
ITEM NO. 49

WARNING

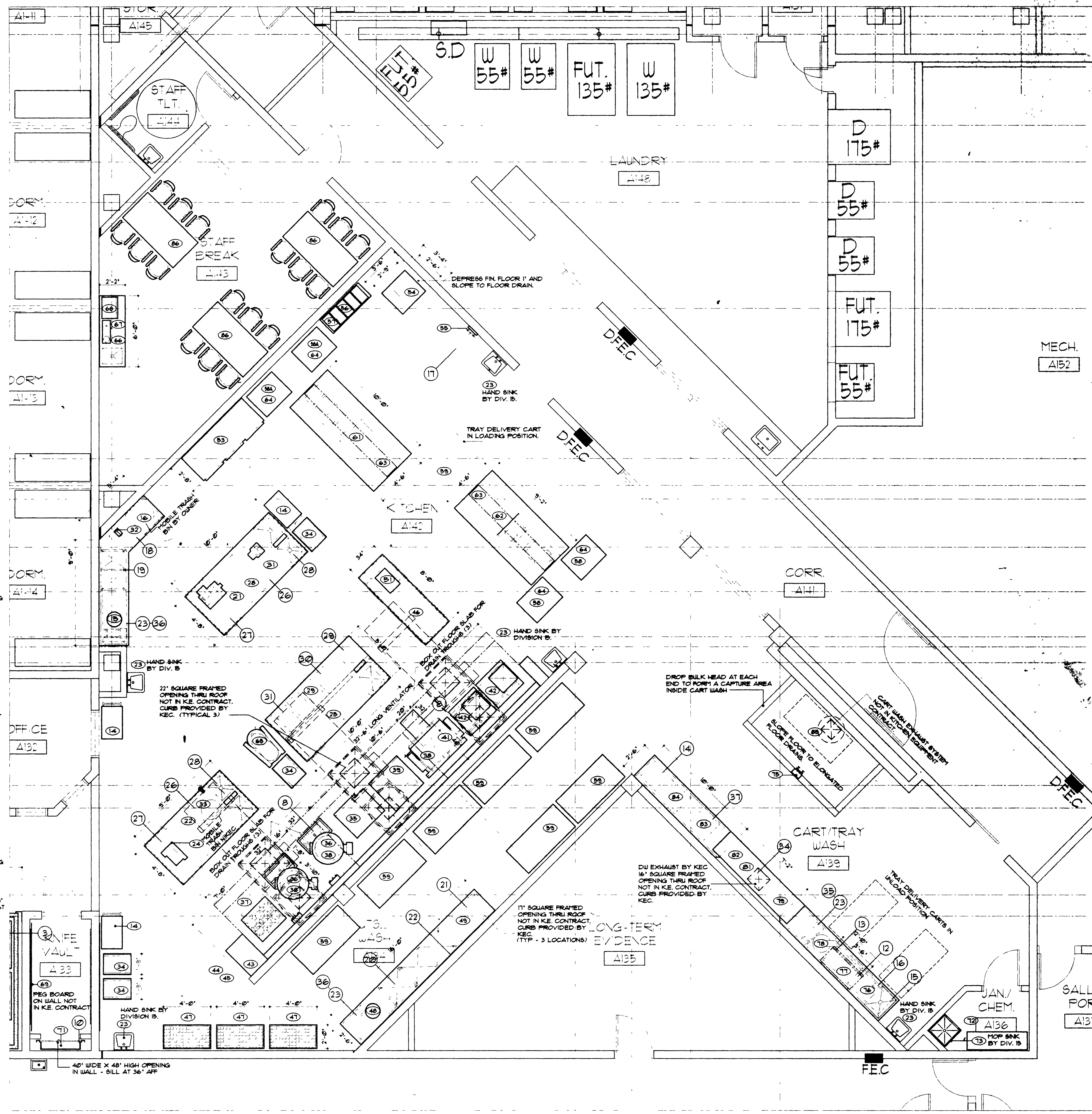
THIS SINK BOWL
AND TAP CONTAIN
VERY HOT WATER!

USE EXTREME CARE

22 HOT WATER
WARNING SIGN



23 TYPICAL DISPOSER CONTROL
PANEL MOUNTING BRACKET

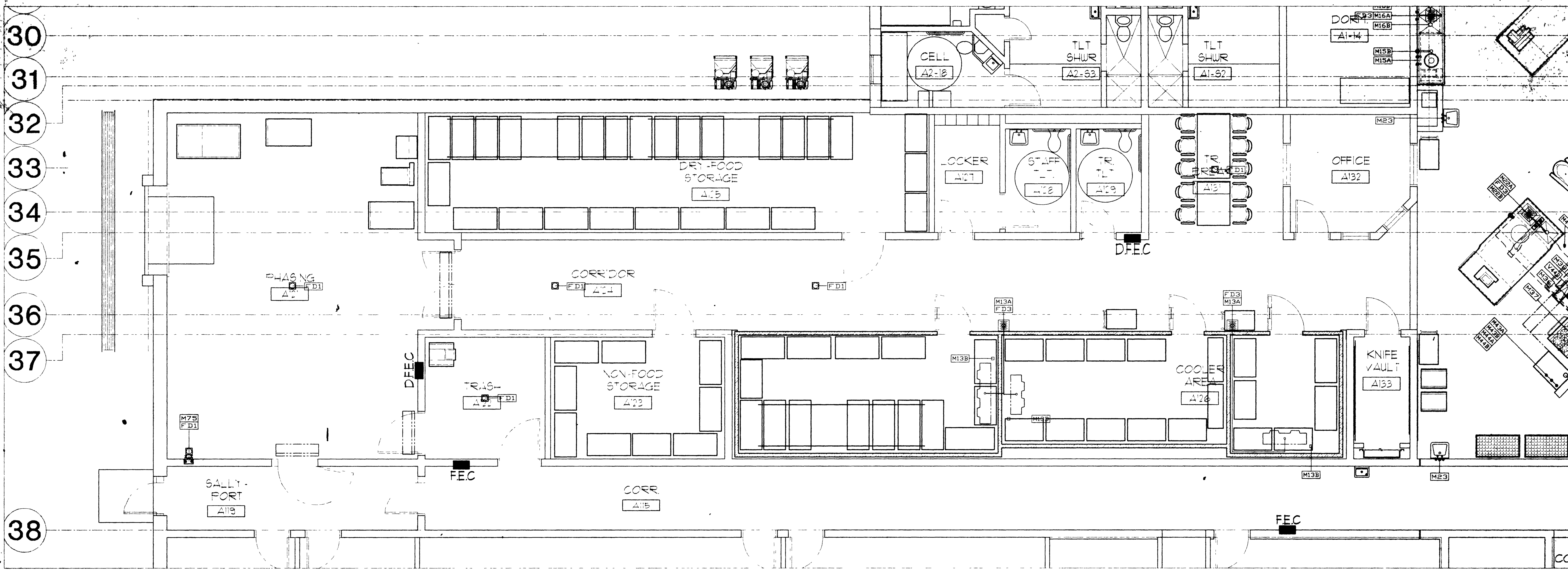


KITCHEN EQUIPMENT PLAN

THE NEW PORTER COUNTY JAIL
VALPARAISO INDIANA

SCHENKELSHULTZ
ARCHITECTURE

FS.3



MECHANICAL SCHEDULE

MARK	EQUIPMENT IS ROUGHED IN FOR MANUFACTURER AND MODEL NUMBER SPECIFIED.
FD1	FLOOR DRAIN BY DIVISION 15.
FD2	FUNNEL TYPE FLOOR DRAIN BY DIVISION 15.
FD3	12" X 12" X 8" DEEP SANITARY TYPE FLOOR DRAIN WITH HALF GRATE BY DIVISION 15.
FD4	DRAIN LINE FROM EQUIPMENT TO FLOOR DRAIN BY DIVISION 15.
FD5	ELONGATED FLOOR DRAIN WITH GRATE BY DIVISION 15.
M13	COIL A 3/4" CONDENSATE DRAIN LINE FROM COIL TO FLOOR DRAIN BY DIVISION 15. PROVIDE CORROSION RESISTANT "STAND-OFFS" TO ALLOW 1" CLEARANCE BETWEEN WALLS AND PIPING. B REFRIGERATION LINES TO REMOTE COMPRESSORS BY KEC.
M15	DISPOSER A 1/2" HW AND 3/4" CW, 16" AF. DIVISION 15 CONNECT TO FAUCET ABOVE THE DISPOSER AND TEE CW TO SIDE WATER INLET ON DISPOSER. REFER TO PIPING DIAGRAM B 3" W, 8" AF. DIVISION 15 CONNECT TO DISPOSER.
M16	VEGETABLE PREP. SINK A 1/2" HW, 1/2" CW. DIVISION 15 CONNECT TO FAUCET. B 2" W. DIVISION 15 EXTEND TO SANITARY TYPE FLOOR DRAIN.
M22	ISLAND WORK CENTER A 1/2" HW, 1/2" CW. DROP FROM ABOVE THRU THE SS RISER EXTENDING UP FROM THE TOP OF TABLE. DIVISION 15 BRANCH TO CONNECTIONS. B 2" W. DIVISION 15 EXTEND TO SANITARY TYPE FLOOR DRAIN.
M23	ST. STL HAND SINK BY DIVISION 15 1/2" HW, 1/2 CW, 1-1/2" W.
M25	ISLAND WORK CENTER A 1/2" HW, 1/2" CW. DROP FROM ABOVE THRU THE SS RISER EXTENDING UP FROM THE TOP OF TABLE. DIVISION 15 BRANCH TO CONNECTIONS. B 2" W. DIVISION 15 EXTEND TO SANITARY TYPE FLOOR DRAIN.
M28	ISLAND WORK CENTER A 1/2" HW, 1/2" CW. DROP FROM ABOVE THRU THE SS RISER EXTENDING UP FROM THE TOP OF TABLE. DIVISION 15 BRANCH TO CONNECTIONS. B 2" W. DIVISION 15 EXTEND TO SANITARY TYPE FLOOR DRAIN.
M35	COMBI OVEN-STEAMER - SERVICE FROM ITEM NO. 43. A 3/4" HW, 3/4" CW. DIVISION 16 CONNECT TO SOLENOIDS ON EQUIPMENT. B COPPER DRAIN LINE FROM EQUIPMENT TO SANITARY FLOOR SINK BY DIVISION 15
M36	KETTLE - SERVICE FROM ITEM NO. 43. 3/4" GAS. DIVISION 15 INSTALL KEC FURNISHED GAS PRESSURE REGULATOR AND CONNECT TO KETTLE BTU/HR = 180,000.
M37	RANGE, MOBILE - SERVICE FROM ITEM NO. 43. 3/4" GAS. DIVISION 15 PROVIDE SERVICE VALVE AND INSTALL THE KEC FURNISHED QUICK DISCONNECT COUPLING AND FLEXIBLE GAS LINE. BTU/HR = 155,000
M38	DRAIN TROUGH 3" W, 15 1/2" BELOW FINISHED FLOOR. DIVISION 15 TRAP DRAIN BELOW FINISHED FLOOR. REFER TO DRAIN PAN DETAILS.
M39	CONVECTION OVEN, MOBILE - SERVICE FROM ITEM NO. 43. 1" GAS. DIVISION 15 PROVIDE SERVICE VALVE AND INSTALL THE KEC FURNISHED QUICK DISCONNECT COUPLING AND FLEXIBLE GAS LINE. BTU/HR = 220,000
M41	TILT SKILLET - SERVICE FROM ITEM NO. 43. A 3/4" GAS. DIVISION 15 INSTALL KEC FURNISHED GAS PRESSURE REGULATOR AND CONNECT TO KETTLE. BTU/HR = 144,000. B 1/2" HW, 1/2" CW. DIVISION 15 CONNECT TO FILL FAUCET.
M42	GRIDDLE, MOBILE - SERVICE FROM ITEM NO. 43. 3/4" GAS. DIVISION 15 PROVIDE SERVICE VALVE AND INSTALL THE KEC FURNISHED QUICK DISCONNECT COUPLING AND FLEXIBLE GAS LINE. BTU/HR = 143,000.

MECHANICAL SCHEDULE

MARK	EQUIPMENT IS ROUGHED IN FOR MANUFACTURER AND MODEL NUMBER SPECIFIED.
M43	RACEWAY A 1" CW, 1" HW, DIVISION 15 DROP FROM ABOVE AND CONNECT TO RACEWAY. B TWO (2) 1.50" GAS. DROP FROM ABOVE AND CONNECT TO RACEWAY. GAS SHUT-OFF VALVE INSTALLED IN RACEWAY RISER BY MANUFACTURER. BTU/HR = 1200,000 DIVISION 15 PROVIDE THE FOLLOWING: INTERCONNECT PLUMBING FIELD JOINTS BY TIGHTENING UNIONS. ALL UNIONS PRE-FITTED AND SUPPLIED BY MANUFACTURER. EACH FIELD JOINT CONSISTS OF ONE UNION FOR EACH CONNECTION. PROVIDE AND INSTALL SERVICE SUPPLY PIPES INSIDE THE VERTICAL CHASE FROM STUB IN LOCATIONS TO PIPES IN UTILITY RACEWAY. INSTALL KEC FURNISHED METAL FLEXIBLE HOSES. PROVIDED WITH UNION ON APPROPRIATE EQUIPMENT AND TO UTILITY RACEWAY. PROVIDE AND INSTALL SS ELLS, NIPPLES, REDUCING FITTINGS NECESSARY TO FOR A NEAT APPEARANCE AND TO PREVENT HOSES FROM TOUCHING THE FLOOR. TEST INTERNAL PIPING FOR LEAKS AND TIGHTEN AS REQUIRED.
M44	WALL VENTILATION SYSTEM A 1.25" 140 DEGREE HW . DROP FROM ABOVE TO CONTROL PANEL. B DIVISION 15 PIPE FROM CONTROL PANEL TO STUB-OUTS ON TOP OF VENTILATOR INSTALL KEC FURNISHED VACUUM BREAKER, CHECK VALVE AND SHOCK STOP IN THE WATER LINE. FURNISH AN INJECTION "TEE" AND 1/4" DIA. COPPER TUBING TO THE DETERGENT PUMP. REFER TO MANUFACTURERS SHOP DRAWINGS FOR INSTALLATION PROCEDURES. C 2" DIA. DRAIN LINE TO FLOOR DRAIN BY DIVISION 15. D 1" GAS SUPPLY ON ROOF FOR HEATED MAKEUP AIR UNIT. BTU/HR = 275,000 EACH. DIVISION 15 PROVIDE SERVICE VALVE AND CONNECT TO UNIT.
M45	FIRE CONTROL SYSTEM - WATER MIST SYSTEM. A 2" WATER FROM BUILDING SPRINKLER SYSTEM TO VENTILATOR FIRE SUPPRESSION CONTROL PANEL BY SPRINKLER SYSTEM CONTRACTOR. B 2" BUILDING SPRINKLER SYSTEM WATER FROM THE VENTILATOR FIRE SUPPRESSION CONTROL PANEL TO EACH FIRE EXTINGUISHER STUB-OUT ON THE VENTILATOR C 3/8" TEST WATER LINE FROM END OF FIRE SYSTEM TO FLOOR DRAIN.
M48	DISPOSER A 1/2" HW AND 3/4" CW, 16" AF. DIVISION 15 CONNECT TO FAUCET ABOVE THE DISPOSER AND TEE CW TO SIDE WATER INLET ON DISPOSER. REFER TO PIPING DIAGRAM B 3" W, 8" AF. DIVISION 15 CONNECT TO DISPOSER.
M49	SINK, UTENSIL WASHING A 3/4" HW, 3/4" CW 16" AF. DIVISION 15 CONNECT TO FAUCETS ON BACKSPLASH B 2" W. DIVISION 15 PIPE FROM SINKS TO GREASE TRAP. GREASE TRAP FURNISHED AND INSTALLED BY DIVISION 15.
M54	ICE MAKER A 1/2" CW DIVISION 15 CONNECT TO ICE MAKER THRU KEC FURNISHED FILTER. B DRAIN LINES FROM ICE MAKER AND ICE BIN TO FLOOR DRAIN BY DIVISION 15.
M55	FILL STATION 1/2" HW, 1/2" CW. DIVISION 15 CONNECT TO FAUCET.

MECHANICAL SCHEDULE

MARK	EQUIPMENT IS ROUGHED IN FOR MANUFACTURER AND MODEL NUMBER SPECIFIED.
M61	COLD FOOD TABLE, MOBILE DIVISION 15 EXTEND FLEXIBLE DRAIN LINE TO ADJACENT FLOOR DRAIN.
M62	HOT FOOD TABLE, MOBILE DIVISION 15 EXTEND FLEXIBLE DRAIN LINE TO ADJACENT FLOOR DRAIN.
M66	COUNTER W/SINK A 1/2" HW, 1/2" CW. DIVISION 15 CONNECT TO FAUCET. B 2" W. DIVISION 15 CONNECT TO DRAIN VALVE ON BOTTOM OF SINK.
M67	COFFEE MAKER 1/2" CW. DIVISION 15 CONNECT TO COFFEE MAKER THRU KEC FURNISHED FILTER.
M73	MOP SINK 3/4" HW, 3/4" CW, 3" W. MOP SINK BY DIVISION 15.
M75	HOSE STATION - BY DIVISION 15. 3/4" HW, 3/4" CW, 60" AF.
M76	SOILED DISHTABLE A 3/4" HW, 3/4" CW. DIVISION 15 CONNECT TO FAUCET. B 2" W. DIVISION 15 CONNECT TO DRAIN VALVE ON BOTTOM OF SINK.
M78	DISPOSER A 3/4" HW, 3/4" CW. DIVISION 15 CONNECT 1/2" HW & CW TO THE FAUCET ABOVE THE SINK. PROVIDE A "TEE" IN THE COLD WATER LINE AND CONNECT TO THE TROUGH INLET THRU A KEC FURNISHED BALL VALVE AND A 3/4" VACUUM BREAKER. REFER TO PIPING DIAGRAM B 3/4" CW DIVISION 15 CONNECT TO TROUGH INLET THRU A KEC FURNISHED BALL VALVE. C 3" W. DIVISION 15 CONNECT TO DISPOSER.
M79	DISHWASHER, RACK TYPE A 3/4" 180 DEGREE HW. DIVISION 15 CONNECT TO WASHER. B 2" W. DIVISION 15 EXTEND TO SANITARY TYPE FLOOR DRAIN. C 4" X 16" EXHAUST DUCT CONNECTION 6" ABOVE FINISHED CEILING. CFM = 250. D 4" X 16" EXHAUST DUCT CONNECTION 6" ABOVE FINISHED CEILING. CFM = 500.
M83	BOOSTER HEATER A 3/4" 140 DEGREE HW, 12" AF. DIVISION 15 INSTALL KEC FURNISHED COMPONENTS AND CONNECT TO BOOSTER HEATER. REFER TO PIPING DIAGRAM B 3/4" 180 DEGREE HW FROM BOOSTER HEATER TO WASHER BY DIVISION 15. C DRAIN LINE FROM BOOSTER HEATER RELIEF VALVE AND TANK DRAIN TO FLOOR DRAIN BY DIVISION 15.
V44	CANOPY WATERWASH A THREE (3) 10" X 22" EXHAUST DUCT CONNECTION ON TOP OF VENTILATOR. CFM = 2708, SP = 1.3. (8124 TOTAL CFM) B THREE (3) 10" X 40" SUPPLY DUCT CONNECTION ON TOP OF VENTILATOR. CFM = 2166 SP = .025. (6498 CFM TOTAL SUPPLIED TO HOOD)
V81	DISHWASHER EXHAUST SYSTEM REFER TO ITEM NO 79 FOR EXHAUST REQUIREMENTS.
V85	VENTILATION, CART WASH DIVISION 15 PROVIDE CEILING EXHAUST IN CART WASHING AREA TO EXHAUST STEAM AND MOISTURE LADEN AIR. RECOMMEND A MINIMUM OF 50 CFM PER SQUARE FOOT OF FLOOR SURFACE AREA.

WORK BY DIVISION 15

ROUGH IN UTILITY LINES THRU WALLS, FLOOR AND CEILING AS SHOWN ON THE DRAWINGS. RUN WASTE LINES FROM THE ROUGH IN AND MAKE THE CONNECTIONS ON THE EQUIPMENT. PROVIDE ALL TRAPS, MANIFOLD AND INTERCONNECT SINK DRAINS WHERE SHOWN. RUN SUPPLY LINES FROM THE EQUIPMENT. PROVIDE ALL TRAPS, VALVES AND VENTS REQUIRED FOR INSTALLATION.

ALL EXPOSED PIPING (ABOVE COUNTER HEIGHT OR IN A "DIRECT" LINE OF SIGHT SHALL BE CHROME PLATED).

INSTALL SS OR C.P. BRASS ESCUTCHEONS OR FLANGES FOR UTILITY LINES WHICH EXTEND THROUGH BUILDING WALLS AND EQUIPMENT.

INSTALL FAUCETS, PRE-RINSE ASSEMBLIES, HOSE STATIONS, POT FILLERS, VACUUM BREAKERS, CHECK VALVES, FLOW CONTROL VALVES, PRESSURE REDUCING VALVES, WATER STRAINERS, WATER FILTERS, ETC., ALL AS FURNISHED BY THE FOOD SERVICE EQUIPMENT CONTRACTOR. PROVIDE WATER PRESSURE REDUCING VALVES AND GAUGES FOR READING SET PRESSURE WHERE REQUIRED.

PROVIDE ALL "INDIRECT" WASTE AND CONDENSATE LINES FROM EQUIPMENT TO FLOOR DRAINS.

THE FOOD SERVICE EQUIPMENT MECHANICAL DRAWINGS AND EQUIPMENT DATA INFORMATION ARE PREPARED FOR THE CONVENIENCE OF BIDDING AND ARE NOT INTENDED AS ROUGH IN DRAWINGS TO BE USED ON THE PROJECT SITE. REFER TO THE FOOD SERVICE EQUIPMENT CONTRACTORS ROUGHING DRAWINGS FOR ACCURATE LOCATION OF UTILITIES.

PROVIDE A MAXIMUM OF 1/16" PER FOOT SLOPE IN AREAS AROUND FLOOR DRAINS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

REFER TO THE ITEM KITCHEN EQUIPMENT SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.

MECHANICAL SYMBOLS

Symbol	Description	Symbol	Description
•	HOT AND COLD WATER ROUGH IN	□	REFRIGERATION CONNECTION
◦	DRAIN ROUGH IN	◦	CONNECTION ON EQUIPMENT
●	GAS ROUGH IN		SOLID PIPING BY DIV. 15
■	STEAM SUPPLY	∼	FLEX. PIPING BY KEC
	STEAM RETURN		EXHAUST AIR TAP
	FLOOR DRAIN		SUPPLY AIR TAP
	SANITARY FLOOR DRAIN	9	CONNECTION NUMBER
○	OPEN SIGHT DRAIN	(9)	EQUIPMENT NUMBER

ABBREVIATIONS

SS	STEAM SUPPLY	BHP	BOILER HORSEPOWER
SR	STEAM RETURN	AF	ABOVE FLOOR
W	WASTE	DFA	DROP FROM ABOVE
HW	HOT WATER	BTC	BRANCH TO CONNECTION
CW	COLD WATER	SU	STUB UP
FD	FLOOR DRAIN	HR	HOUR
SFD	SANITARY FLOOR DRAIN	BTU	BRITISH THERMAL UNIT
FFD	FUNNEL FLOOR DRAIN	CFM	CUBIC FEET/MINUTE
OSD	OPEN SIGHT DRAIN	G	GAS

SCHENKEL SHULTZ
ARCHITECTURE

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200 E Robinson St Suite 300 Orlando, FL 32801 voice 407-872-3322 fax 407-872-3303
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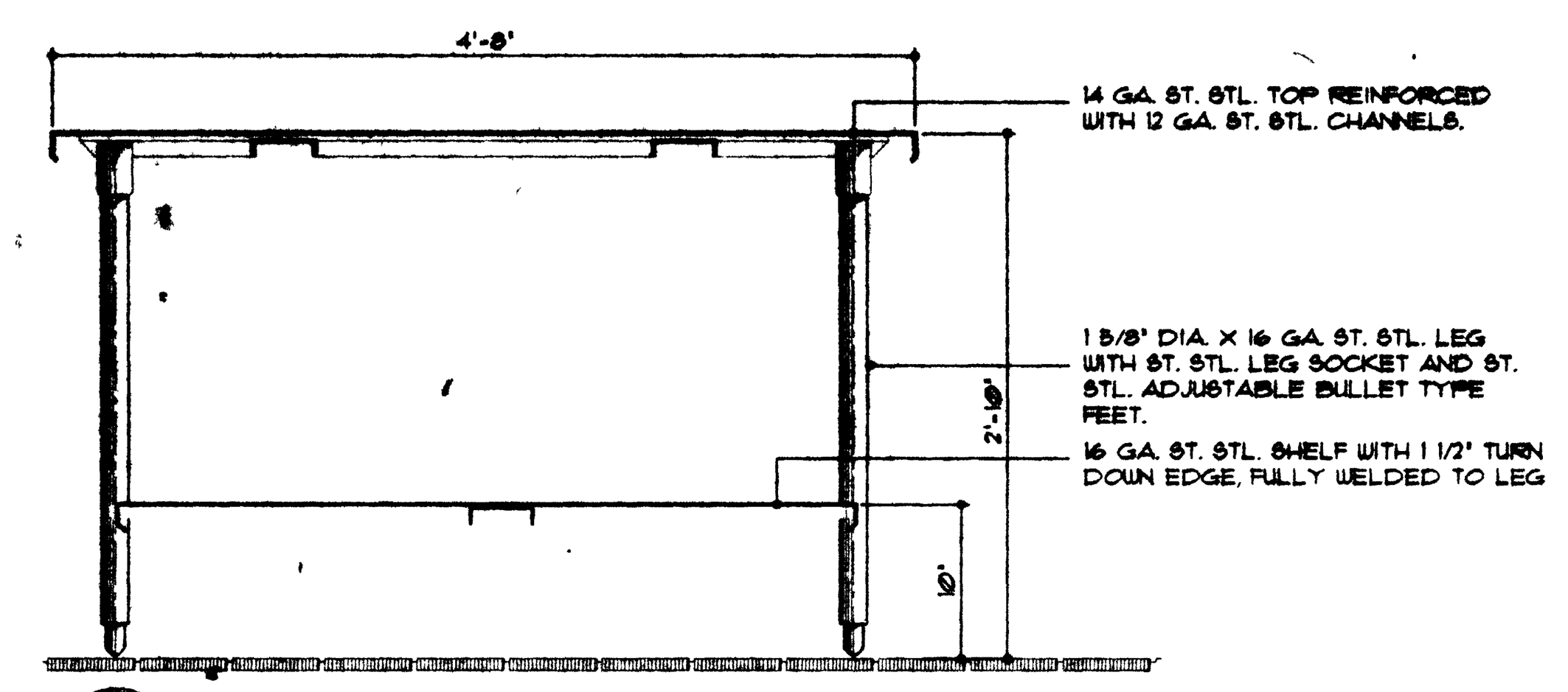
8250 College Parkway Suite 203 Ft. Myers, FL 33919 voice 941-481-0200 fax 941-481-3303
227 W. Trade St. Suite 2250 Charlotte, NC 28202 voice 704-372-7700 fax 704-372-7701

THE NEW
PORTER COUNTY JAIL
VALPARAISO INDIANA

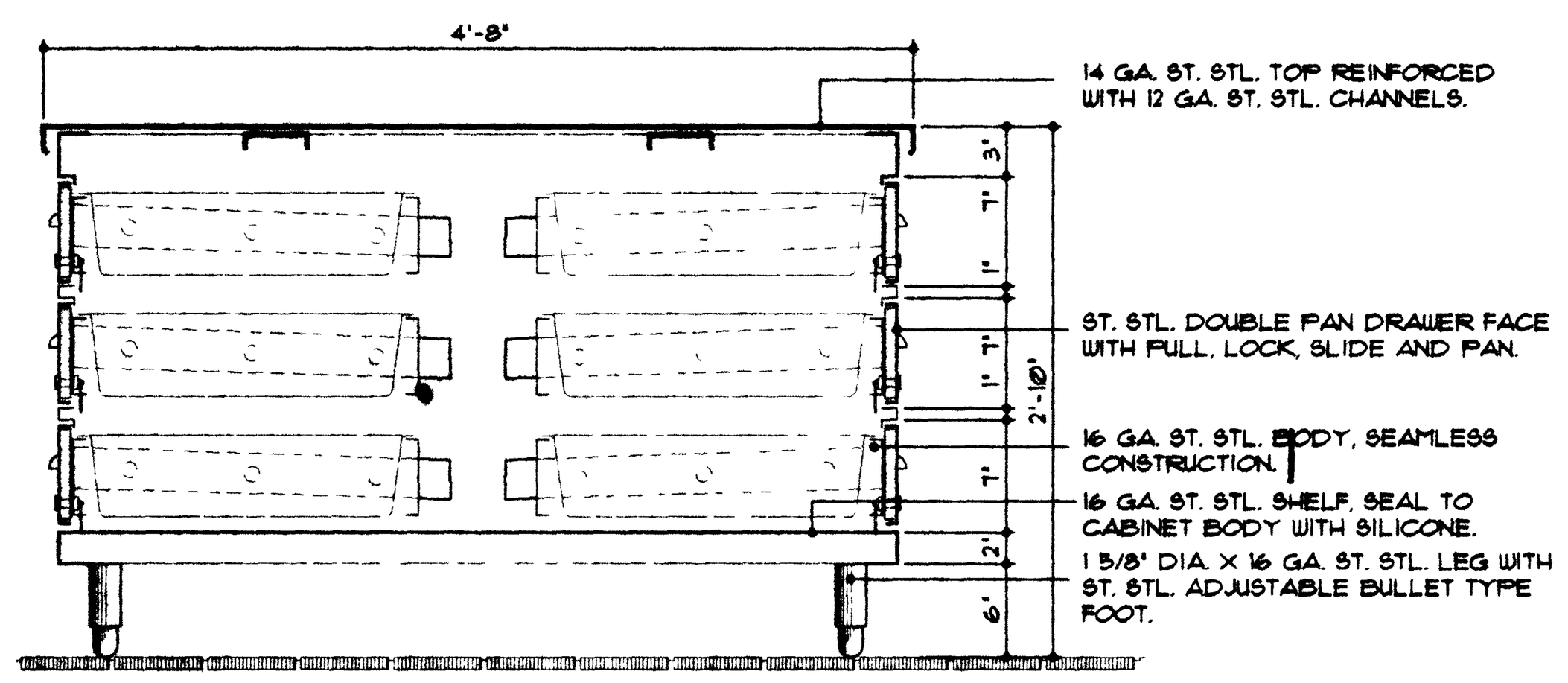
KITCHEN MECHANICAL PLAN

revisions:
drawn: FIV
checked: TJT
date: 01-04-00
comm. no.: 9622

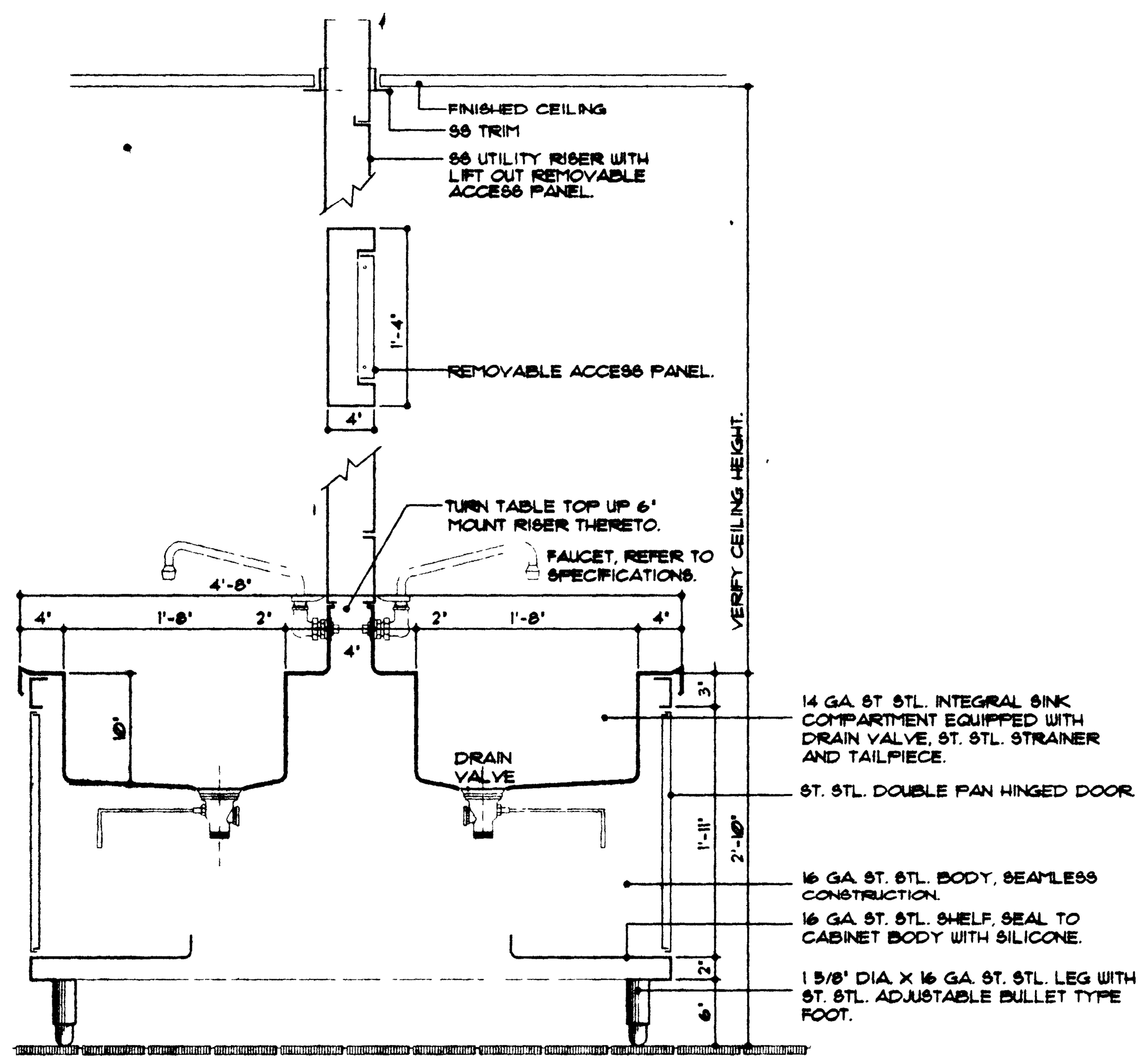
FS.4



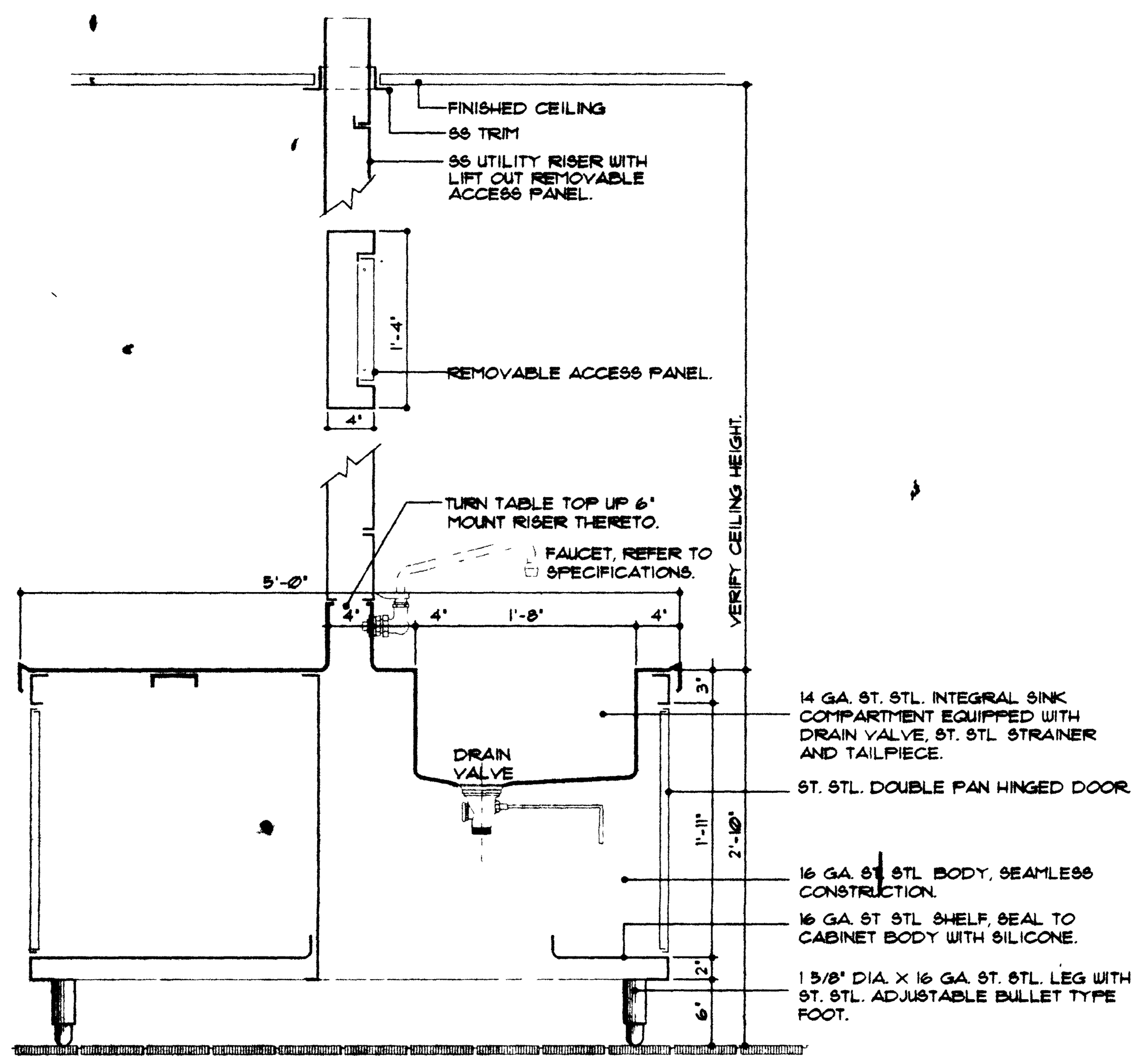
26 ISLAND WORK CENTER
ITEM NO. 22 and 28



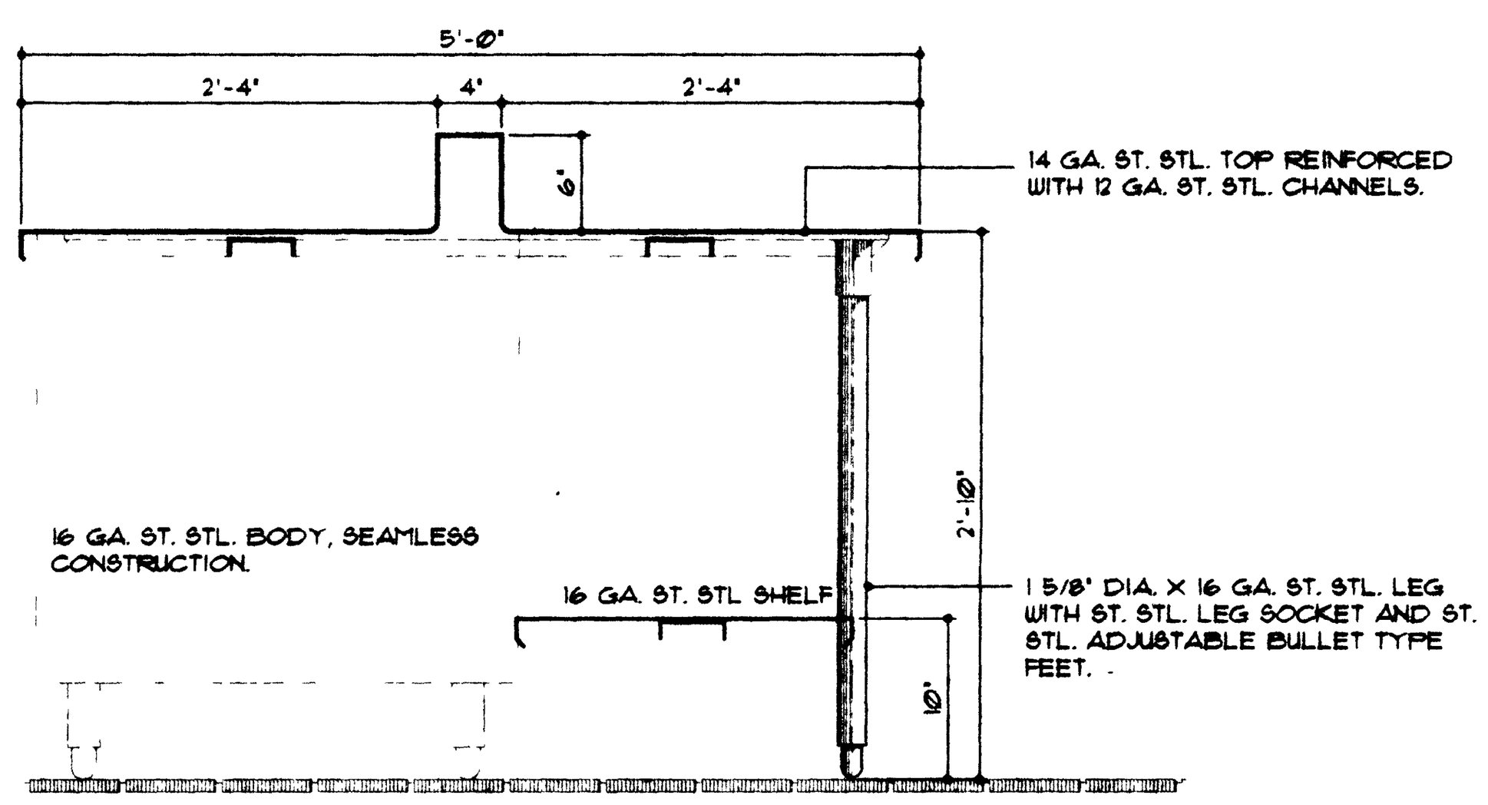
27 ISLAND WORK CENTER
ITEM NO. 22 and 28



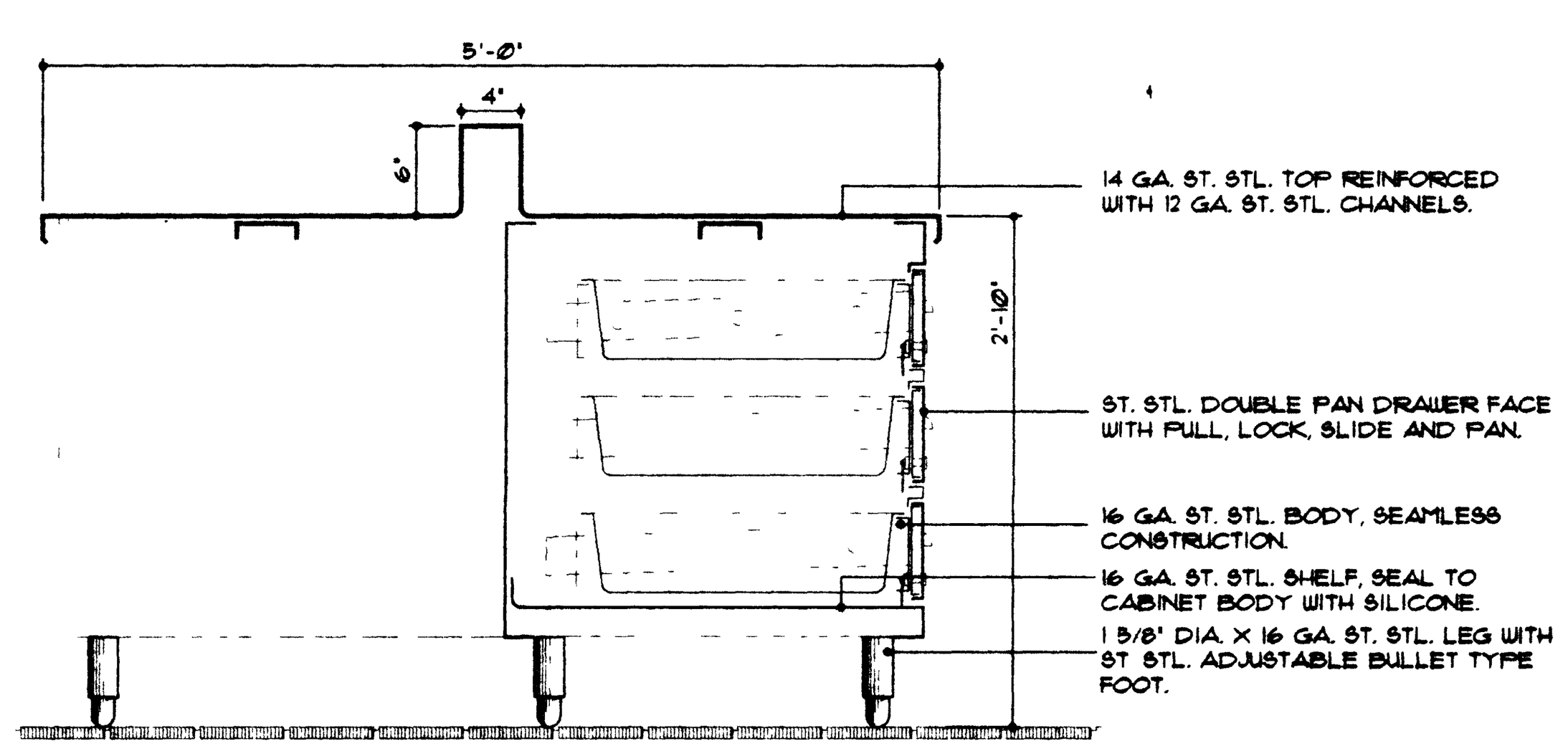
28 ISLAND WORK CENTER
ITEM NO. 22 and 28



29 ISLAND WORK CENTER
ITEM NO. 25



30 ISLAND WORK TABLE
ITEM NO. 25



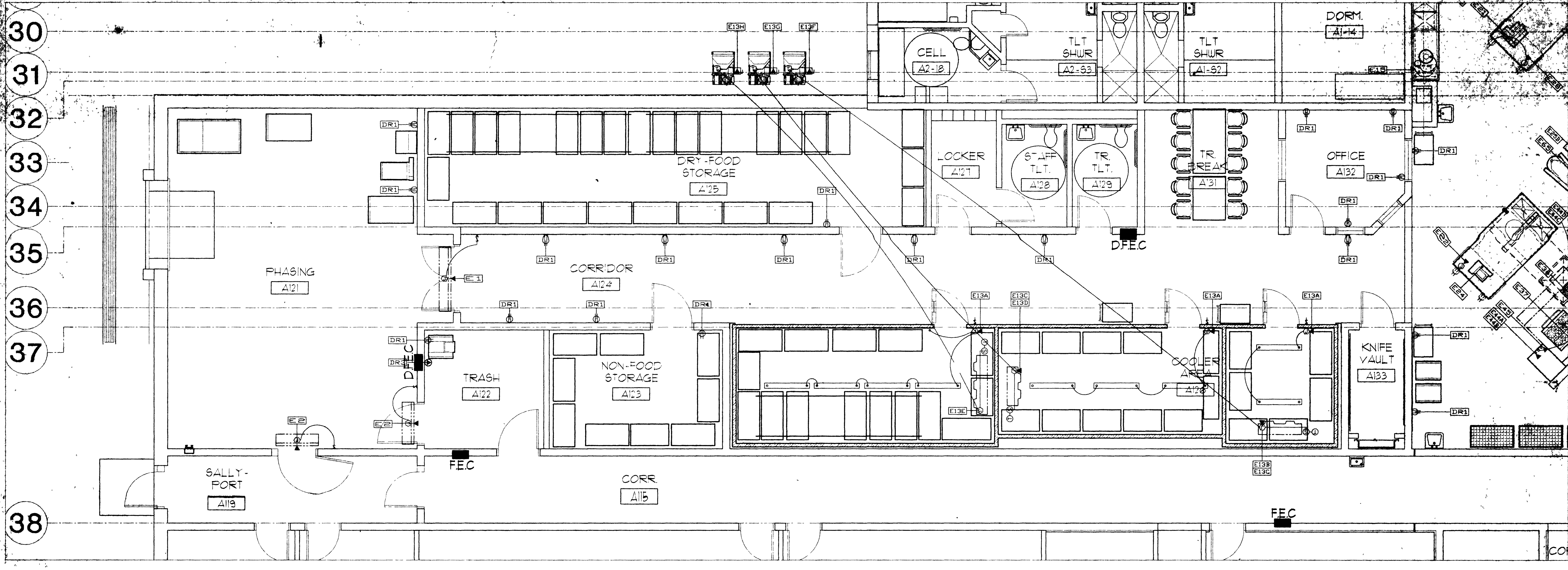
31 ISLAND WORK TABLE
ITEM NO. 25

KITCHEN MECHANICAL PLAN

SCHENKELSHULTZ
ARCHITECTURE

THE NEW PORTER COUNTY JAIL
VALPARAISO INDIANA

FS.5



ELECTRICAL SCHEDULE

MARK (X)	EQUIPMENT IS ROUGHED IN FOR MANUFACTURER AND MODEL NUMBER SPECIFIED.
E1	FLY FAN 10.2 AMP 120V-1, 90" AF. DIVISION 16 INSTALL KEC FURNISHED PUSH BUTTON STATION FLUSH MOUNTED IN BUILDING WALL 54" AF AND WIRE TO FAN
E2	FLY FAN 5.1 AMP 120V-1 90" AF. DIVISION 16 INSTALL KEC FURNISHED PUSH BUTTON STATION FLUSH MOUNTED IN BUILDING WALL 54" AF AND WIRE TO FAN
E13	WALK IN COOLER/FREEZER A 0.75 KW 120V-1 DROP FROM ABOVE AND CONNECT TO JUNCTION BOX ON TOP OF CEILING. DIVISION 16 WIRE FROM JB ON TOP OF UNIT CEILING TO KEC FURNISHED LIGHT FIXTURES. ALL CONDUIT AND WIRE SHALL BE INSTALLED ABOVE AND ON THE OUTSIDE OF THE UNIT CEILING. PENETRATIONS THRU THE WALLS AND CEILING ARE TO BE EQUIPPED WITH 'SEAL-OFFS'. WIRE PERIMETER DOOR HEATERS AND AIR RELIEF VENT HEATERS. B COOLER COIL - 2.1 AMP 120V-1 DROP FROM ABOVE AND CONNECT TO JUNCTION BOX ON COOLING COIL. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT TO KEC FURNISHED ROOM TEMPERATURE CONTROLS. C CONDUIT AND WIRES FROM J.B. ON COOLING COIL TO THE REMOTE TIMER ON THE COMPRESSOR BY DIVISION 16. D COOLER COIL - 4.2 AMP 120V-1 DROP FROM ABOVE AND CONNECT TO JUNCTION BOX ON COOLING COIL. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT TO KEC FURNISHED ROOM TEMPERATURE CONTROLS. E FREEZER COIL - CONDUIT AND WIRES FROM JUNCTION BOX ON FREEZER COIL TO THE COMPRESSOR. DIVISION 16 WIRE IN 'SEAL TIGHT' CONDUIT TO KEC FURNISHED ROOM TEMPERATURE CONTROLS. WIRE DRAIN LINE HEATER TO FREEZER COIL 'HOT' TERMINALS. REFER TO WIRING DIAGRAM. (21.9 AMP 120/208V-1) F COOLER COMPRESSOR - 0.75 HP 208V-3. DIVISION 16 CONNECT TO KEC FURNISHED DISCONNECT SWITCH ON THE COMPRESSOR. DISCONNECT SWITCH TO BE FACTORY WIRED TO THE COMPRESSOR. (AMPACITY 5.4 AMP) G COOLER COMPRESSOR - 1.0 HP 208V-3. DIVISION 16 CONNECT TO KEC FURNISHED DISCONNECT SWITCH ON THE COMPRESSOR. DISCONNECT SWITCH TO BE FACTORY WIRED TO THE COMPRESSOR. (AMPACITY 8.5 AMP) H FREEZER COMPRESSOR - 3.0 HP 208V-3. DIVISION 16 CONNECT TO KEC FURNISHED DISCONNECT SWITCH ON THE COMPRESSOR. DISCONNECT SWITCH TO BE FACTORY TO THE COMPRESSOR AND TIMER. REFER TO WIRING DIAGRAM. (AMPACITY 61.0 AMP)
E15	DISPOSER 1.25 HP 480V-3, 24" AF. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM JB IN WALL TO THE DISPOSER, SOLENOID VALVE AND CONTROL DEVICE.
E21	SLICER - SERVICE FROM ITEM NO. 28 0.50 HP 120V-1
E22	TABLE TWO (2) 16.0 AMP 120V-1, DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM THE ROUGH IN TO A FACTORY MOUNTED JB ON TABLE. RECEPTACLES ON TABLE TO BE INSTALLED AND WIRED TO THE JB BY THE EQUIPMENT MANUFACTURER.
E24	BAGGER - SERVICE FROM ITEM NO. 22 12.0 AMP 120V-1
E25	ISLAND WORK CENTER A FOUR 16.0 AMP 120V-1, DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM THE ROUGH IN TO A FACTORY MOUNTED JB ON TABLE. RECEPTACLES ON TABLE TO BE INSTALLED AND WIRED TO THE JB BY THE EQUIPMENT MANUFACTURER. B 2.0 HP 480V-3. KEC PROVIDE 'AVTEC' DISCONNECT CONTROLLER IN BASE OF COUNTER. DIVISION 16 WIRE FROM ROUGH IN TO DISCONNECT AND FROM THE DISCONNECT TO THE MIXER, ITEM NO. 65.
E28	ISLAND WORK CENTER A TWO (2) 16.0 AMP 120V-1, DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM THE ROUGH IN TO A FACTORY MOUNTED JB ON TABLE. RECEPTACLES ON TABLE TO BE INSTALLED AND WIRED TO THE JB BY THE EQUIPMENT MANUFACTURER.
E31	FOOD PROCESSOR - SERVICE FROM ITEM NO. 28. 10.0 AMP 120V-1
E32	CAN OPENER, ELECTRIC 12.0 AMP 120V-1 DUPLEX RECEPTACLE FLUSH MOUNTED IN WALL 48" AF.

ELECTRICAL SCHEDULE

MARK (X)	EQUIPMENT IS ROUGHED IN FOR MANUFACTURER AND MODEL NUMBER SPECIFIED.
E35	COMBI OVEN-STEAMER - SERVICE FROM ITEM NO. 43 52.0 AMP 208V-3
E36	KETTLE - SERVICE FROM ITEM NO. 43 10.0 AMP 120V-1
E37	RANGE - SERVICE FROM ITEM NO. 43 10.0 AMP 120V-1
E39	CONVECTION OVEN - SERVICE FROM ITEM NO. 43 15.8 AMP 120V-1
E41	TILT SKILLET - SERVICE FROM ITEM NO. 43 5.0 AMP 120V-1
E42	GRIDDLE - SERVICE FROM ITEM NO. 43 2.0 AMP 120V-1
E43	RACEWAY 100.0 AMP 208Y-3 FOUR WIRE DROP FROM ABOVE AND CONNECT TO TERMINALS ON THE UTILITY RACEWAY. WHERE FIELD JOINTS OCCUR, ALL WIRING SHALL BE RECONNECTED BY DIVISION 16. DIVISION 16 TO PROVIDE THE FOLLOWING: INTERCONNECT ELECTRICAL FIELD JOINTS BY BOLTING BUSBAR AND/OR WIRING TOGETHER. ALL FITTINGS, BOLTS, ETC., PREFITTED AND SUPPLIED BY MANUFACTURER. CONTROL WIRING FIELD JOINTS PROVIDED WITH QUICK DISCONNECT DEVICE. INSTALL ELECTRICAL SERVICE, K.O., CONDUIT AND WIRING FROM STUB IN LOCATION TO TERMINALS THRU THE VERTICAL RISER. INSTALL MAIN SERVICE FEEDERS AND OVERCURRENT PROTECTION DEVICES. GRIPS TO APPROPRIATE EQUIPMENT. CONNECT PREWIRED FLEXIBLE CONDUIT FROM SYSTEM TO APPROPRIATE EQUIPMENT.
E44	WALL VENTILATION SYSTEM A 16.0 AMP 120V-1 DROP FROM ABOVE AND CONNECT TO JB ON CANOPY FOR LIGHTS. DIVISION 16 WIRE FROM THE LIGHT SWITCH TO THE HOOD LIGHTS. RECONNECT WIRING FOR HOOD LIGHTS ACROSS ALL FIELD JOINTS. JOINTS. B 20.0 AMP 120V (TWO WIRE UNINTERRUPTED POWER SUPPLY CIRCUIT TO VENTILATOR CONTROL PANEL. DIVISION 16 TO PROVIDE THE FOLLOWING: 120 VOLT (4 WIRE) CONTROL CIRCUITS FROM RISER TO ELECTRONIC DETECTOR IN DAMPER CONTROL BOX. 120 VOLT (4 WIRE) CONTROL CIRCUIT FROM VENTILATOR CONTROL BOX IN RISER TO EXHAUST FAN AND AIR MAKE UP FAN MAGNETIC MOTOR CONTROLLER INTERCONNECT 120V VENTILATOR LIGHT CIRCUIT FROM RACEWAY SYSTEM TO VENTILATOR JUNCTION BOX. INTERCONNECT LIGHT CIRCUITS ACROSS THE FIELD JOINTS. C FAN SYSTEM - 1.5 HP 480V-3 FOR EXHAUST FAN + 1.0 HP 480V-3 FOR SUPPLY FAN DIVISION 16 WIRE FROM THE ROUGH IN AND CONNECT TO THE TERMINAL ON THE SUPPLY FAN SYSTEM. (THREE REQUIRED) D 10.0 AMP 120V-1. DIVISION 16 CONNECT TO FURNACE ON ROOF. (THREE REQUIRED)
E45	FIRE CONTROL SYSTEM 16.0 AMP 120V-1 24 HOUR FUSED "DEDICATED" SERVICE NEAR CEILING. REFER TO FIRE CONTROL SYSTEM WIRING DIAGRAM. DIVISION 16 PROVIDE ALL RELAYS AND WIRE FROM CONTROL PANEL TO THE FOLLOWING: BUILDING FIRE ALARM SYSTEM.
E46	PASS THRU FOOD WARMER A 16.0 AMP 120V-1, DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM THE ROUGH IN TO A FACTORY MOUNTED JB ON TABLE. RECEPTACLES ON TABLE TO BE INSTALLED AND WIRED TO THE JB BY THE EQUIPMENT MANUFACTURER. B 23.1 AMP 208V-1, DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM THE ROUGH IN TO A FACTORY MOUNTED JB ON TABLE. RECEPTACLES ON TABLE TO BE INSTALLED AND WIRED TO THE JB BY THE EQUIPMENT MANUFACTURER. C 12.5 AMP 208V-3. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM ROUGH IN TO THE TERMINAL ON THE EQUIPMENT.

ELECTRICAL SCHEDULE

MARK (X)	EQUIPMENT IS ROUGHED IN FOR MANUFACTURER AND MODEL NUMBER SPECIFIED.
E48	DISPOSER 1.25 HP 480V-3, 24" AF. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM JB IN WALL TO THE DISPOSER, SOLENOID VALVE AND CONTROL DEVICE.
E51	TOASTER - SERVICE FROM ITEM NO. 46 23.1 AMP 208V-1
E53	REFRIGERATOR 16.0 AMP 120V-1 DUPLEX RECEPTACLE FLUSH MOUNTED IN WALL 90" AF.
E54A	ICE MAKER WITH BIN 9.2 AMP 208V-1. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM ROUGH IN TO THE TERMINAL ON THE EQUIPMENT.
E54B	ICE MAKER CLEANING SYSTEM 12.0 AMP 120V-1 DUPLEX RECEPTACLE FLUSH MOUNTED IN WALL 48" AF.
E59	TRAY DELIVERY CART 16.0 AMP 120V-1 SPECIAL PURPOSE RECEPTACLE FLUSH MOUNTED IN WALL 60" AF.
E61	COLD FOOD TABLE 12.0 AMP 120V-1 DUPLEX RECEPTACLE FLUSH MOUNTED IN WALL 16" AF.
E62	HOT FOOD TABLE, MOBILE 19.2 AMP 208V-1 PEDESTAL TYPE FLOOR RECEPTACLE 4 1/2" MAXIMUM HEIGHT. DIVISION 16 PROVIDE A NEMA 6-30R RECEPTACLE.
E65	MIXER - SERVICE FROM ITEM NO. 25 2.0 HP 480-3.
E67	COFFEE BREWER XX AMP 120/208V-1 SPECIAL PURPOSE RECEPTACLE FLUSH MOUNTED IN WALL 48" AF.
E68	MICRO WAVE OVEN XX AMP 120V-1 SPECIAL PURPOSE RECEPTACLE FLUSH MOUNTED IN WALL 48" AF.
E78	DISPOSER 5.0 HP 480V-3, 24" AF. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM JB IN WALL TO THE DISPOSER, SOLENOID VALVE AND CONTROL DEVICE.
E79	DISHWASHER A 46.7 AMP 480V-3. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM ROUGH IN TO THE TERMINAL ON THE DISHWASHER. B DIVISION 16 PROVIDE CONTROL WIRING FROM THE DISHWASHER EXHAUST FAN MOTOR CONTROLLER TO THE FAN CONTROL TERMINAL LOCATED IN THE DISHWASHER CONTROL PANEL.
E81	DISHWASHER EXHAUST SYSTEM 0.33 HP 120V-1 ON ROOF FOR DISHWASHER EXHAUST FAN. DIVISION 16 WIRE FROM THE EXHAUST FAN MOTOR ON THE BUILDING ROOF TO FAN CONTROL TERMINAL LOCATED IN THE DISHWASHER CONTROL PANEL
E82	DETERGENT INJECTOR 12.0 AMP 120V-1 DUPLEX RECEPTACLE FLUSH MOUNTED IN WALL 60" AF.
E83	BOOSTER HEATER 36.0 KW 480V-3. DIVISION 16 WIRE IN 'SEAL-TIGHT' CONDUIT FROM ROUGH IN TO THE TERMINAL ON THE EQUIPMENT.
E85	CART WASH EXHAUST SYSTEM - VERIFY REQUIREMENTS WITH DIVISION 15. 120V-1 ON ROOF FOR CARTWASH ALCOVE EXHAUST FAN. DIVISION 16 PROVIDE WALL MOUNTED SWITCH WITH INDICATOR LIGHT IN DISHWASHING ROOM AND WIRE TO EXHAUST FAN ON BUILIDNG ROOF.
DR1	WALL RECEPTACLE 16.0 AMP 120V-1 DUPLEX RECEPTACLE FLUSH MOUNTED IN WALL 16" AF.
DR2	WALL RECEPTACLE 16.0 AMP 120V-1 DUPLEX RECEPTACLE FLUSH MOUNTED IN WALL 48" AF.
DR3	WALL RECEPTACLE, 208V-48" 24.0 AMP 208V-1 SPECIAL PURPOSE RECEPTACLE FLUSH MOUNTED IN WALL 48" AF.

WORK BY DIVISION 16

ROUGH IN ELECTRICAL SERVICE THRU WALLS, FLOORS AND CEILINGS AND RUN CONDUIT AND CONDUCTORS FROM THE ROUGH IN. MAKE THE CONNECTIONS TO A TERMINAL BLOCK, TERMINAL PANEL OR JUNCTION BOX ON THE EQUIPMENT.

FURNISH AND INSTALL ALL ELECTRICAL OUTLETS IN WALLS, FLOOR AND CEILING.

FURNISH AND INSTALL ALL DISCONNECT SWITCHES AS REQUIRED FOR THE EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL CODE.

FURNISH AND INSTALL ALL CONDUIT AND WIRING BETWEEN REMOTE CONTROL PANELS AND THE FOOD SERVICE EQUIPMENT.

THE FOOD SERVICE EQUIPMENT ELECTRICAL DRAWINGS AND EQUIPMENT DATA INFORMATION ARE PREPARED FOR THE CONVENIENCE OF BIDDING AND ARE NOT INTENDED AS ROUGH IN DRAWINGS TO BE USED ON THE PROJECT SITE. REFER TO THE FOOD SERVICE EQUIPMENT CONTRACTORS ROUGH IN DRAWING FOR ACCURATE LOCATION OF UTILITIES.

VERIFY ELECTRICAL CHARACTERISTICS OF OWNER'S EXISTING EQUIPMENT WHICH IS TO BE REUSED.

ELECTRICAL SYMBOLS

Symbol	Description	Symbol	Description
▲	ROUGH IN		DISCONNECT SWITCH
(J)	JUNCTION BOX		CORD AND PLUG
(S)	SOLENOID		WIRING BY DIVISION 16
(T)	THERMOSTAT		WIRING BY KEC
(C)	CONDUIT		DUPLEX RECEPTACLE
(R)	RELAY		FLOOR RECEPTACLE
(A)	ALARM		DROP CORD
[T]	TIMER		SPECIAL PURPOSE OUTLET
	LIGHT		CONNECTION ON EQUIPMENT
$	SWITCH	[9]	CONNECTION NUMBER
		(9)	EQUIPMENT NUMBER

ABBREVIATIONS

DR	DUPLEX RECEPTACLE	KW	KILOWATT
SPO	SPECIAL RECEPTACLE	HP	HORSEPOWER
JB	JUNCTION BOX	V	VOLTS
DS	DISCONNECT SWITCH	SU	STUB UP
AMP	AMPERAGE	AF	ABOVE FLOOR
C/P	CORD AND PLUG	DFA	DROP FROM ABOVE

SCHENKELSHULTZ

THE NEW PORTER COUNTY JAIL

VALPARAISO INDIANA

KITCHEN ELECTRICAL PLAN

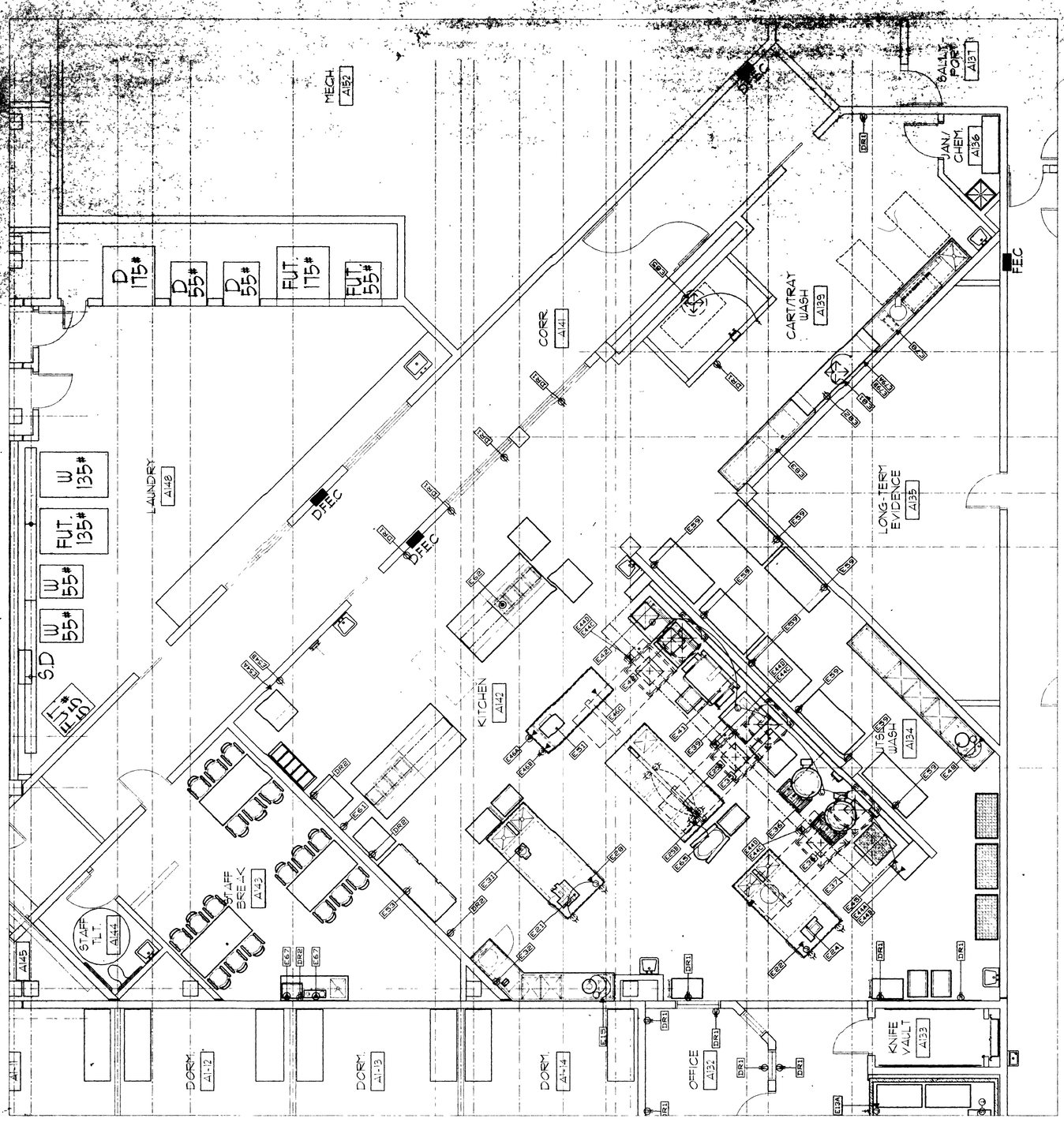
FS.6

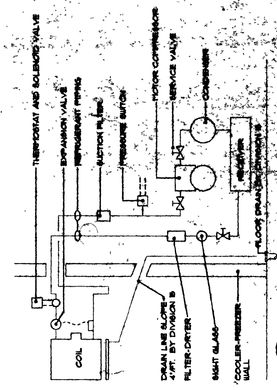
SCHENKELSHULTZ

THE NEW
PORTER COUNTY
VALPARAISO

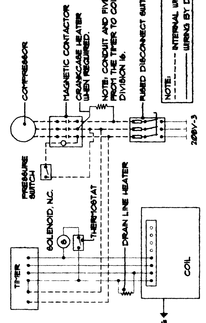
KITCHEN ELECTRICAL PLAN

FS7

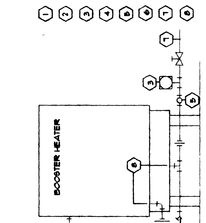




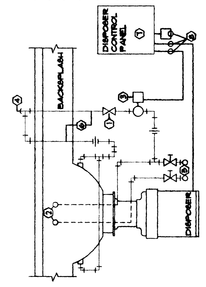
39 REFRIGERATOR PIPING
ITEM NO. 13



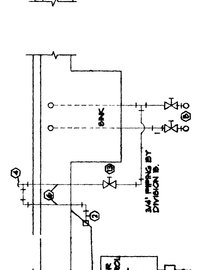
38 FREEZER COIL WIRING
ITEM NO. 13



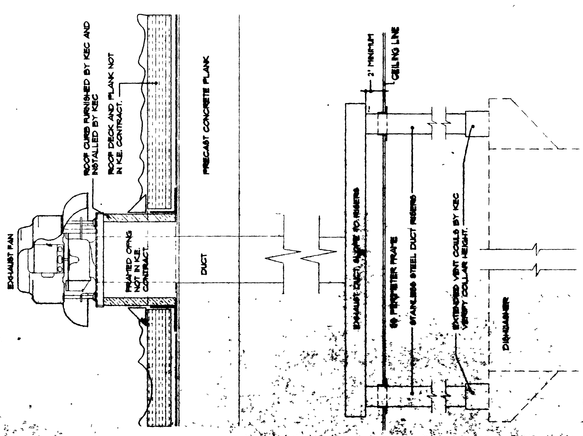
37 BOOSTER HEATER
ITEM NO. 83



36 DISPOSER PIPING
ITEM NO. 15 and 48



35 DISPOSER, DISHTABLE & HOSE REEL PIPING
ITEM NO. 16 and 18



34 DISHWASHER EXHAUST SYSTEM
ITEM NO. 81

SCANNED JANUARY 2009
PORTER COUNTY SURVEYOR'S OFFICE
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Kevin D. Breitzke, P.E.,L.S. - Porter County Surveyor