

## Addendum 3

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Date: 10/21/22

### Addendum 3 Items:

#### Contractor Questions:

- Question 1:
- a) Reference sheet A103b & A726 – type HM3 and HM4 are shown @ rooms 310A and 310B are noted as having type GL-6 fire rated glazing, but surrounding walls and doors are not rated? If this glazing is to be GL-6, please provide rating that will be required.
  - b) Will a storefront and curtain wall mock-up be required? If so, please provide drawing or specify requirements.
  - c) Will a metal plate wall panel mock-up be required? If so, please provide drawing or specify requirements.
  - d) Reference 084113 & 084413 specification – aluminum finishes are specified as being High Performance Two-Coat Fluoropolymer w/ color and gloss as selected from full range. Is this to include metallic finishes?
  - e) Reference sheet A101a – aluminum type CW5 has been drawn as a segmented radius, but 084413 2.7 FABRICATION C. 7 states components should be curved to indicate radii. Which will be required?
  - f) Reference sheet A103A – should frame types HM15 and HM14 above stair E have 1 hr. fire rated glazing?

*Response:*

- a) Refer to sheet A726 as noted below, HM3 and HM4 to be changed to be GL-5.*
- b) No, there are no mockups required for the storefront or curtainwall.*
- c) No, there are no mockups required for the metal plate wall panels.*
- d) No, this is not to include metallic finishes.*
- e) CW5 is to be segmented and no radii will be required.*
- f) No, that glass is to be protected by sprinklers on either side of the glass to achieve the required rating.*

- Question 2: **Item 65 – Single Door Reach-In Freezer:** I was hoping for some clarification on Item A: Ten (5) additional adjustable chrome shelves per section. Will we be providing five or ten additional shelves?

*Response:* *Item #65 is a single door reach in and requires the KEC to provide (5) additional shelves. For each reach-in refrigerator we specify (5) additional shelves per section, and not (10).*

- Question 3:
- a) Have the Masonry Notes been created that are missing on sheet S0.0?
  - b) Has the 2-year schedule taken into account the potential 60+ week lead time for electrical gear after approvals from the EOR have been sent back?
  - c) Is there any consideration for extending the bid to 11/18 due to the size and details of the drawings? Electrical contractors are worried about getting a true

number from suppliers due to the complexity and size of the electrical portion of the project.

*Response:* a) These will be issued on the next addendum.  
b) Refer to AIA A201, 3.10.1 through 3.10.3 for Contractor's Construction Schedules and 8.3.1 through 8.3.3 for Delays and Extensions of Time.  
c) The bid date has already been extended 10 days. Should any contractors have legitimate concerns about obtaining accurate numbers from their suppliers, they should submit the request in writing from both the subcontractors and suppliers.

Question 4: a) Reference 088000 3.8 MONOLITHIC GLASS SCHEDULE B 2. And 3.9 INSULATED GLASS SCHEDULE B 1. – spandrel color is stated as being selected by architect from full range. Will this be full range of manufacturer's standard colors, or will this need to also include custom color range as well?  
b) Reference detail D2/A133 – Please clarify which specification the materials noted as extruded aluminum w/ snap cover and compressible gasket can be located.

*Response:* a) This is intended to be the full range of the manufacturer's standard colors, and does not include a custom range.  
b) Refer to specification item below, which is referenced on the drawings as snap cover, and extruded aluminum to match window framing system, where used in conjunction with one another, and for locations where CMU or metal stud wall systems abut a curtainwall, or shown elsewhere on the drawings.

Question 5: Our Helio bollard is detailed on sheet L602, detail H. I believe Element Design specified this bollard and it is listed as M30/K4 on L602 but the plan detail drawing is for a smaller 6" dia. Helio bollard. I think the 6" dia. bollard should be sufficient and that the larger M30 designation would not be needed now (would be cost savings as well). Can that be changed to 6" dia.?

Second item is if our 6" lit Helio bollard can be listed as "Basis of Design or approved equal" vs. the Halo bollard also shown.

*Response:* A 6" lit **security** bollard is sufficient. Eliminate reference to the M30/K4. Helio bollard is noted as Basis of Design.

**Site Addenda Items (L):**

***Drawings:***

No addendum items at this time.

**Structural Addenda Items (S):**

No addendum items at this time.

**Architectural Addenda Items (A):**

***Drawings:***

**Item A1:**

Refer to sheet A726: HM-3 and HM-4 to be GL-5, also referenced on sheet A103b.

**Item A2:**

Refer to sheet A572, D1: Door height to be changed to 7'-0". See detail A3 for revised elevation.

**Item A3:**

Refer to sheet A650, Detail 2: Door height to be changed to 7'-0", see updated section.

***Specifications:***

**Item A4:**

Refer to specifications, Table of Contents: Add section 098453 SOUND BARRIER WALL END CAP, see full specification included in this addendum.

**Item A5:**

Refer to specification Section 102239 "Folding Panel Partitions": 2.2, A.1., add: d. Corflex shall be an approved manufacturer.

**Item A6:**

Refer to specification Section 102800 "Toilet, Bath, and Laundry Accessories": 2.4.B., add: 8. World Dryer, VERDIdri model #Q-974A2 shall be listed as an approved manufacturer and model. Note that per 2.4.B.3.a.1.) a recess ADA kit equal to the Xlerator #40502 shall be provided in conjunction with hand dryers, also shown on sheet A151. American Specialities Inc. (ASI) shall be listed as an approved manufacturer for Toilet Accessories except for Hand Dryers, which needs to be submitted separately for review, and approved in advance of bidding.

**Item A7:**

Refer to specification Section 123216 "Manufactured Plastic-Laminate-Clad Casework":

1.11, A.2. Revise to read:

2. Warranty Period: Ten years from date of Substantial Completion.

2.3, Revise to read:

B. Butt Hinges: Powder-coated, semiconcealed, five-knuckle hinges complying with ANSI/BHMA A156.9, Grade 1, with antifriction bearings and rounded tips. Provide two hinges for doors less than 48 inches high, and provide three hinges for doors more than 48 inches high.

D. Door Catches: Dual, self-aligning, permanent magnet catch. Provide two catches on doors more than 48 inches high.

F. Drawer Slides: ANSI/BHMA A156.9.

1. Manufacturer's standard.

2. Standard Duty (Grade 1): Bottom corner mount.

3. Heavy Duty (Grade 1HD-100): Bottom corner mount.

a. Type: Full extension.

b. Material: Epoxy-coated polymer slides.

2.5.A. – Revise to read

5. Drawer Sides and Backs: 1/2-inch- thick particleboard with thermally fused melamine interiors, doweled with 8mm dowels and glued into sides. Top edge banded with 1mm PVC.
6. Drawer Bottoms: 1/2-inch- thick particleboard with thermally fused melamine interiors, screwed directly to the bottom edges of drawer box.

**Item A8:**

Refer to specification Section 123623.16 “Manufactured Plastic-Laminate-Clad Countertops”: 2.1, Revise to read:

H. Core Thickness: 1 inch.

1. Loose shelving core thickness: Thickness to be 1 inch for entire length of shelf.

Delete 2.1, H. 2 ~~Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.~~

**Food Service Addenda Items (K):**

***Drawings:***

**Item K1:**

Included in this addendum are the Accurex hood preliminary shop drawings as the basis of design for the Culinary Arts spaces. All fans are intended to be constant volume. Makeup air is designed to 85%. Controls must communicate with building management systems as required. Stainless steel wall panels are to be included from floor base to underside of hood and stainless steel enclosures are to be provided to close off any gaps between hood and ceiling, island hoods, control boxes or the like. See the Foodservice Specification for additional information.

**Fire Protection Addenda Items (FP):**

No addendum items at this time.

**Plumbing Addenda Items (P):**

***Drawings:***

**Item P1:**

Refer to drawing P501 – PLUMBING DETAILS, refer to revised Domestic Water Service Entrance Detail.

**Item P2:**

Refer to drawing P601 – PLUMBING SCHEDULES, for the following changes,

1. Refer Plumbing Fixture Schedule, Mop Basin (MB1) Shall be changed to a Fiat TSB3000 – 12” Mop Basin with a 6” Drop Front, with stainless steel caps on all sides. All other requirements indicated on schedule shall remain the same.
2. Refer to Thermostatic Mixing Valve Schedule, this has been updated to include Fayette County requirement for product serial number to be added.
3. Refer to Electric Water Heater Schedule, this has been updated to include Fayette County requirement for product serial number to be added.

**Item P3:**

Refer to drawing P602 – PLUMBING SCHEDULES, for various changes to plumbing schedules. Most schedules revised to include Fayette County requirement for product serial number to be added.

***Specifications:***

***Attachments:***

1. The following full size PDF drawings are attached for inclusion in this Addenda.
  - a. P512 – PLUMBING DETAILS
  - b. P601 – PLUMBING SCHEDULES
  - c. P602 – PLUMBING SCHEDULES

**Mechanical Addenda Items (M):**

***General Clarifications:***

**Item M1:**

Referencing all Mechanical Piping Drawings and Thermostat / Sensor Locations. The following clarification shall be provided for all locations:

- In Public Areas (Corridors, Restrooms, Commons) the sensors are to be flat plate stainless steel sensors with no adjustments, no overrides, and no displays. If flat plate sensors for Humidity are not available, humidity sensors shall be located in the return air duct of the HP served.
- In all Classrooms, Media Centers, Labs, and other educational spaces, the sensors are to be adjustable via wheel or slider, provided with an occupancy override button, with NO digital display. Sensors are to be temperature, CO2, and humidity.
- In all Offices, Workrooms, Multipurpose, and staff only areas, the sensors shall be adjustable with pushbutton adjustments, occupancy override button, and digital display.

***Drawings:***

**Item M1:**

Refer to drawing U101 – PARTIAL GEOTHERMAL SITE PLAN – MECHANICAL, Refer to Vertical Earth Loop Bore Detail. The detail shall be revised as indicated in attached. Vertical piping shall be 1-1/4" DR 11 Polyethylene Piping.

**Item M2:**

Refer to Mechanical Demolition Drawings; Fayette County Public Schools (FCPS) will salvage the existing water-cooled chillers. Mechanical Contractor shall disconnect and drain chillers for transportation by FCPS. Mechanical Contractor shall coordinate with FCPS for removal of chillers.

**Item M3:**

Refer to drawing M601 – MECHANICAL SCHEDULES; refer to Pump Schedule for revision to pumps P-04A and P-04B.

**Item M4:**

Refer to drawing M603 – MECHANICAL SCHEDULES; see revision to Water Source Heat Pump Unit Schedule for revisions to Heat Pump Tags to match drawings.

**Item M5:**

Refer to drawing M701 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS; refer to revision on sheet.

ALL TEMPERATURE / HUMIDITY / CO2 SENSORS FOR WATER-SOURCE HEAT PUMP UNITS SHALL BE PROVIDED BY THE TEMPERATURE CONTROLS CONTRACTOR.

**Item M6:**

Refer to drawing M702 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS; refer to revision on sheet.

ALL TEMPERATURE / HUMIDITY / CO2 SENSORS FOR WATER-SOURCE HEAT PUMP UNITS SHALL BE PROVIDED BY THE TEMPERATURE CONTROLS CONTRACTOR.

**Item M7:**

Refer to drawing M703 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS; refer to Sequences of Operations. The following shall be added to the dehumidification sequence of the Water-Source Heat Pump Units.

- During Dehumidification Mode the BAS shall monitor the unit Discharge Air Temperature, and shall modulate the water control valve as necessary to ensure unit LAT is room neutral (70°F+/- 1°F) The BAS shall modulate flow to restrict the flow to ensure that the Water Source Heat Pump is receiving correct entering water temp for dehumidification process utilizing HGRH.

**Item M8:**

Refer to drawing M704 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS; refer to Mini Split Units Points List. Remark number 1 shall be modified to state BACnet MSTP.

**Item M9:**

Refer to drawings M101a through M105a, all ducts penetrating floors shall be provided with a dynamic fire damper with associated access doors. All fire dampers and floor penetrations are to be sealed as required per KBC, IBC, and IMC.

***Specifications:***

**Item M10:**

Refer to specification Section 232113.33 – GROUND-LOOP HEAT PUMP PIPING, the following shall be added as acceptable contractors:

1. Mid State Construction Company, Livingston, TN
2. TCI Geothermal, Goodfield, IL

**Item M11:**

Refer to specification Section 232113.33 – GROUND-LOOP HEAT PUMP PIPING, Part 3.4 – Vertical Piping Installation, delete paragraph E in its entirety. Replace with the following:

- E. Refer to Specification Section 232113.34 – THERMAL-ENHANCED BENTONITE GROUT

**ITEM M12:**

Refer to attached Specification Section 232113.34 – THERMAL-ENHANCED BENTONITE GROUT

**Item M13:**

Refer to attached specification Section 233426 – DUST COLLECTION SYSTEM. This section shall replace the original specification in its entirety.

**Item M14:**

Refer to attached specification Section 235216 – CONDENSING BOILERS. Fulton shall be added as an approved manufacturer for this section.

**Attachments:**

- 2. The following full size PDF drawings are attached for inclusion in this Addenda.
  - a. U101 – PARTIAL GEOTHERMAL SITE PLAN - MECHANICAL
  - b. M103a – THIRD FLOOR PLAN A – HVAC
  - c. M601 – MECHANICAL SCHEDULES
  - d. M603 – MECHANICAL SCHEDULES
  - e. M701 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS
  - f. M702 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS
  - g. M703 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS
  - h. M704 – BUILDING AUTOMATION SYSTEM – TEMPERATURE CONTROLS

**Electrical Addenda Items (E):**

***General:***

**Item E1:**

Applies to all Electrical Drawings and Specifications as described:

- 1. This Addendum document and associated Drawings, Sketches, Specifications, and associated attachments are complementary of each other, and all items shown are all-inclusive whether shown only on one source of documentation or multiple.

***Drawings:***

**Item E2:**

Refer to Drawings E101a through E104b and E621:

- 1. Provide lighting fixture additions/modifications as indicated and clouded on the attached Drawings.

**Item E3:**

Refer to Drawings E201a, E201b, E610, E620, and U202:

- 1. Provide power additions/modifications as indicated and clouded on the attached Drawings.

**Item E4:**

Refer to Drawings E301a, E301b, E303a, E303b, E304a, E505, and U202:

1. Provide system additions/modifications as indicated and clouded on the attached Drawings.

***Attachments:***

**Item E5:**

3. The following full size PDF drawings are attached for inclusion in this Addenda.

- a. E101a - FIRST FLOOR PLAN A - LIGHTING
- b. E101b - FIRST FLOOR PLAN B - LIGHTING
- c. E102a - SECOND FLOOR PLAN A - LIGHTING
- d. E102b - SECOND FLOOR PLAN B - LIGHTING
- e. E103a - THIRD FLOOR PLAN A - LIGHTING
- f. E103b - THIRD FLOOR PLAN B - LIGHTING
- g. E104a - FOURTH FLOOR PLAN A - LIGHTING
- h. E104b - FOURTH FLOOR PLAN B - LIGHTING
- i. E201a - FIRST FLOOR PLAN A - POWER
- j. E201b - FIRST FLOOR PLAN B - POWER
- k. E301a - FIRST FLOOR PLAN A - SYSTEMS
- l. E301b - FIRST FLOOR PLAN B - SYSTEMS
- m. E303a - THIRD FLOOR PLAN A - SYSTEMS
- n. E303b - THIRD FLOOR PLAN B - SYSTEMS
- o. E304a - FOURTH FLOOR PLAN A - SYSTEMS
- p. E505 - ELECTRICAL DETAILS
- q. E610 - ELECTRICAL PANEL SCHEDULES
- r. E620 - ELECTRICAL PANEL SCHEDULES
- s. E621 - LIGHTING FIXTURE SCHEDULE
- t. U202 - PARTIAL SITE PLAN - ELECTRICAL

**End of items**

**END OF ADDENDUM 1 NARRATIVE**



## SECTION 098453 - SOUND BARRIER MULLION TRIM CAP

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. Section includes sound barrier mullion trim caps providing sound transmission control at curtain wall.
- B. Related Requirements:
  - 1. Section 079000 "Joint Sealants" for joint sealing.
  - 2. Section 084400 "Curtain Wall and Glazed Assemblies" for curtain wall construction.
  - 3. Section 092216 "Non-Structural Metal Framing" for interior wall construction.
  - 4. Section 092116 "Gypsum Board Assemblies" for interior wall construction

#### 1.03 ACTION SUBMITTALS

- A. Product Data:
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for sound barrier wall end cap system.
- B. Shop Drawings:
  - 1. Include typical dimensioned cross-section(s) at the location where drywall partition terminates at the perimeter curtain wall, indicating:
    - a. Dimensions
    - b. Finish
- C. Samples: For each exposed product and for each color and texture specified.
  - 1. Size: 6 inch (152 mm) sound barrier mullion trim cap sample and 2" x3-1/2" (51 mm x 89 mm) custom color paint sample.

#### 1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each sound barrier mullion trim cap assembly, for ASTM E 90 tests performed by a qualified third party testing agency.

### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer of aluminum extrusions and anodizing shall be ISO-9001 certified.
- B. Installer Qualifications: An entity that employs installers and supervisors who are approved by manufacturer.
- C. Testing Agency Qualifications: ASTM E 90 testing to be performed by laboratory accredited by IAS as complying with ISO/IEC Standard 17025.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver sound barrier mullion trim caps until spaces to receive them are clean, dry, and ready for their installation.
- B. Store sound barrier mullion trim caps in original undamaged packaging inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

### 1.07 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace sound barrier mullion trim caps that fail in materials or workmanship within specified warranty period.
  - 1. Warranty Period: Ten years limited warranty from date of Substantial Completion.
  - 2. Limited warranty does not cover adjacent products or improper installation.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. **Manufacturers:** Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. MULL-it-OVER Products; Sound barrier mullion trim cap systems.

### 2.02 SYSTEM DESCRIPTION

- A. General: Provide sound barrier mullion trim caps of design, basic profile, materials, and operation indicated. Provide units with capability to accommodate variations in adjacent surfaces.
  - 1. Furnish units in lengths of sufficient additional length to allow for field trimming to required length to match variations in construction tolerances of adjacent systems.

## 2.03 PERFORMANCE REQUIREMENTS

### A. Sound Transmission:

1. Single Sided Installations: STC 50 or higher.
2. Double-Sided Installations: STC 55 or higher.

### B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Mullion trim cap to be sized to accommodate thermal movement.

## 2.04 SOUND BARRIER MULLION TRIM CAP

### A. Sound Barrier Mullion Trim Cap:

1. Products: MULL-it-OVER Products; Mullion Trim Cap.

### B. Profiles: 55 Wide Mullion Trim Cap, and Wide Mullion Trim Cap.

## 2.05 COMPONENTS

### A. Aluminum Extrusions:

1. Thickness: 0.125 inches.
2. Profile: As selected and approved by Architect to allow solid attachment and fastening to the partition wall framing.

### B. Sound Absorbing Foam:

1. Resistant to smoke, flame, and microbial growth.
2. Fire Rating: ASTM E 84 Class 1.
3. Fungi Resistance: Zero rating per ASTM G 21.

### C. Compressible Foam: Between edge of extrusion and interior face of curtain wall glass.

1. Thickness: Standard 1/2 inch (12.7 mm), 3/4" (19.1 mm), 1 inch (25.4 mm) or 1-1/2" (38.1 mm) as required to accommodate mullion deflection.
2. Color: As selected by Architect from manufacturer's standard colors .

### D. Fasteners:

1. Self Tapping or appropriate threaded fastener.
2. Compatible with all materials fasteners will contact with and not causing galvanic corrosion.

### E. Snap Cover: Snap-on fastener cover.

### F. Acoustical Sound Sealant: Acrylic latex based.

## 2.06 ACCESSORIES

- A. Provide necessary and related parts and tools to complete installation.

## 2.07 FABRICATION

- A. Extrusions and generic profiles to be shipped in custom lengths as required to meet project requirements or shipped in standard incremental foot lengths and cut to exact length on jobsite.

## 2.08 FINISHES

- A. Exposed surfaces of exposed aluminum extrusion:
  - 1. Standard Finish: Supplied in clear anodized finish.
  - 2. Custom Finish: Custom anodized finishes and painted finishes available upon request.
- B. Finishes:
  - 1. Aluminum - clear anodize:
    - a. Clear anodized finish in accordance with AA-M10 C22 A41 Class I (0.7 to 1.0 thick anodic coating)
  - 2. Aluminum - color anodize or painted:
    - a. Color Choice with matte or bright finish. Select from manufacturer's custom color offering.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine walls and adjacent curtain wall for suitable conditions where sound barrier wall end cap will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Measure and cut sound barrier wall end cap to proper lengths.
- B. Notch around horizontal mullions, sills, or other obstructions leaving appropriate gap for differential movement between the sound barrier wall end cap and the obstruction.

- C. Apply continuous bead of acoustical sealant to the unexposed side of extruded aluminum surface that will be in contact with the drywall edge.
- D. Place sound barrier wall end cap on the vertical surface of the drywall partition wall and loosely install fasteners in the top and bottom slotted holes of the wall end cap.
- E. Plumb the wall end cap leaving recommended gap spacing between the interior glass surface and the wall end cap. Foam gasket to be in contact with glass.
- F. Tighten top and bottom fasteners to secure end cap.
- G. Install additional fasteners at 12 inches on center, minimum.
- H. Install snap cover to conceal fasteners.
- I. Apply color matched sealant at joints of dissimilar materials as desired.

### 3.03 CLEANING

- A. After work is complete in adjacent areas, clean exposed surfaces with suitable cleaner that will not harm or attack the finish.

### 3.04 PROTECTION

- A. Protect sound barrier wall end caps from damage during installation, general construction activities, and until turnover of structure.

END OF SECTION

SECTION 23 31 13.34 - THERMAL-ENHANCED BENTONITE GROUT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Requirements for furnishing, mixing, and placing thermally-enhanced bentonite grout to seal and backfill each vertical u-bend well bore of the closed-loop ground heat exchangers to insure proper thermal contact with the earth and to ensure the environmental integrity of each vertical bore column. No other backfill material shall be accepted.

1.2 REFERENCES

- A. National Ground Water Association - geothermal heat pump manual- Guidelines for the Construction of Vertical Boreholes for Closed Loop Heat Pump Systems
- B. Local codes

1.3 SUBMITTALS

- A. Manufacturer's published data sheets including thermal conductivity, permeability, percent solids, grout weight, linear shrinkage potential, maximum particle size and unit yield along with verification of the required listing.

1.4 QUALITY ASSURANCE

- 1.5 Grouting compound shall be certified and listed by National Sanitation Foundation International to ANSI/NSF Standard 60, "Drinking Water Treatment Chemicals - Health Effects".

PART 2- PRODUCTS

2.1 MANUFACTURER/PRODUCT

- A. Grouting: Materials to be utilized by the Contractor shall be a minimum of 20% high sodium solids bentonite grout. The bentonite will be a slurry that will be tremie pouted from the bottom of the boring to the surface in accordance with the IGSHPA installation manual. The contractor will work quickly to assure that there are no air voids forming as a result of the bentonite placing.
- B. Grouting material shall be one of the following manufacturers:
  - 1. Aquagard
  - 2. Aquagrout
  - 3. Black Hills Grout
  - 4. Enviroplug
  - 6. Groutwell
  - 7. Puregold
  - 8. Quick Grout
  - 9. Volclay Grout

2.2 THERMAL CONDUCTIVITY

- A. The thermal conductivity of the grouting compound must be 0.85 Btu/hr-ft-F or greater.

2.3 PERMEABILITY

- A. The grout mixture shall also have a maximum permeability rate of less than  $6.9 \times 10^{-10}$  cm/s as determined by using the "Falling-Head Method" (defined in the United States Army Corps of Engineers' Civil Engineering Manual No. EM 1110-2-1906, "Laboratory Soils Testing" as recommended by the U.S. Environmental Protection Agency to insure proper sealing. Permeability shall be verified by an independent testing laboratory with a copy of the report being supplied upon request from the Owner or Owner's representative.

2.4 TOTAL SOLIDS AND ENHANCEMENT COMPOUND PERCENTAGE

- A. The thermally-enhanced bentonite grout used shall have a minimum manufacturers recommended mixture of 63.5% solids. The thermal enhancement compound (high-grade silica compound) shall constitute a minimum of 50% by weight of the aqueous slurry.

2.5 PACKAGING

- A. Grouting materials shall be pre-manufactured and packaged prior to delivery to the job site.

PART 3 - EXECUTION

3.1 MIXING

- A. Thermally-enhanced bentonite grouting material shall be mixed according to manufacturer written instructions.
- B. Contractor shall monitor the grouting operation to ensure grout is properly mixed and the viscosity is adequately maintained for pumping.
- C. Grout shall be mixed by a paddle type mixing device or by manufactured portable grouting unit specifically designed for the vertical ground heat exchanger industry. Jet mixing; and re-circulation use not allowed for grout.

3.2 INSTALLATION

- A. Grout material shall be pressure pumped through a 1 in., 1-1/4 in. or 1-1/2 in. inside diameter tremie pipe and placed in the bore column from the bottom to the top. Grouting process shall conform to the manufacturer's instructions. Completed grouted surface shall be placed at ground level to ensure complete fill of the bore column.
- B. Contractor shall maintain a ready supply of spare grout pipes, hoses and fittings on the site.
- C. A positive displacement pump shall be used for placing the grout in the borehole. Minimum pump suction and discharge line shall be 3 inches and 1- 1/2 inches respectively.
- D. Drilling fluids shall be confined to the site and disposed of in accordance with prevailing local environmental regulations.

3.3 INSPECTION

- A. Since some settling may occur after initial placement of the grout material, the Contractor shall monitor each borehole and continue adding grout as required for a period of no less than 30 minutes and no longer than 2 hours.
- B. Grouting manufacturer shall provide testing of site mixed grouting material to verify thermal conductivity. Manufacturer shall provide a minimum of 3 sample analyses for each project.
- C. At a minimum, sampling shall be taken at the beginning of the project, at approximately one-third completion, and at approximately two-thirds completion. In the event that the analysis indicates a thermal conductivity value below the minimum specified value, corrective action shall be taken to increase thermal conductivity value back.

END OF SECTION 23 21 13.34

## SECTION 23 34 26 – DUST COLLECTION SYSTEM

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Provide all materials and labor necessary to furnish and install the dust collecting equipment and related piping as specified herein and illustrated on the project drawings. Final connections to the shop equipment shall be included.
- B. Provide motor starters, disconnects and controls.

#### 1.2 RELATED DOCUMENTS

- A. The General and Special Conditions, Division 01 Specification Sections, and all other Contract Documents (ESPECIALLY DIVISIONS 21, 22, 23 AND 26) are applicable to work under this section of the specifications. All the work under this section of the specifications shall be governed by any alternates and unit prices called for in the FORM OF PROPOSAL insofar as they affect this portion of the work.
- B. Section 230100 - GENERAL PROVISIONS FOR MECHANICAL WORK

#### 1.3 ACTION SUBMITTALS

- A. Shop Drawings:
  - 1. Product Data: For each type of product indicated.
    - a. Construction details, material descriptions, dimensions of individual components and profiles, and finishes for duct collectors.
    - b. Rated capacities, operating characteristics, and furnished specialties and accessories.
    - c. Certified fan performance curves with system operating conditions indicated.
    - d. Certified fan sound-power ratings.
    - e. Motor ratings and electrical characteristics, plus motor and electrical accessories.
    - f. Material thickness and finishes, including color charts.
    - g. Dampers, including housings, linkages, and operators.
    - h. Wiring Diagrams: For power, signal, and control wiring.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Approved Shop Drawings: For all dust collectors and related components. Provide in operation and maintenance manual.
- B. Operation and Maintenance Data: For dust collectors to include in operation, and maintenance manuals.

#### 1.5 QUALITY ASSURANCE

- A. Dust collector manufacturer's representative shall provide complete test and start-up on all system components.

#### 1.6 WARRANTY

- A. A one-year parts and labor warranty shall be provided for all components from date of substantial completion for the project. Date of substantial completion shall be determined by the architect.

### PART 2 - PRODUCTS



2.1 ACCEPTABLE MANUFACTURERS

- A. Nederman, American Air Filter, Torit, Dustvent, Sternvent and DISA.

2.2 SYSTEM MATERIALS

- A. Duct shall be galvanized spiral pipe with 3" through 7" diameter being 24 gauge and 8" and larger being 22 gauge.
1. Duct may be by Lindab, Nordfab, or shop fabricated.
- B. Elbows shall be a minimum of two gauges heavier than straight pipe of equal diameter. One-piece machine rolled elbows are acceptable provided the inside radius is sealed to prevent air leaks. Elbows exposed to the elements must be full-weld type. All elbows shall have a centerline radius of 2.5 times the pipe diameter.
- C. Hoods shall be as designed for maximum collection efficiency by the dust collector supplier and approved by the Engineer.
- D. Where flexible ducting is required, wire-reinforced type of flexible fabric hose shall be furnished, and its use limited to the minimum length required without creating short radius turns.
- E. All branch connection fittings shall be constructed so the branch enters the main near the OD end of the fitting with the angle of entry not to exceed 45 degrees. Branch connection fittings which involve change of diameter shall be tapered with the taper being 2" long for each 1" change in diameter.
- F. Reducer and increasers shall be tapered with the taper being 2" long for each 1" change in diameter.
- G. Blast gates shall either be designed for locking the gate in position or removing the gate entirely.
- H. Cleanouts shall include a piano-hinged panel with two spring type clamps and felting to prevent air leaks yet permit easy access.

2.3 DUST COLLECTORS

- A. Dust Collector – DC-01 (Carpentry)
1. Manufacturer
- a. System shall be JET – Model DC650CK
- b. Other manufacturers shall provide request in writing for approval. Other manufacturers must meet requirements indicated on schedule within drawings.
2. Specifications:
- |  |   |
|--|---|
| a. Model                                 | DC-650M   |
| b. Stock Number                          | 708642  |
| c. Blower Wheel Diameter (in.)           | 9-1/2   |
| d. Sound Rating at 3 feet                | 65-70 dB  |
| e. Hose Diameter (in.)                   | 4   |
| f. Air Flow at 4" (CFM):                 | 650   |
| g. Max. Static Pressure (inch of water): | 6.5   |
| h. Velocity at 4" (FPM)                  | 6300  |
| i. Motor                                 | TEFC, 1 HP, 1Ph, 115V/230V, Prewired 115V, 60Hz, 7/3.5A |

- j. Switch paddle style, removable safety key
  - 3. Canister Filter Kit
    - a. Stock Number 708737C
    - b. Canister Efficiency 86% of 1 micron particles; 98% of 2 micron particles
    - c. Canister Length (in.) 25
    - d. Collector Bag Diameter (in.) 14
    - e. Collector Bag Length (in.) 23
    - f. Collector Bag Capacity (cu. ft.) 2.1
  - 4. Size Info
    - a. Overall Dimensions: 27"(l) x 14"(w) x 61"(h)
    - b. Net Weight 70 LBS
    - c. Gross Weight 87 LBS
- B. Dust Collector – DC-02 (Automation)
- 1. Manufacturer
    - a. System shall be Nederman S-Series, model S-1000.
    - b. Other manufacturers shall provide request in writing for approval. Other manufacturers must meet requirements indicated on schedule within drawings.
  - 2. Housing
    - a. The S-Series shall be a high efficiency filtration unit. The filter housing shall be constructed out of minimum 18-gauge galvanized steel panels.
  - 3. Filters
    - a. The S-Series Dust Collector shall contain filter bags in an open enclosure. The filters shall be vertical 8.66-inch diameter filters, 15 sq. ft. per bag. The S-1000 shall contain 24 bags
      - 1) Material: 100% woven polyester with integrated carbon fiber for improved anti-static properties
      - 2) Construction: Vertically seamless
      - 3) Maximum Operating Temperature: 289 °F
      - 4) Material Basis Weight 16 Oz. per Sq. Ft.
      - 5) Electrostatic Behavior:
        - i) Surface Resistance:  $2.6 \times 10^7$  Ohm – DIN 54 345 TEIL 1
        - ii) Charging Toward PA: .7 kV TEFO Method 40-77
      - 6) BIA Filter Efficiency: G
    - b. The maximum standard static pressure drop across the unit shall be 2" w. g.
    - c. Filter exchange shall be performed on the clean side of the filters.
  - 4. Dust Container

- a. The dust collector shall have three, heavy duty 8 mil plastic bags. Each bag shall have a minimum capacity of 45 gallons. The collection bags shall connect to the dust collector by means of Quickfit clamp and will not require a tool for assembly or disassembly. Access to the bags shall be from either side of the dust collector.

5. Integral Fan

- a. The unit shall have a unit mounted fan with a TEFC electrical motor.
  - 1) Construction: Cold Rolled Steel and with powder coated finish
  - 2) Rated Motor: 10 HP
  - 3) Nominal RPM: 1750
  - 4) Rated Power: 208-230/460//60//3

PART 3- EXECUTION

3.1 DUCT INSTALLATION

- A. Girth joints of duct and elbows shall be made with a minimum 1" inner lap in the direction of airflow. Joints involving flexible fabric hose to include a hose adaptor to effect the inner lap. The flexible fabric hose shall be clamped to the adaptor.
- B. Duct and elbow joints shall be secured with three self-tapping sheet metal screws no longer than 5/8" or stainless-steel pop rivets, and be positioned at 12, 4 and 8 o'clock.
- C. Seal all duct joints with either caulk or hard cast type of sealant.
- D. Position cleanouts with the hinge at bottom center of the horizontal ductwork.
- E. Blast gates shall be required in all drops and shall be positioned within easy reach of the machine operator with an effort to standardize the elevation at 48".
- F. Support ductwork sufficiently to place no load on equipment connections. Maximum supporting interval is 8', otherwise, as required to prevent joint stress or unsafe conditions.

3.2 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances, service-utility connections, and other conditions affecting installation and performance of equipment. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.3 PREPARATION

- A. Provide surface/substrate preparation as required by the manufacturer's printed installation instructions. Do not proceed with installation until site is in proper condition to receive the S-Series Dust Collector.

3.4 INSTALLATION

- A. Install equipment in accord with manufacturer's written instructions, original design and referenced standards.

3.5 ADJUSTING

- A. Adjust the S-Series Dust Collector if needed, for proper operation. Replace any parts that prevent the system from operating properly.

3.6 CLEANING

- A. Remove all debris caused by installation. Clean all exposed surfaces to as fabricated condition and appearance.

3.7 PROTECTION

- A. Provide protection of the completed installation until completion of the project. Repair any damage at no additional cost to Owner.

3.8 DEMONSTRATION / TRAINING

- A. Provide the end user a minimum of one hour of hands-on demonstration and operation of the S-Series Dust Collector and related equipment.

END OF SECTION 23 34 26

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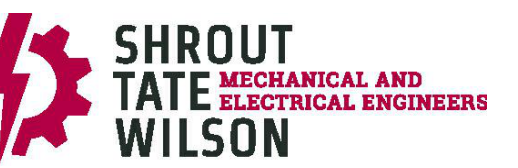
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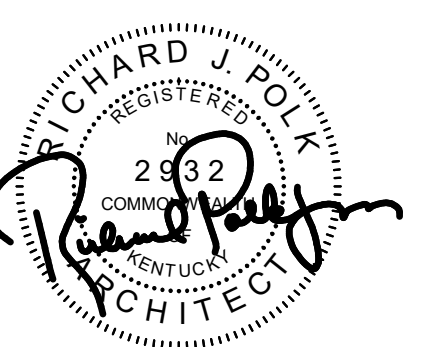
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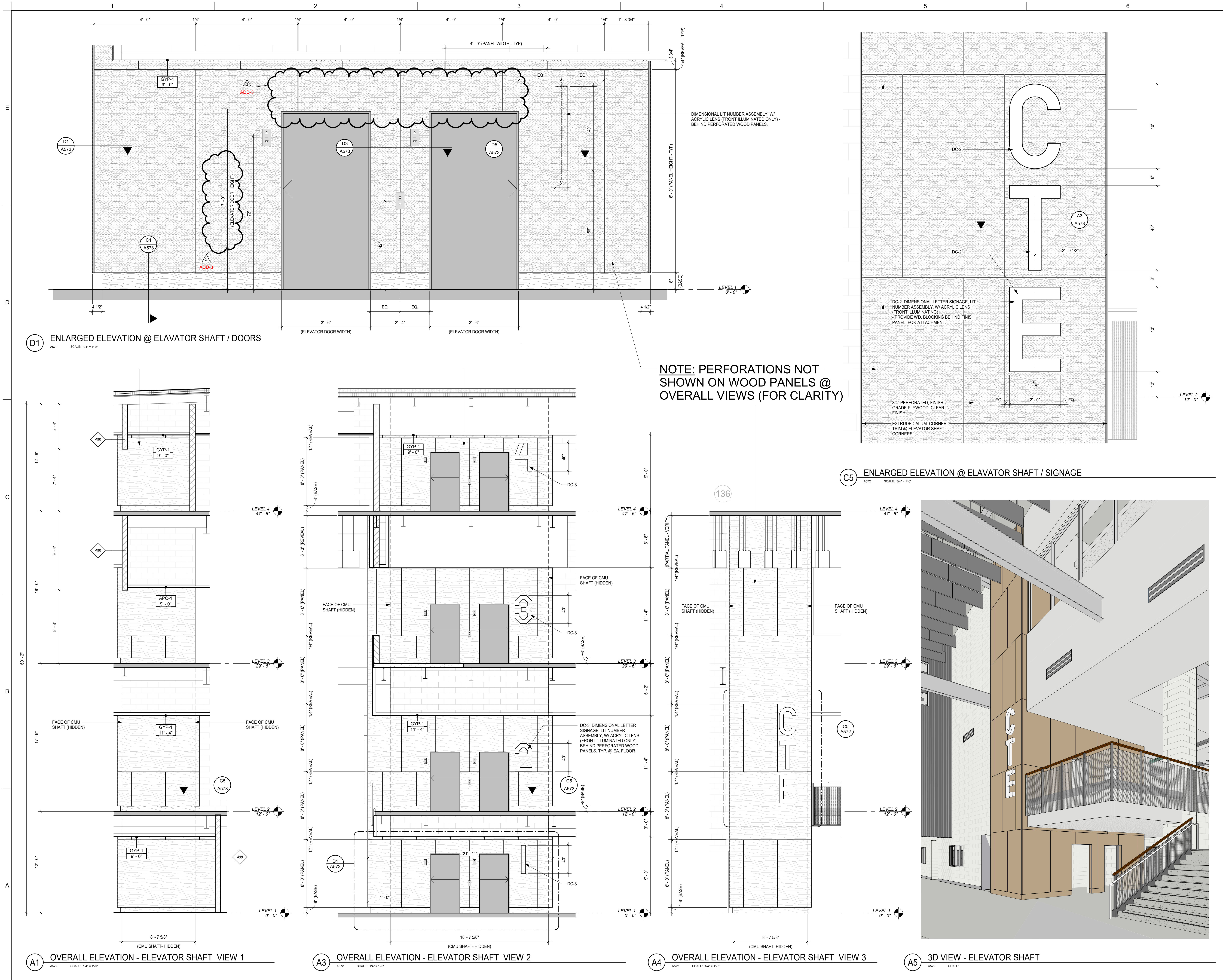
PLAN

TRUE



ENLARGED DETAILS - INTERIOR

**A572 ADD-3**



**NOTE: PERFORATIONS NOT SHOWN ON WOOD PANELS @ OVERALL VIEWS (FOR CLARITY)**

**D1 ENLARGED ELEVATION @ ELAVATOR SHAFT / DOORS**  
A572 SCALE: 3/4" = 1'-0"

**C5 ENLARGED ELEVATION @ ELAVATOR SHAFT / SIGNAGE**  
A572 SCALE: 3/4" = 1'-0"

**A1 OVERALL ELEVATION - ELEVATOR SHAFT VIEW 1**  
A572 SCALE: 1/4" = 1'-0"

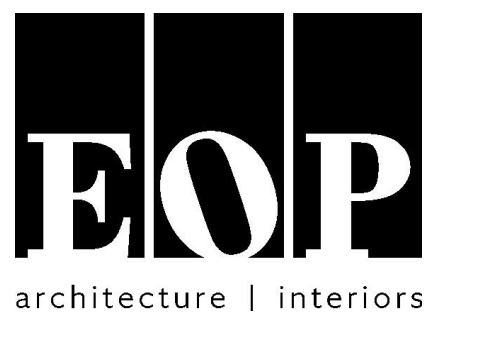
**A3 OVERALL ELEVATION - ELEVATOR SHAFT VIEW 2**  
A572 SCALE: 1/4" = 1'-0"

**A4 OVERALL ELEVATION - ELEVATOR SHAFT VIEW 3**  
A572 SCALE: 1/4" = 1'-0"

**A5 3D VIEW - ELEVATOR SHAFT**  
A572 SCALE:

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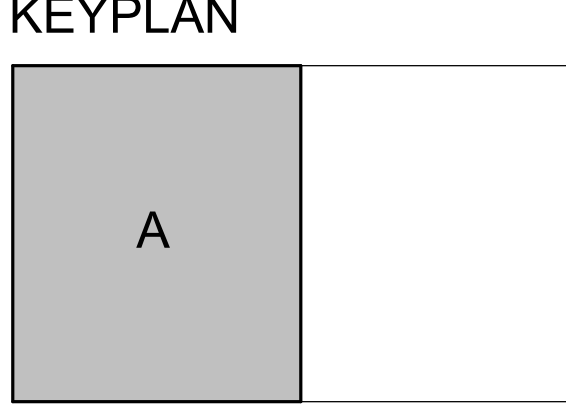
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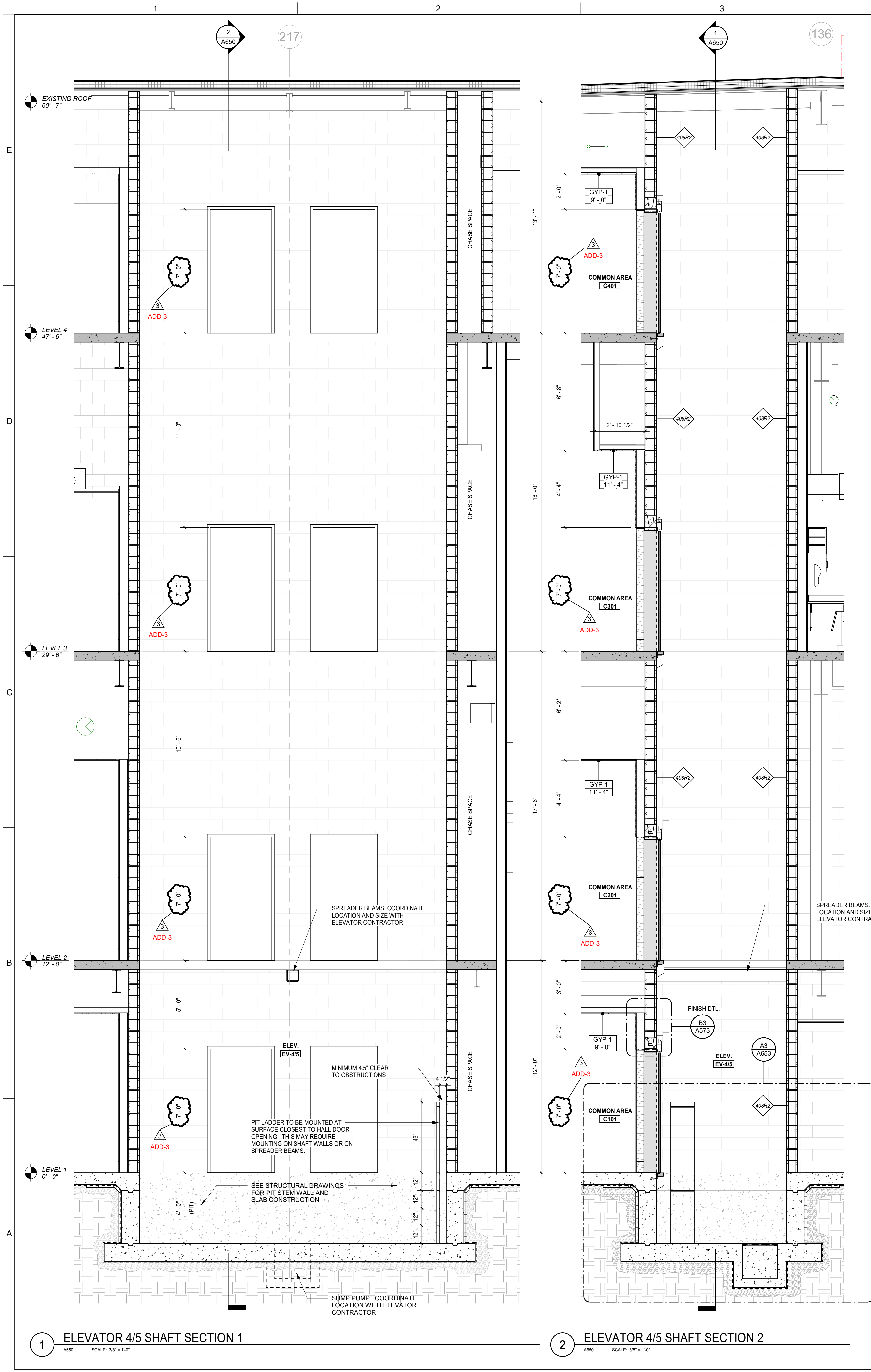
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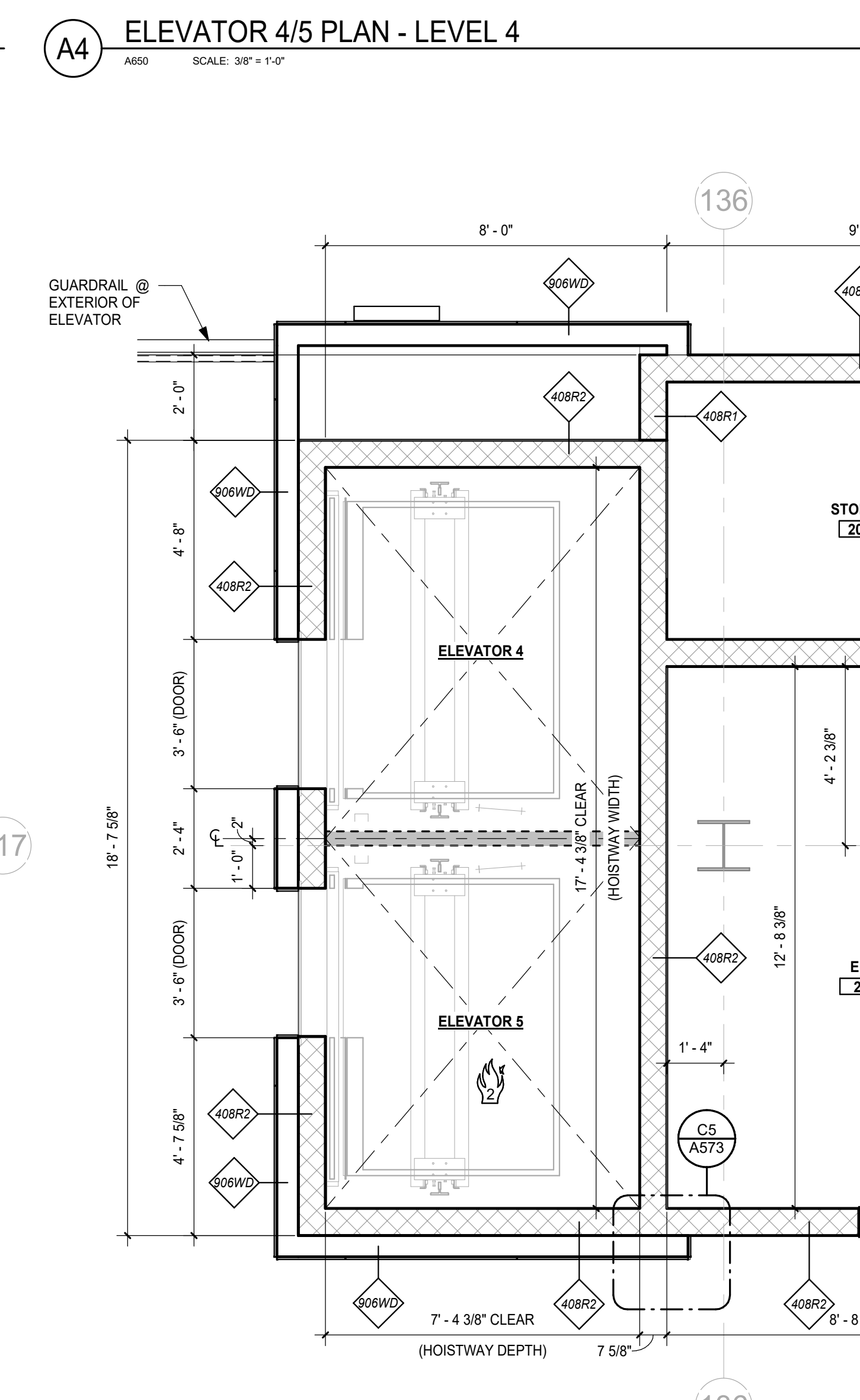
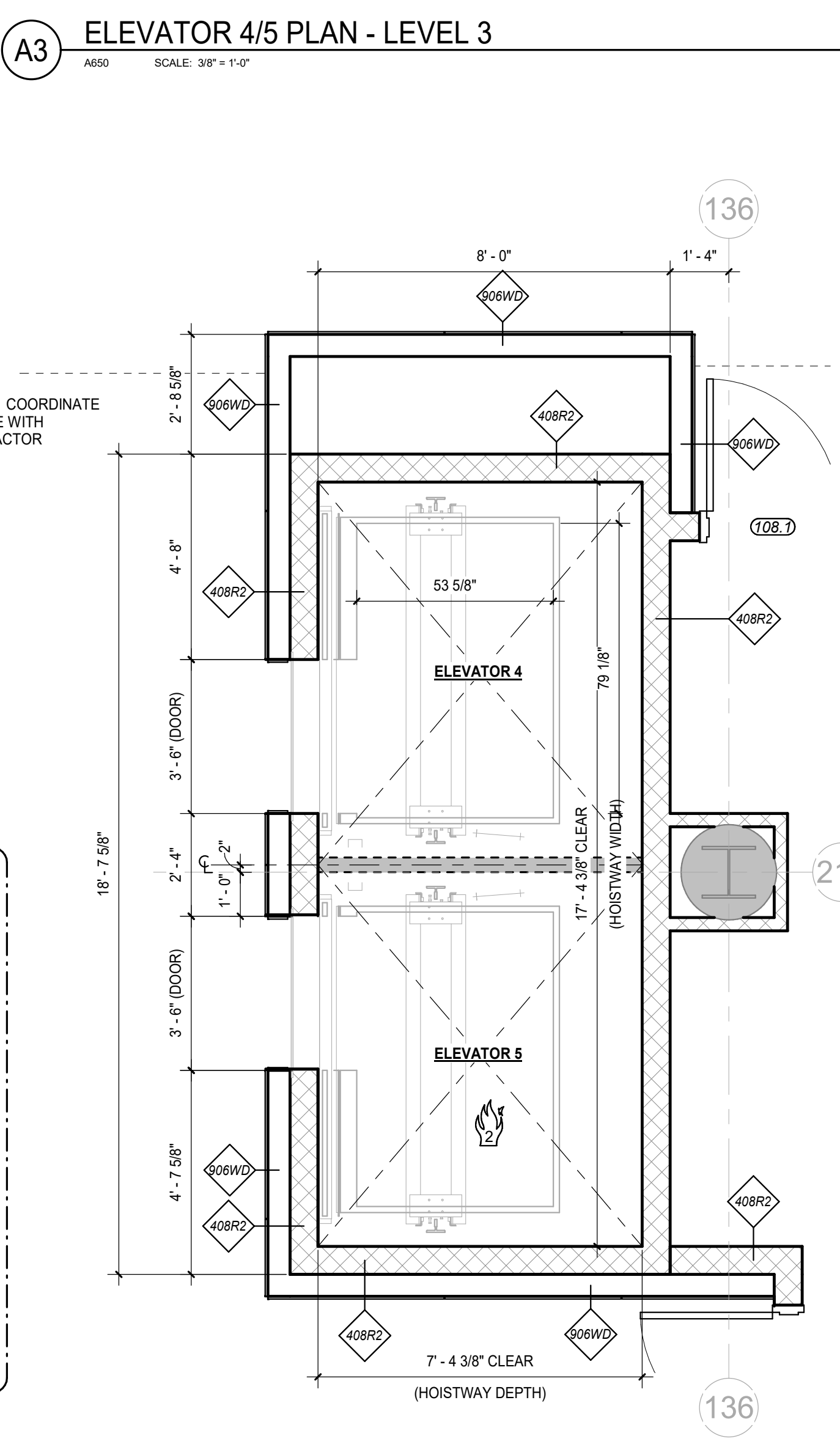
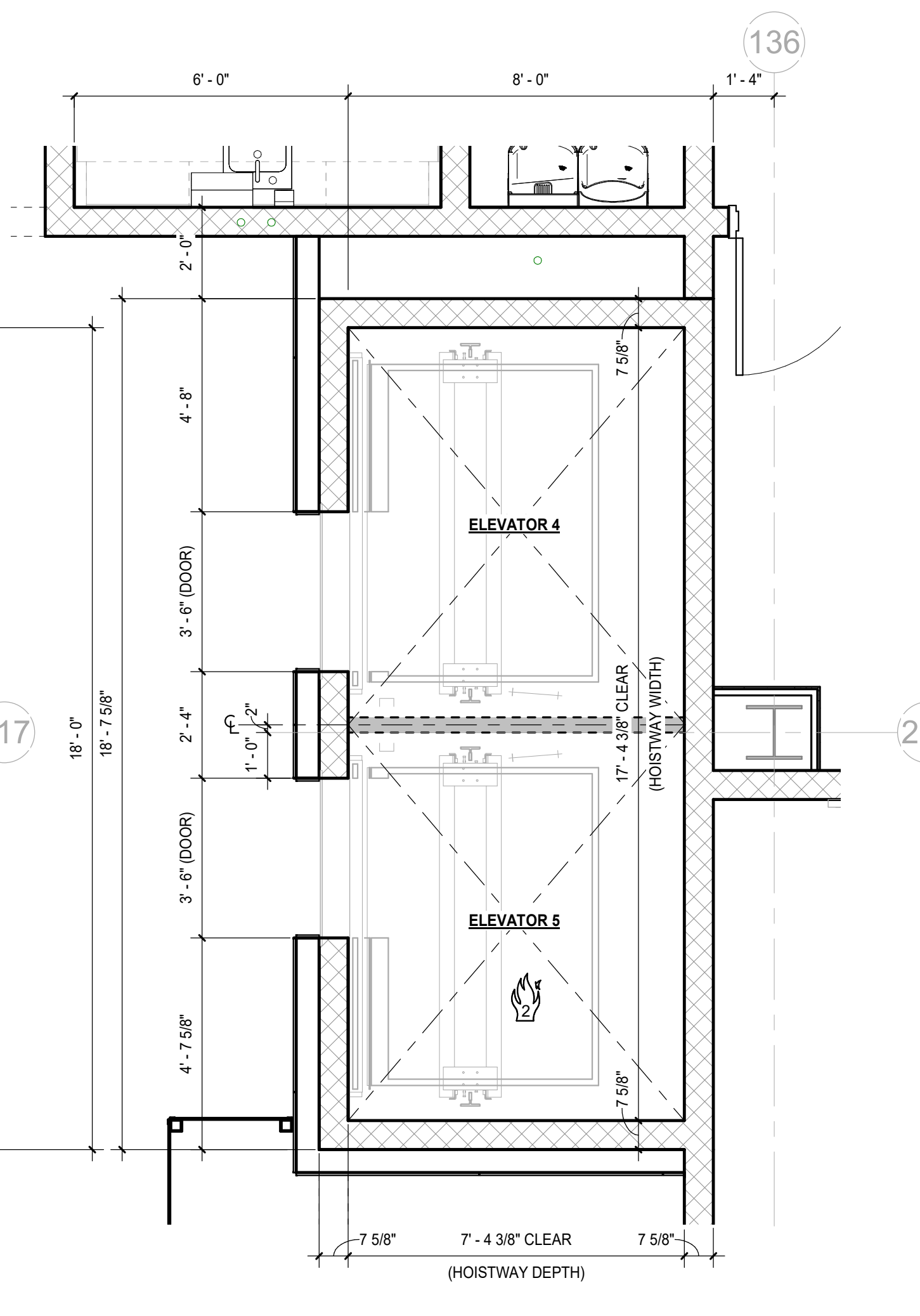
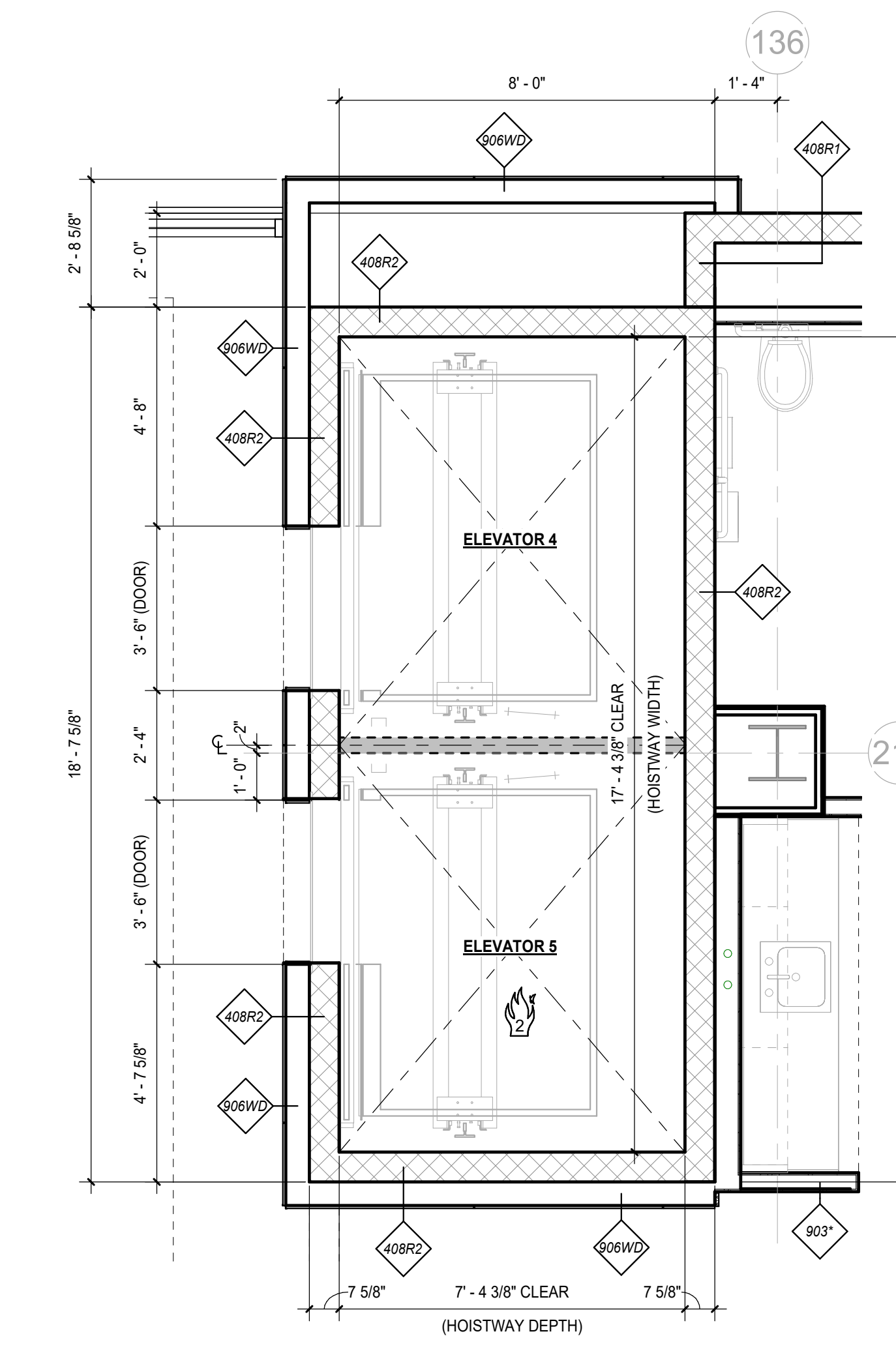


**VERTICAL CIRCULATION - ELEVATORS**

**A650 ADD-3**



NOTE: REFER TO INTERIOR DETAIL SHEETS A572 & A573, FOR ELEVATOR SHAFT FINISHES & DETAILS



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**INTERIOR HOLLOW METAL STOREFRONT ELEVATIONS**

**GLAZING LEGEND**

- GL-1: 1/4" VISION GLAZING - SEE SPECS
  - GL-2: 1/4" SPANDREL GLAZING - SEE SPECS
  - GL-3: 1" INSULATED VISION GLAZING - SEE SPECS
  - GL-4: 1" INSULATED SPANDREL GLAZING - SEE SPECS
  - GL-5: 5/8" INSULATED LAMINATED VISION GLAZING - SEE SPECS
  - GL-6: FIRE-RESISTANCE-RATED GLAZING - SEE SPECS
  - T: TEMPERED GLAZING WHERE INDICATED, OR REQUIRED BY KY BUILDING CODE
  - A725: CURTAINWALL / STOREFRONT - TYPE TAG, REFER TO SHEETS A100a-A104b
- \*\*REFER TO SHEET A725 FOR CURTAINWALL & STOREFRONT TYPICAL DETAILS LEGEND FOR HEAD, JAMB, & SILL DETAILS.

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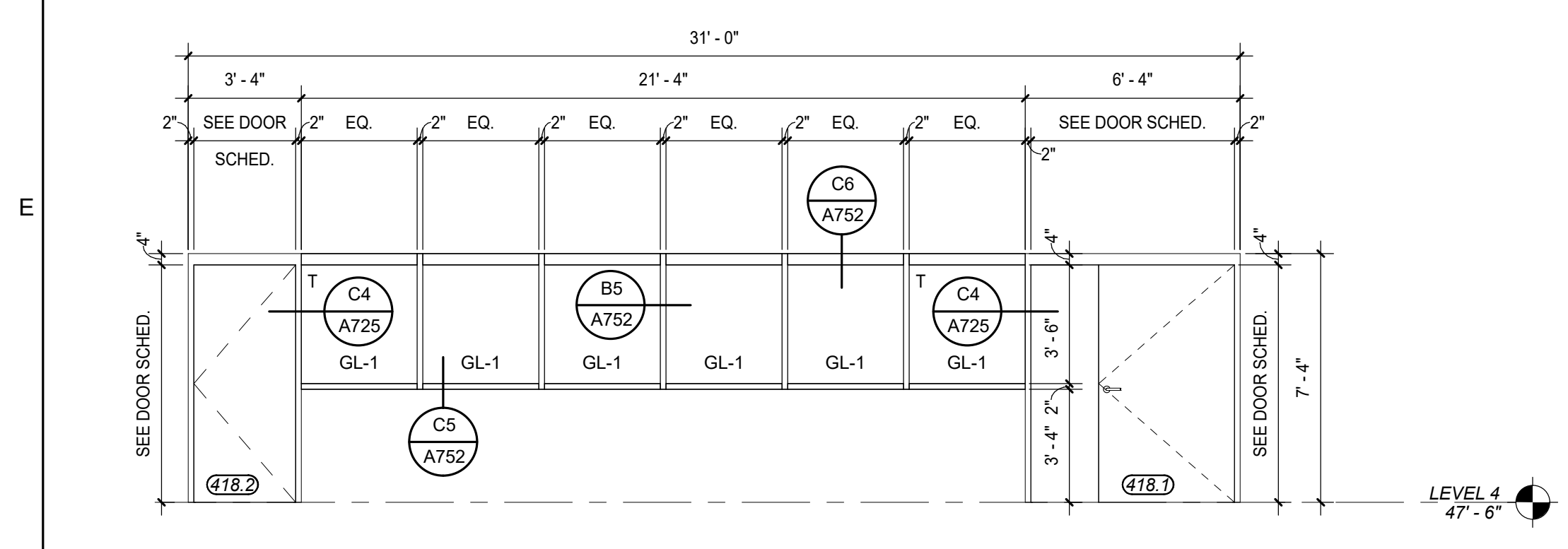
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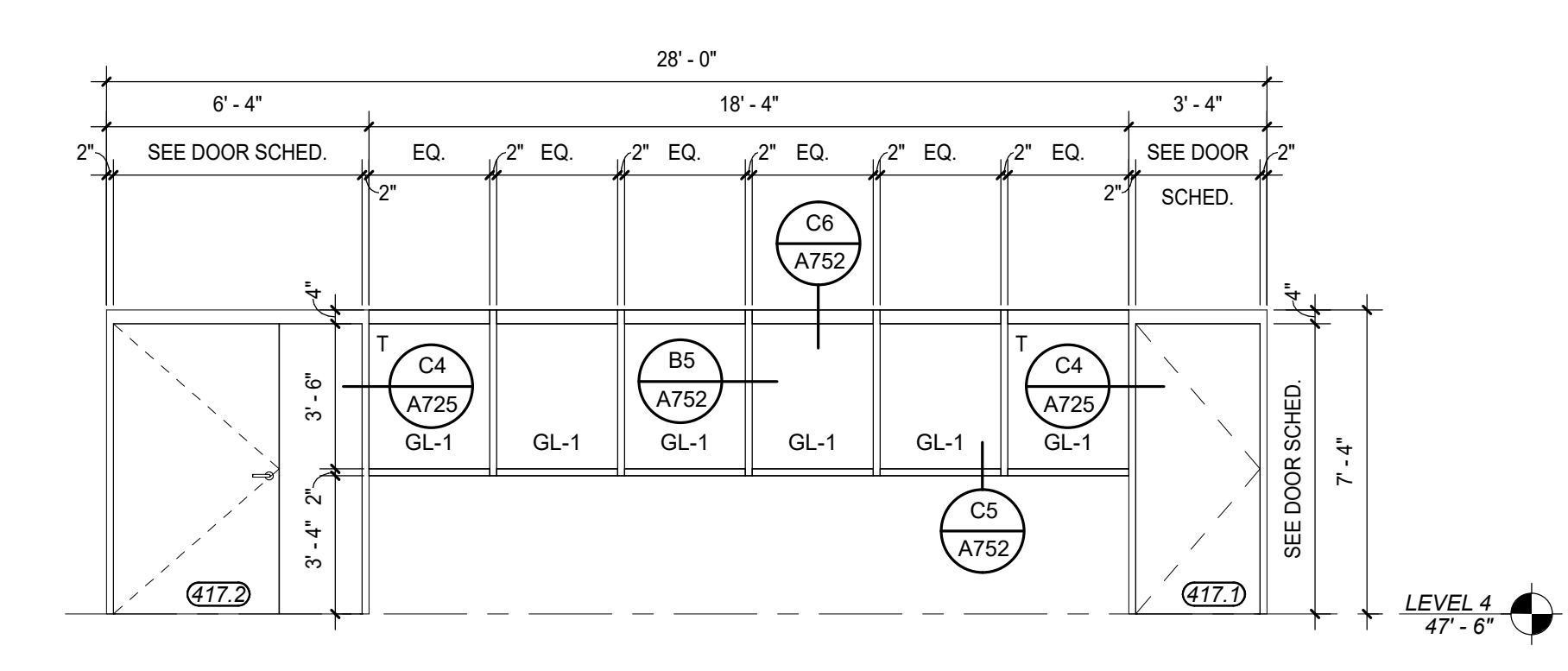


**INTERIOR H.M. STOREFRONT ELEVATIONS**

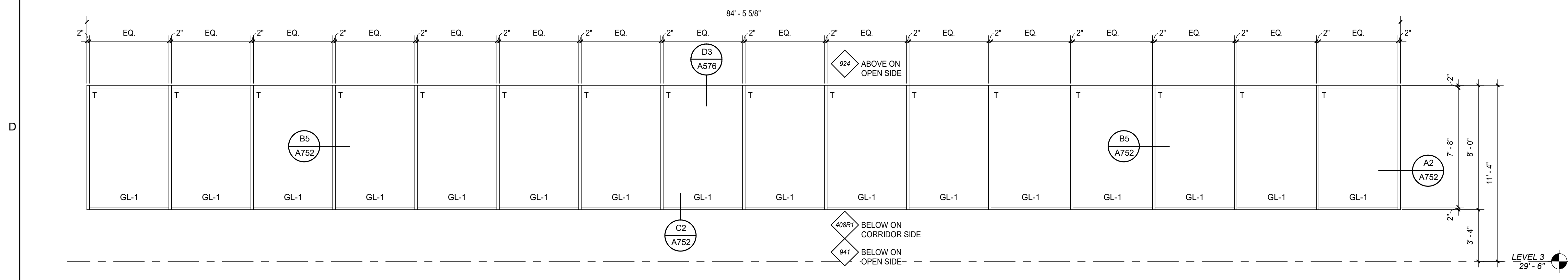
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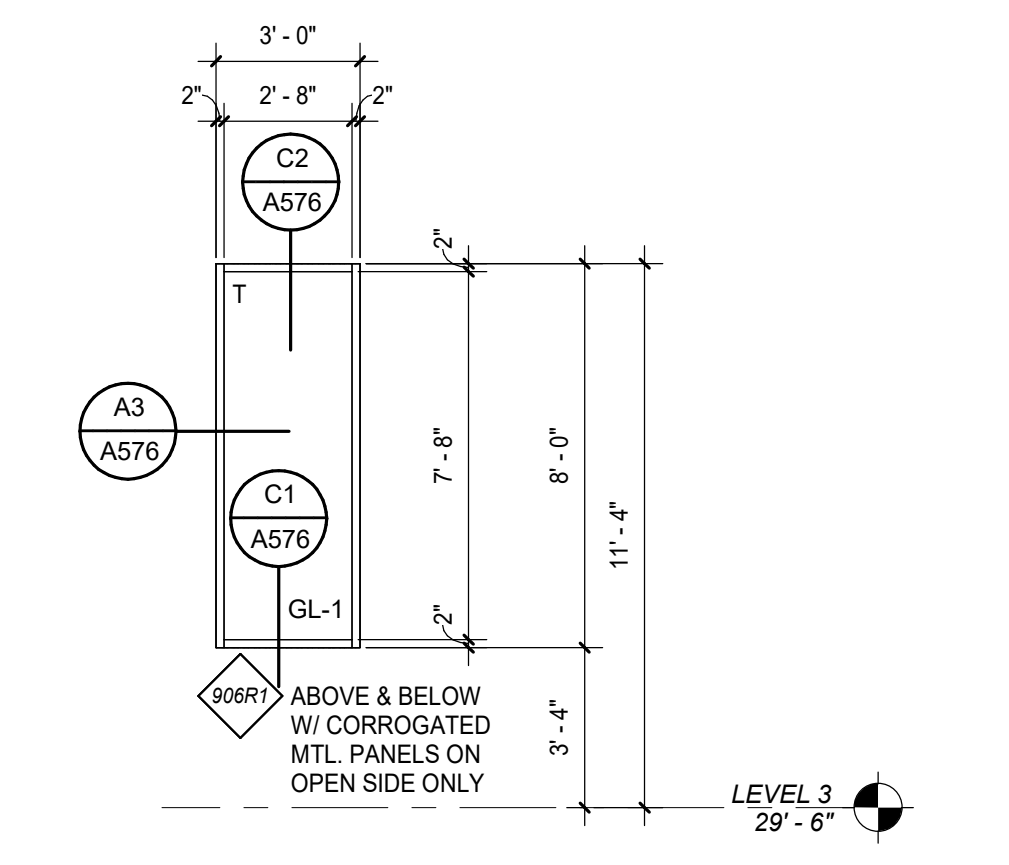
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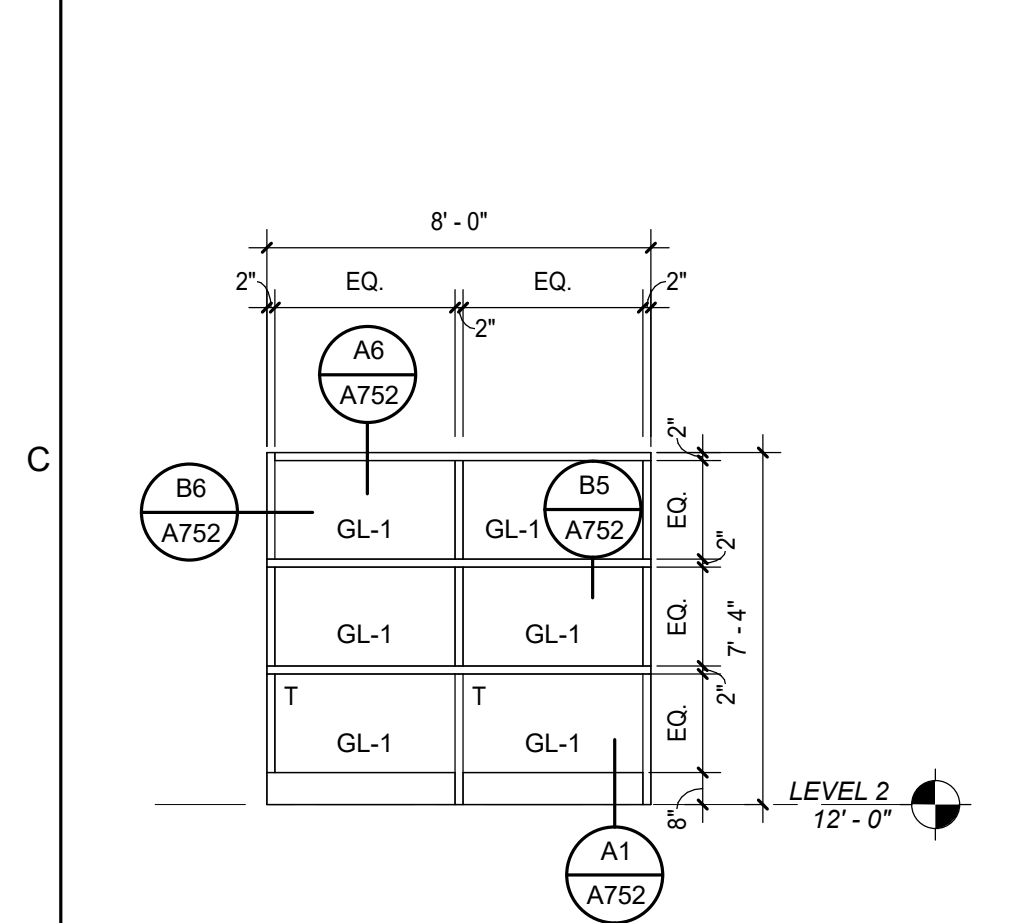
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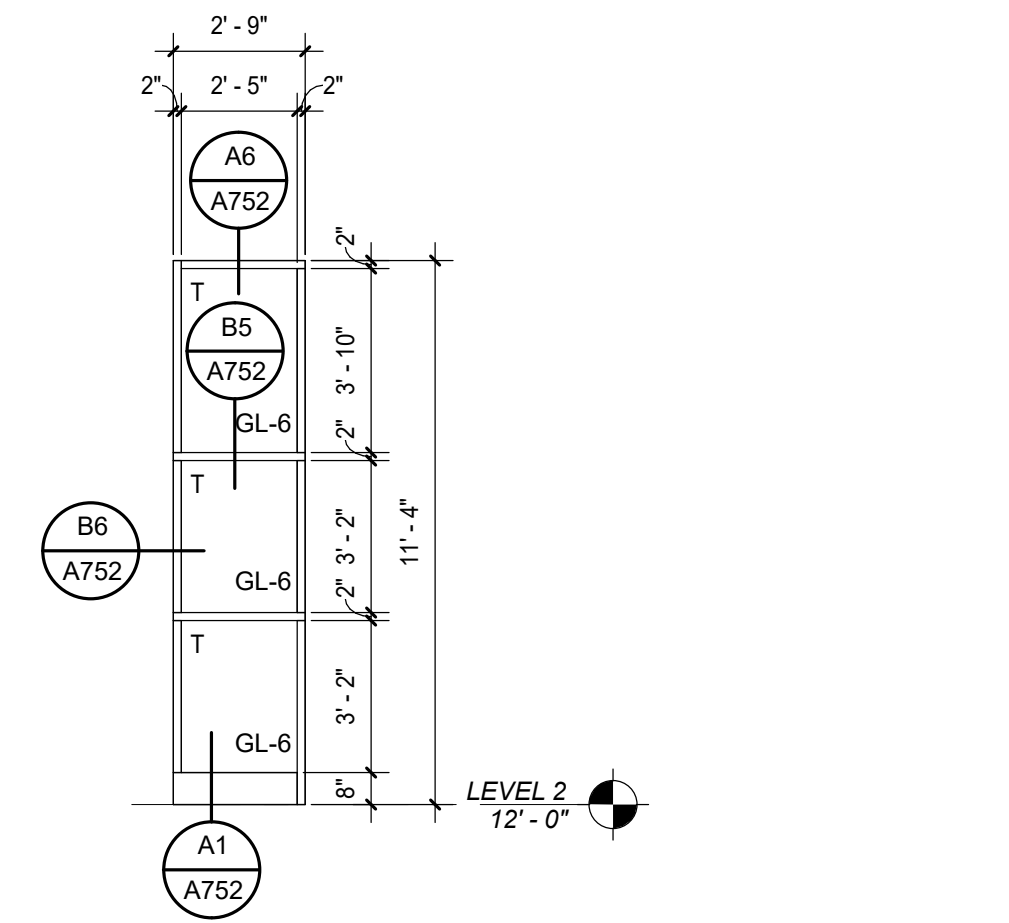
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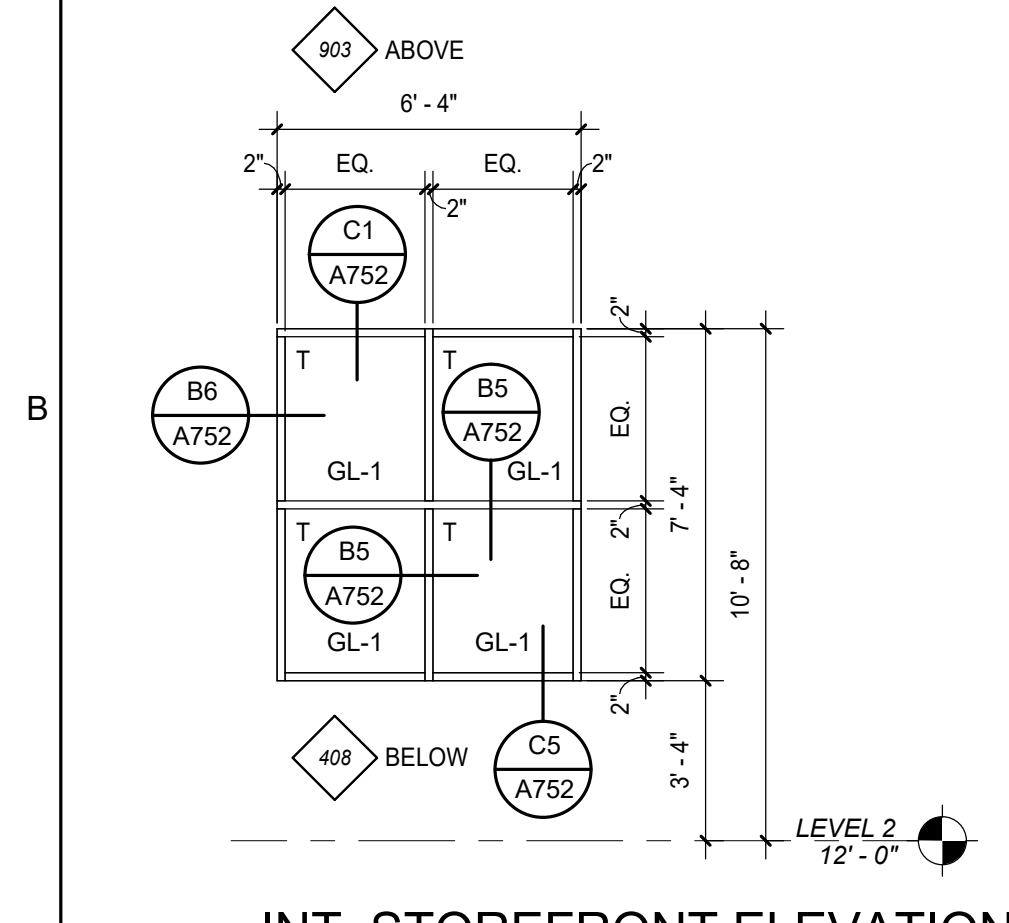
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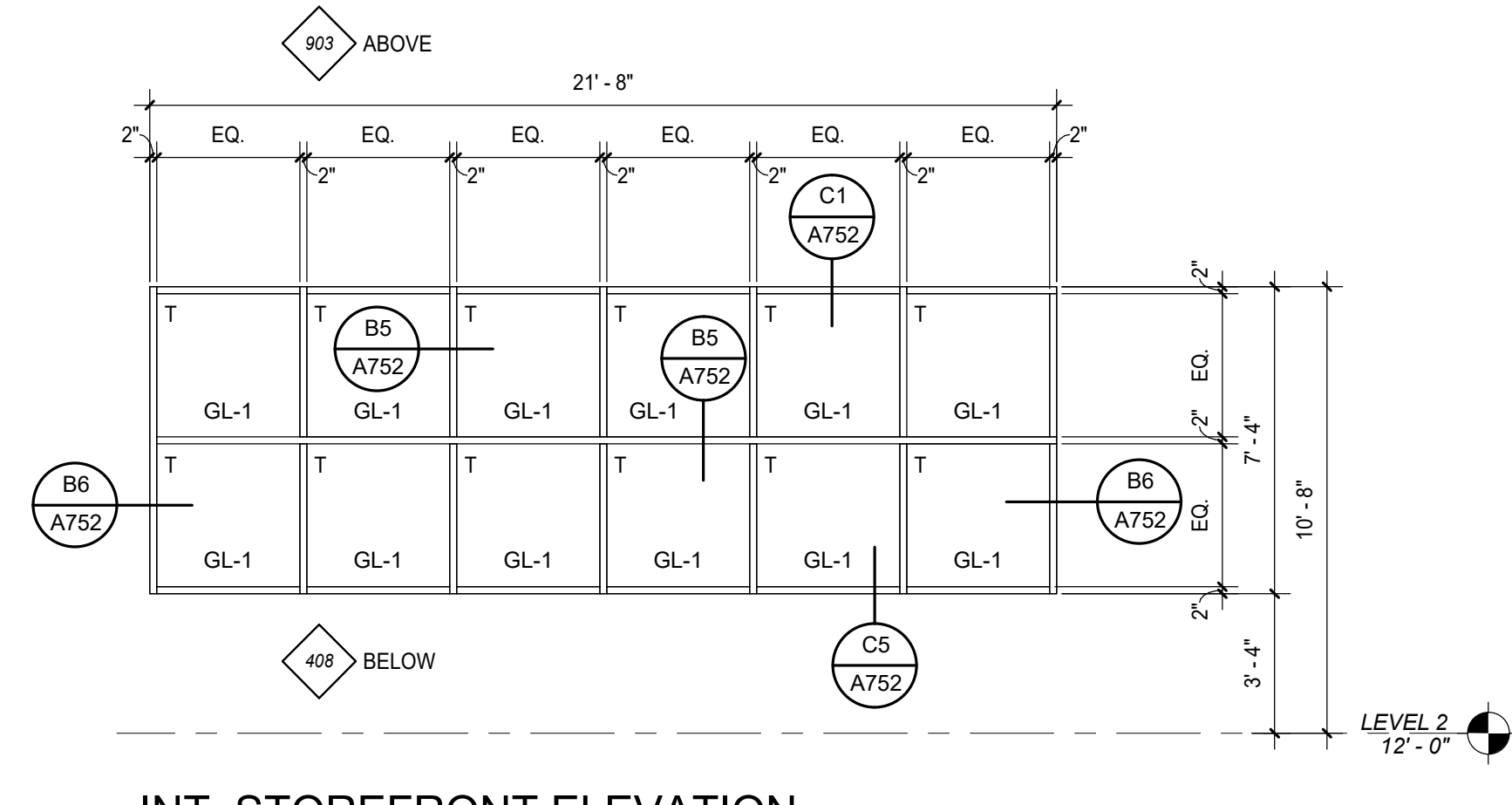
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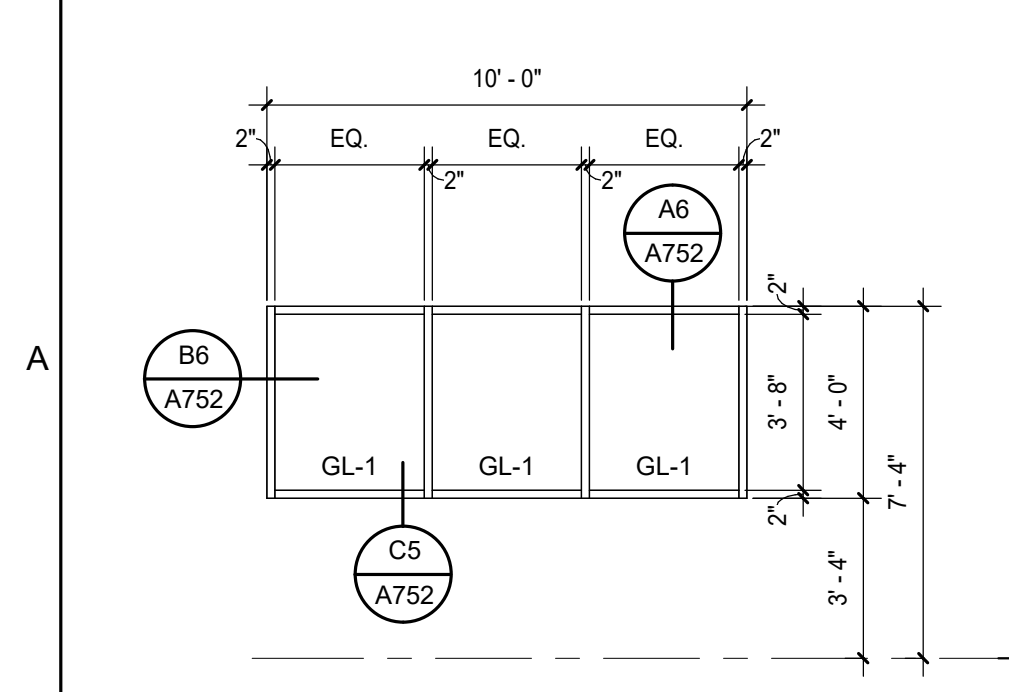
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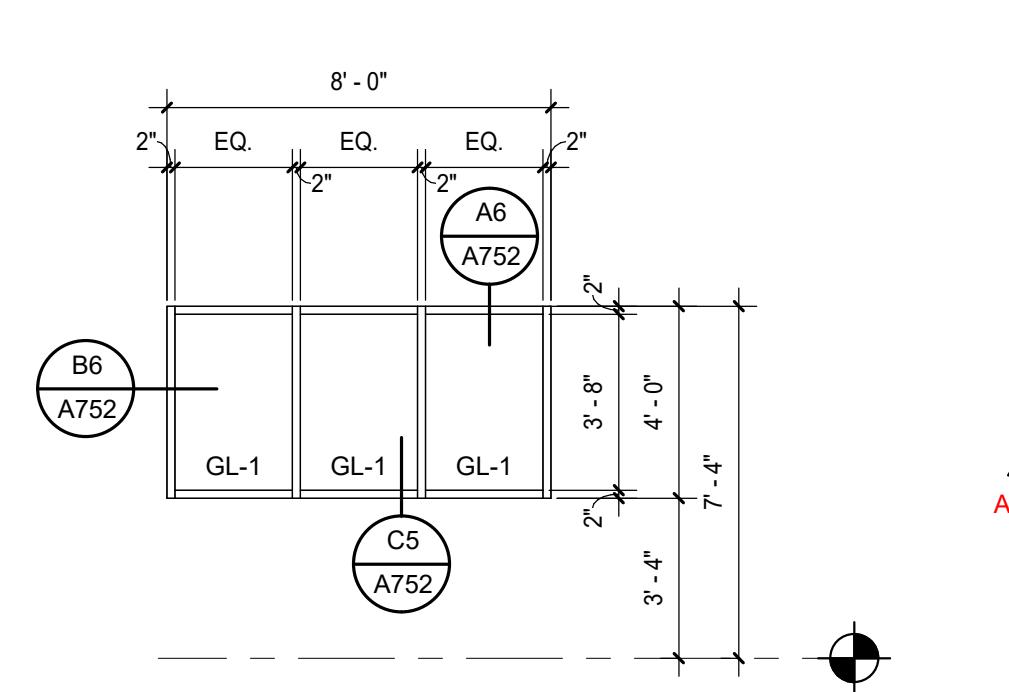
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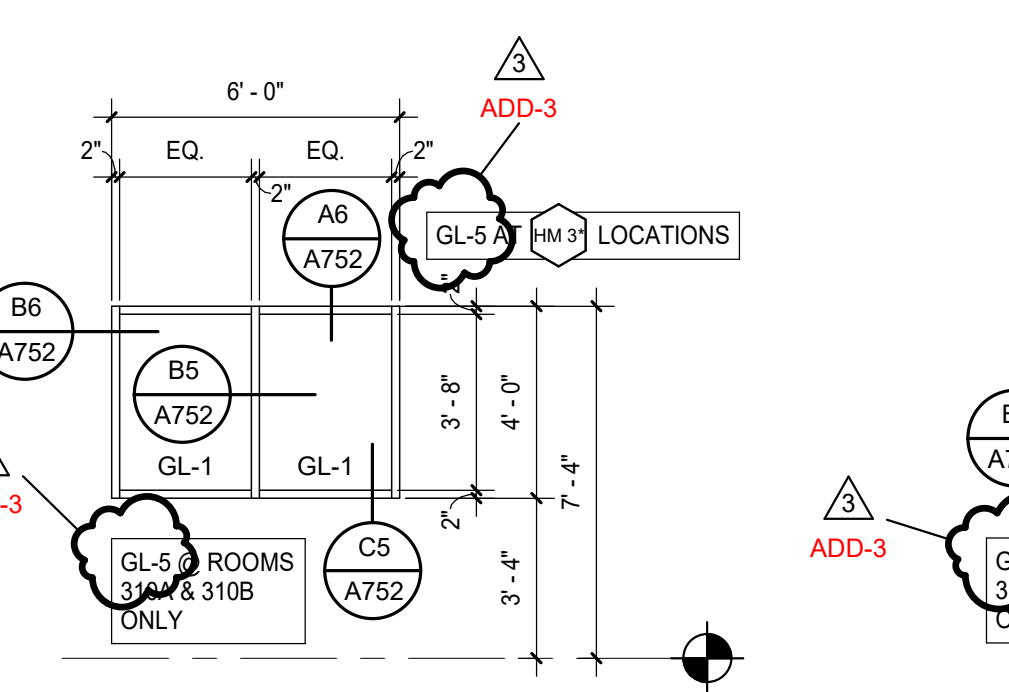
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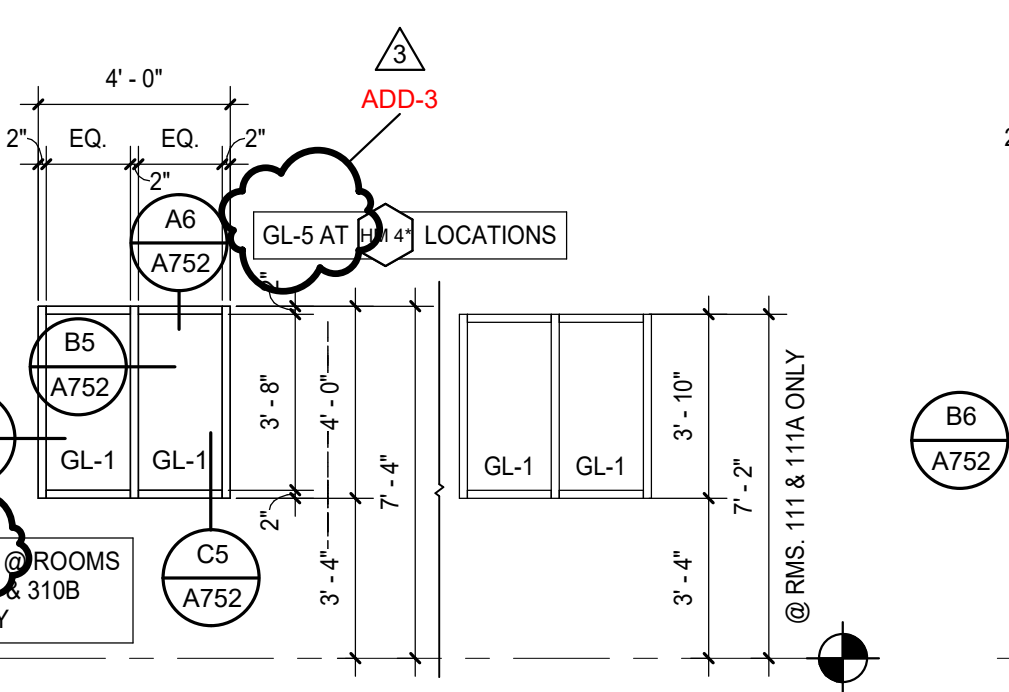
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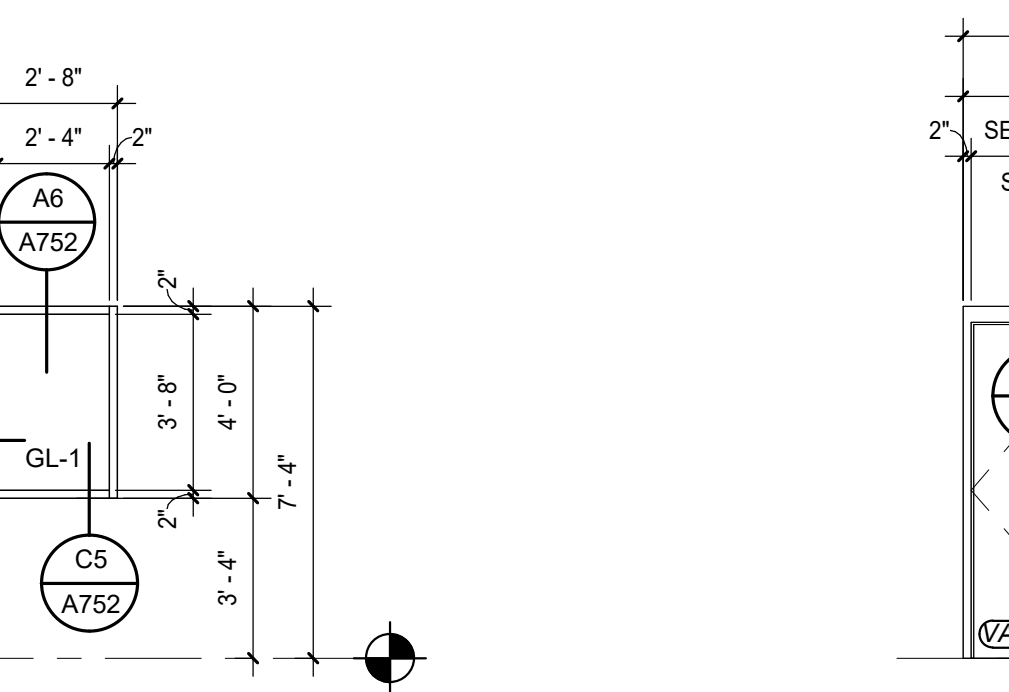
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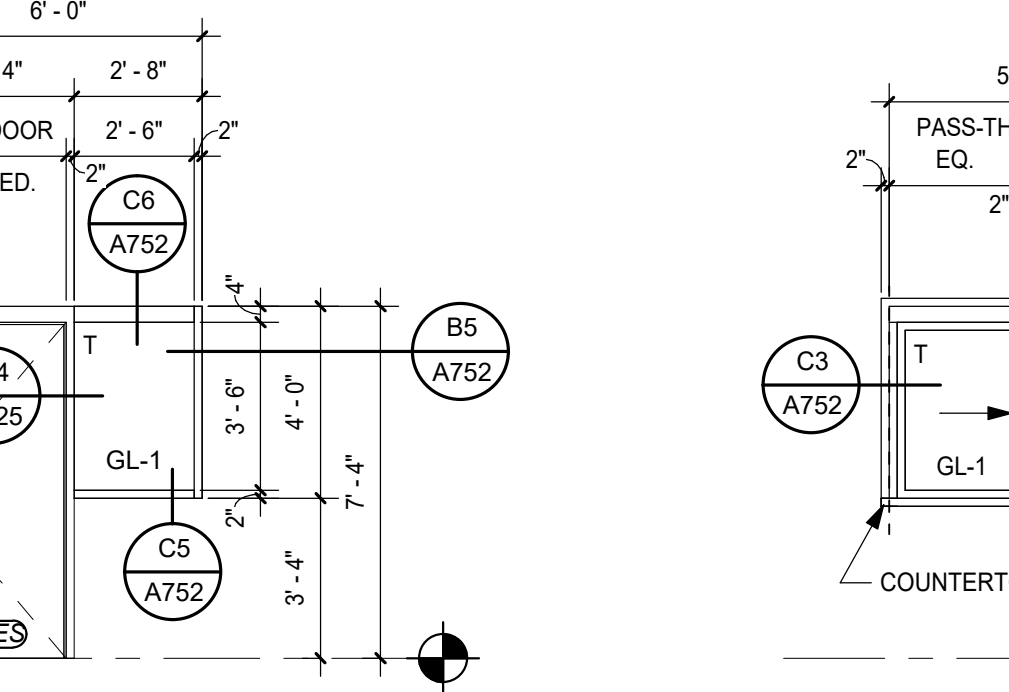
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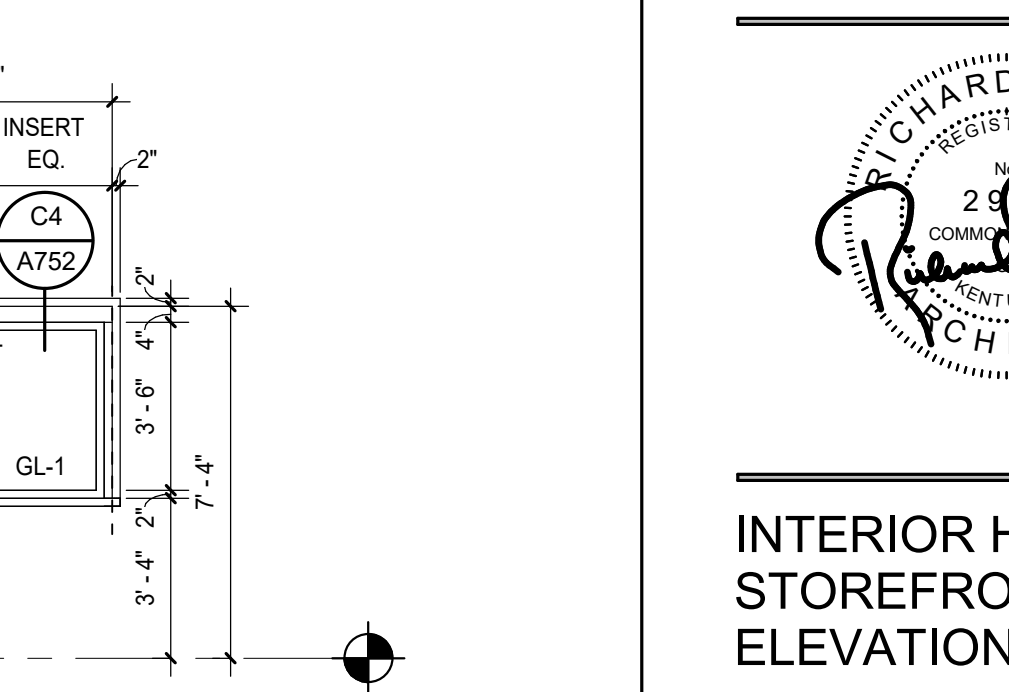
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 SCALE: 1/4" = 1'-0"



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 SCALE: 1/4" = 1'-0"



**INT. STOREFRONT ELEVATION**  
 SCALE: 1/4" = 1'-0"

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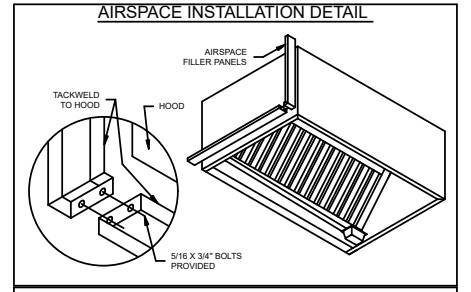
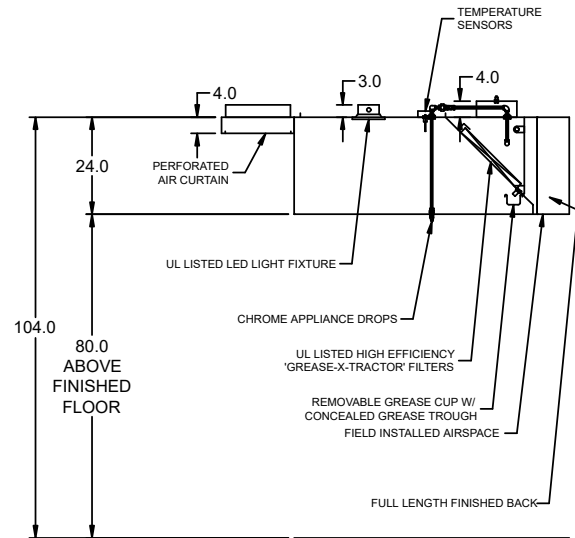
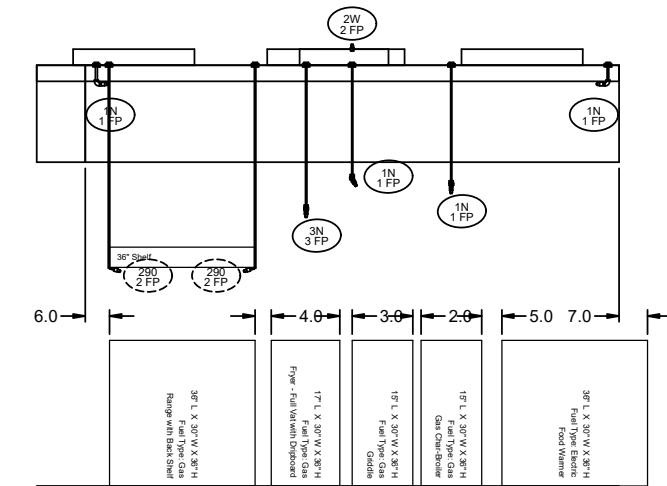
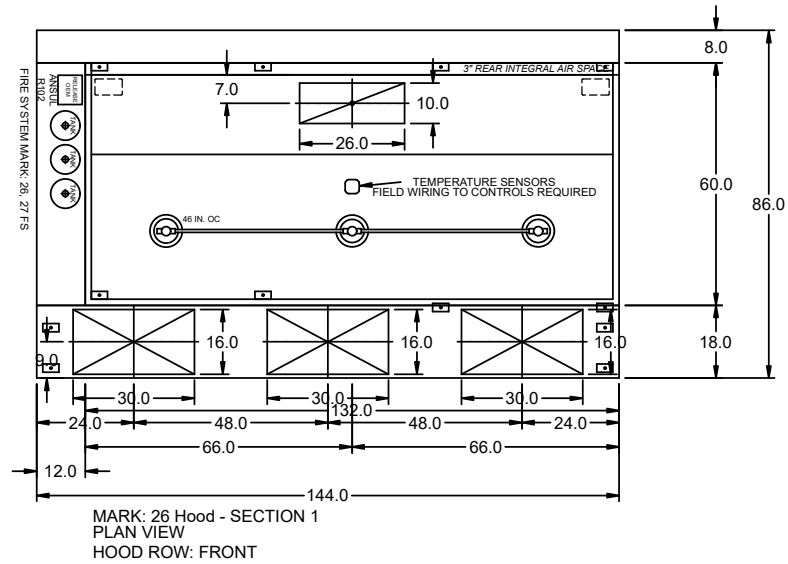
HOOD INFORMATION																	
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)			MUA CFM	AC CFM				
								WIDTH	LENGTH	DIA.	CFM	S.P.					
1	26 HOOD	XXEW-132-S	132	60	24	300 SS 100%	HEAVY	2750	10	26		2750	0.604	2338		367.55	SINGLE

HOOD INFORMATION																	
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)									
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM			CONTROLS					
									TYPE	SIZE	MODEL	INTERFACE					
1	26 HOOD	ROUND LED	3	72.08	X-TRACTOR STAINLESS STEEL	7	16 20	20	LEFT	ANSUL R102	9						

SUPPLY PLENUM INFORMATION																				
HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	26 HOOD	FRONT	ASP	144	18	4	NO	YES	NO		2338	MUA	FACTORY	3	16	30		779	0.18	234

**HOOD OPTIONS**

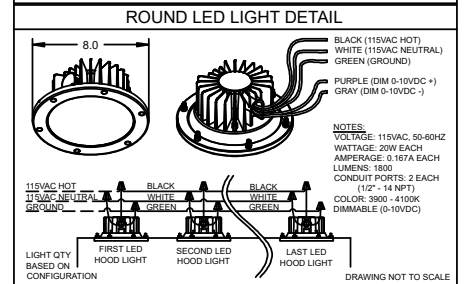
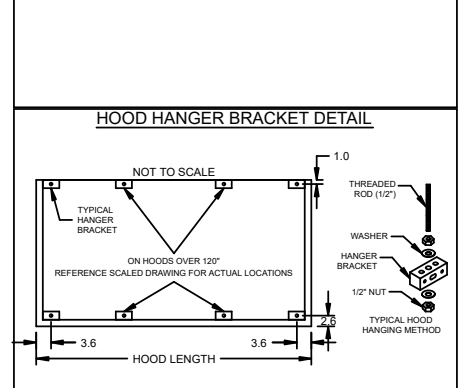
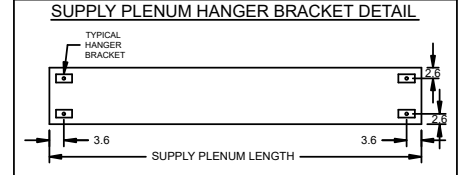
- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- BACK INTEGRAL AIR SPACE - 3 IN WIDE
- BACK NON-INTEGRAL AIR SPACE - 8 IN WIDE
- FINISHED BACK - FULL LENGTH
- FACTORY MOUNTED EXHAUST COLLAR(S)
- HOOD ROW IS FRONT SIDE OF DOUBLE ISLAND CONFIGURATION
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH



**HOOD HANGING HEIGHT FOR FIRE SYSTEMS**

VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

- RECOMMENDED HANGING HEIGHT = 90" FROM FINISHED FLOOR TO LOWER FRONT EDGE OF HOOD.
- OTHER HANGING HEIGHT = \_\_\_\_\_" FROM FINISHED FLOOR TO LOWER EDGE OF HOOD.





HOOD INFORMATION																	
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)			MUA CFM	AC CFM				
								WIDTH	LENGTH	DIA.	CFM	S.P.					
1	27 HOOD	XXEW-132-S	132	60	24	300 SS 100%	HEAVY	2750	10	26		2750	0.604	2338		367 55	SINGLE

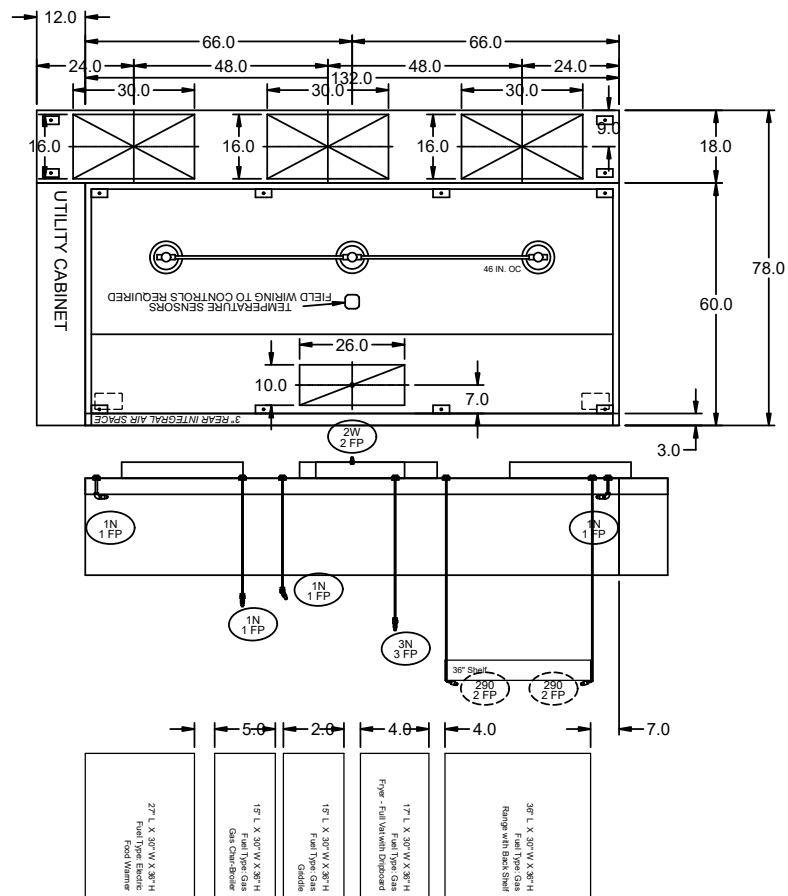
HOOD INFORMATION																
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)								
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM			CONTROLS				
									TYPE	SIZE	MODEL	INTERFACE				
1	27 HOOD	ROUND LED	3	72.08	X-TRACTOR STAINLESS STEEL	7	16 20	20								

SUPPLY PLENUM INFORMATION																				
HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	27 HOOD	FRONT	ASP	144	18	4	NO	YES	NO		2338	MUA	FACTORY	3	16	30		779	0.18	234

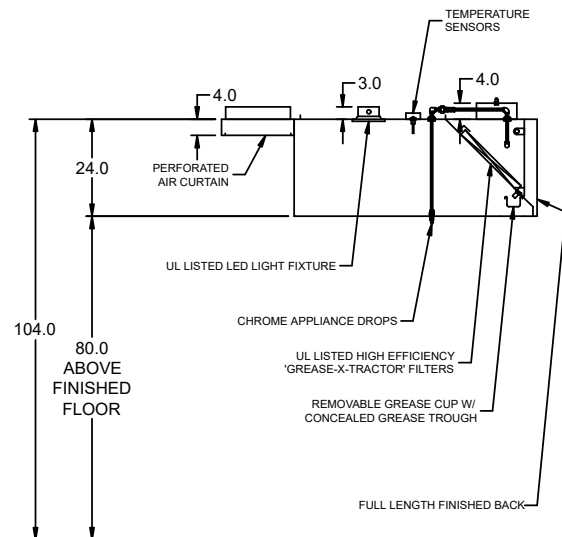
**HOOD OPTIONS**

- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- BACK INTEGRAL AIR SPACE - 3 IN WIDE
- FINISHED BACK - FULL LENGTH
- FACTORY MOUNTED EXHAUST COLLAR(S)
- HOOD ROW IS BACK SIDE OF DOUBLE ISLAND CONFIGURATION
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

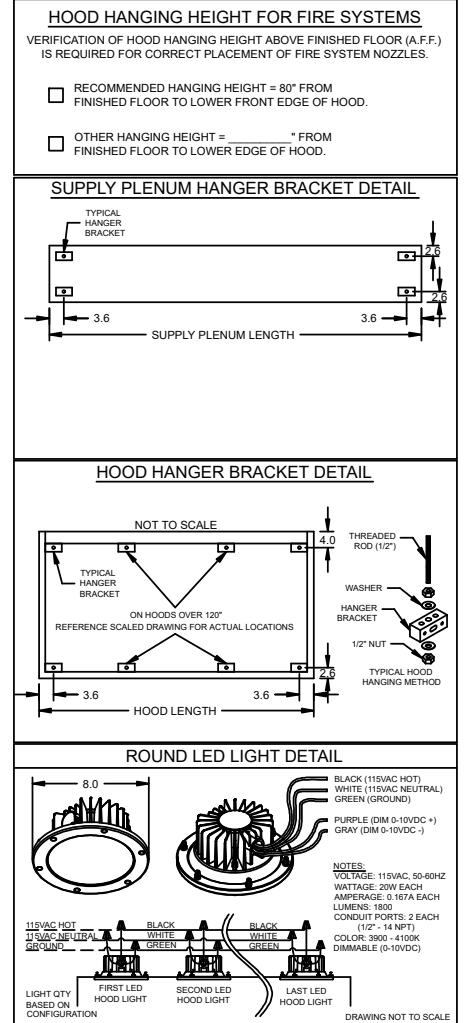
HOOD ROW: BACK  
PLAN VIEW  
MARK: 27 Hood - SECTION 1



MARK: 27 Hood - SECTION 1  
ELEVATION VIEW



MARK: 27 Hood  
SECTION VIEW

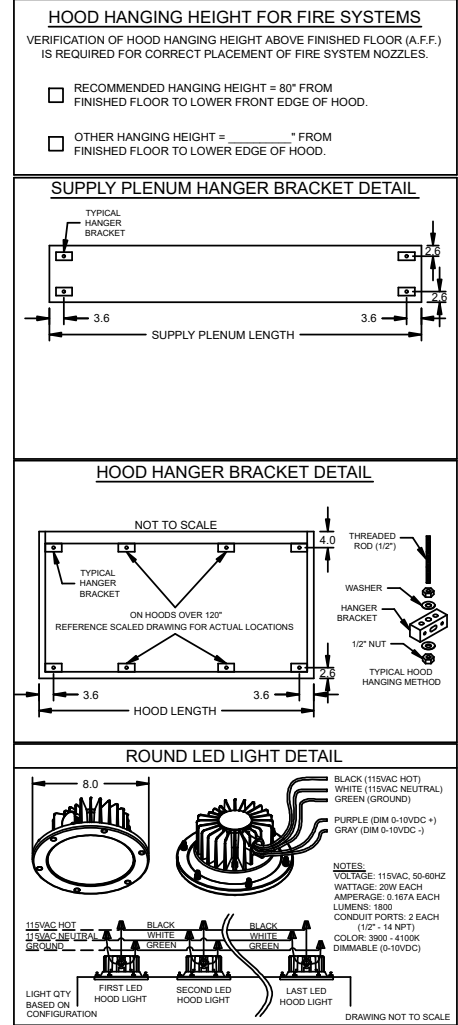


HOOD INFORMATION																	
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)				MUA CFM	AC CFM			
							WIDTH	LENGTH	DIA.	CFM	S.P.						
1	28 HOOD	XXEW-132-S	132	60	24	300 SS 100%	HEAVY	2750	10	26		2750	0.604	2338		367 55	SINGLE

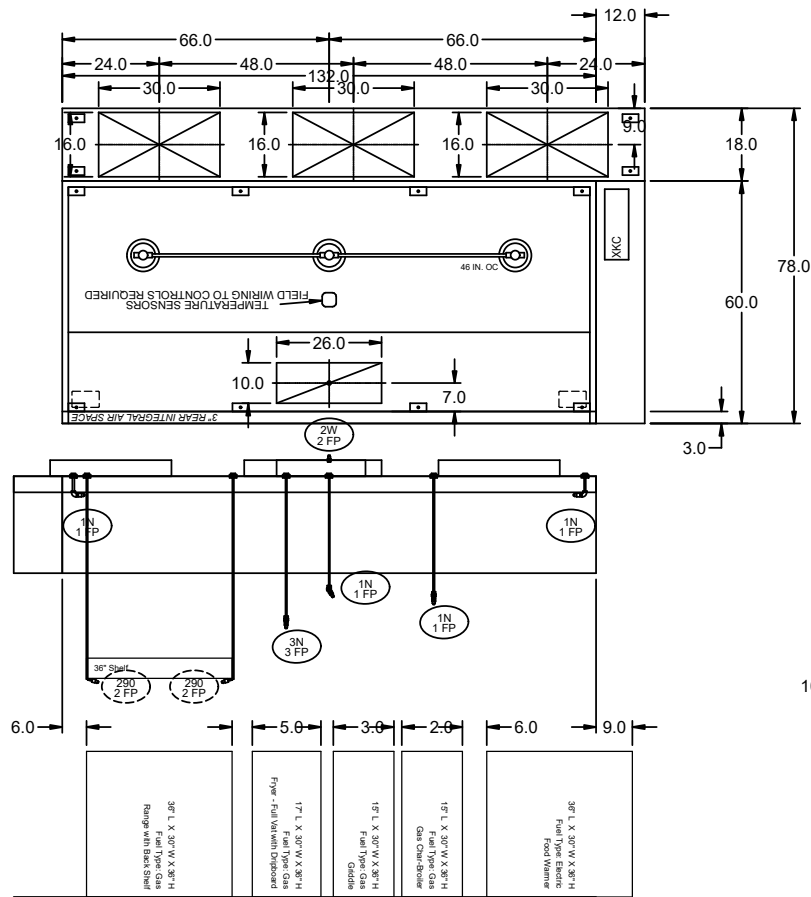
HOOD INFORMATION																	
HOOD NO.	MARK	LIGHTING DETAILS				GREASE FILTRATION DETAILS				UTILITY CABINET(S)							
		FIXTURE TYPE BULB / LAMP INFO		QTY	FOOT CANDLES	TYPE / MODEL MATERIAL		QTY	SIZE (IN.)	LOCATION		FIRE SYSTEM		CONTROLS			
									L	H							
1	28 HOOD	ROUND LED		3	72.08	X-TRACTOR STAINLESS STEEL		7	16	20	LEFT		TYPE		SIZE	MODEL	INTERFACE
								1	20							XKC	

SUPPLY PLENUM INFORMATION																				
HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	28 HOOD	FRONT	ASP	144	18	4	NO	YES	NO		2338	MUA	FACTORY	3	16	30		779	0.18	234

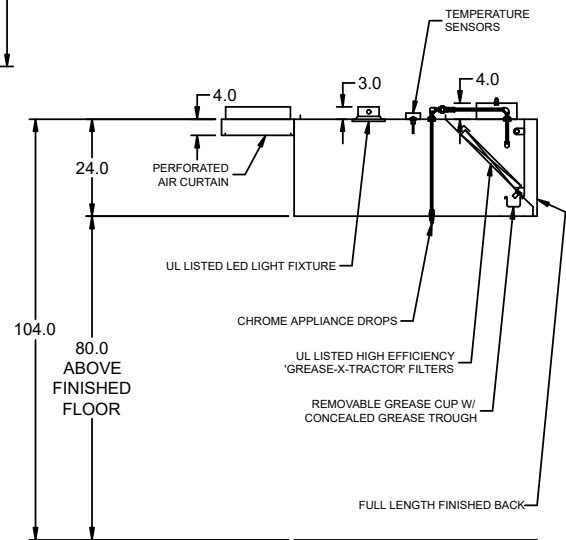
**HOOD OPTIONS**  
 UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625  
 BACK INTEGRAL AIR SPACE - 3 IN WIDE  
 FINISHED BACK - FULL LENGTH  
 FACTORY MOUNTED EXHAUST COLLAR(S)  
 HOOD ROW IS BACK SIDE OF DOUBLE ISLAND CONFIGURATION  
 PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY  
 STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH



HOOD ROW: BACK  
 PLAN VIEW  
 MARK: 28 Hood - SECTION 1

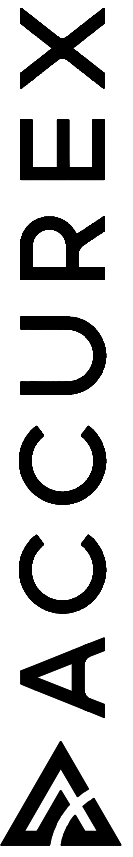


MARK: 28 Hood - SECTION 1  
 ELEVATION VIEW



MARK: 28 Hood  
 SECTION VIEW

PROJECT: 8/19/2022  
 ACCUREX CENTRAL, NORTHERN OH MI  
 JOSH GARLITZ  
 JOSH.GARLITZ@ACCUREX.COM  
 (419)707-3685  
 MIDLAND CTE R4  
 MARK  
 28 HOOD



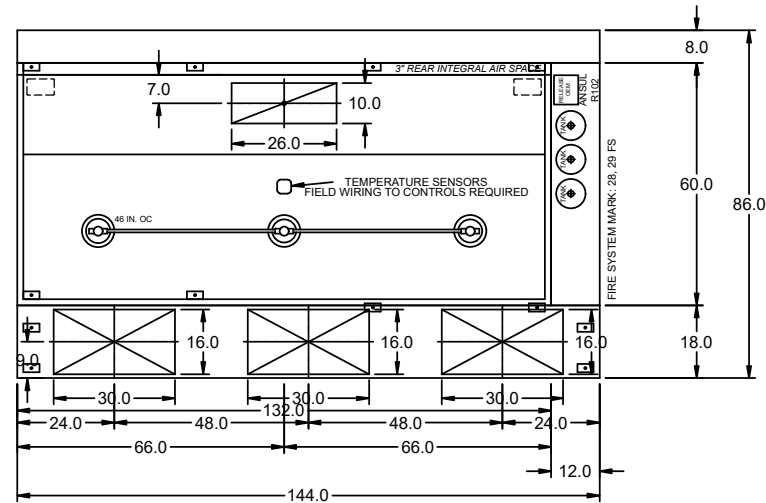
HOOD INFORMATION																	
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)			MUA CFM	AC CFM				
								WIDTH	LENGTH	DIA.	CFM	S.P.					
1	29 HOOD	XXEW-132-S	132	60	24	300 SS 100%	HEAVY	2750	10	26		2750	0.604	2338		367 55	SINGLE

HOOD INFORMATION															
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)							
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM			CONTROLS			
									TYPE	SIZE	MODEL	INTERFACE			
1	29 HOOD	ROUND LED	3	72.08	X-TRACTOR STAINLESS STEEL	7	16 20	20	RIGHT	ANSUL R102	9				

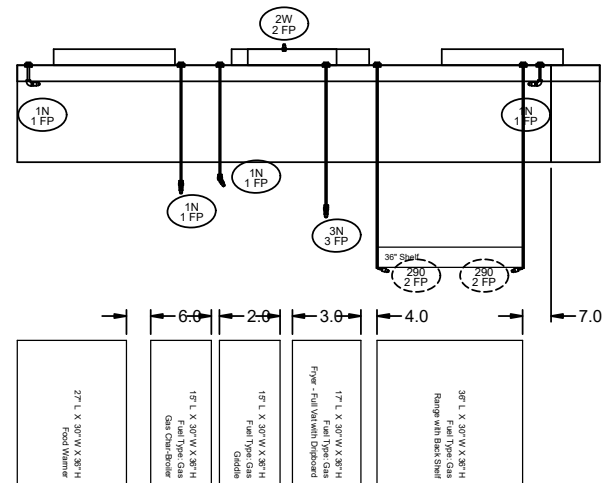
SUPPLY PLENUM INFORMATION																				
HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	29 HOOD	FRONT	ASP	144	18	4	NO	YES	NO		2338	MUA	FACTORY	3	16	30		779	0.18	234

**HOOD OPTIONS**

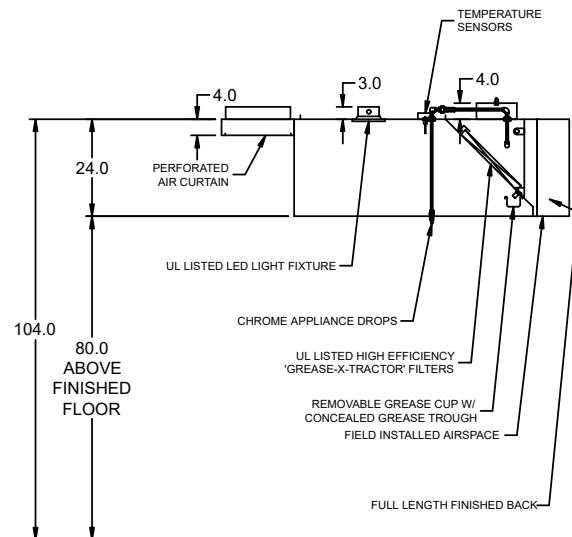
- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- BACK INTEGRAL AIR SPACE - 3 IN WIDE
- BACK NON-INTEGRAL AIR SPACE - 8 IN WIDE
- FINISHED BACK - FULL LENGTH
- FACTORY MOUNTED EXHAUST COLLAR(S)
- HOOD ROW IS FRONT SIDE OF DOUBLE ISLAND CONFIGURATION
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH



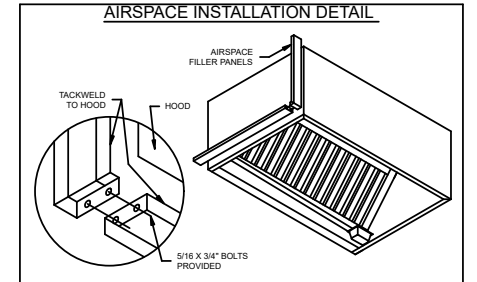
MARK: 29 Hood - SECTION 1  
PLAN VIEW  
HOOD ROW: FRONT



MARK: 29 Hood - SECTION 1  
ELEVATION VIEW

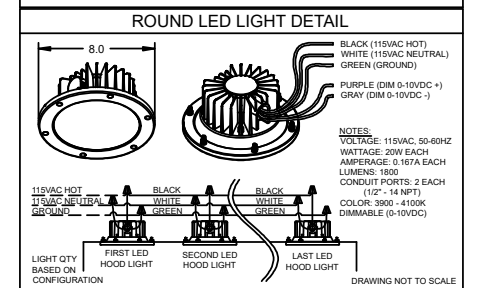
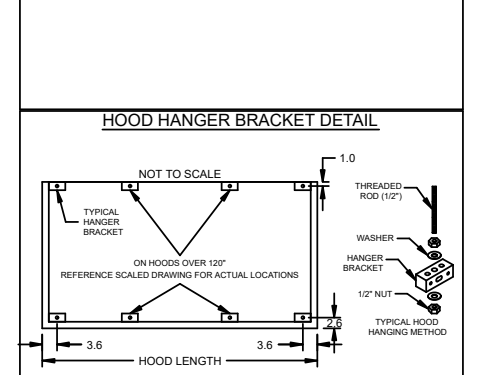
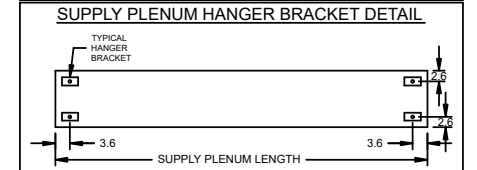


MARK: 29 Hood  
SECTION VIEW



**HOOD HANGING HEIGHT FOR FIRE SYSTEMS**  
VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

- RECOMMENDED HANGING HEIGHT = 90\"/>
- OTHER HANGING HEIGHT = \_\_\_\_\_\"/>



HOOD INFORMATION

HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST COLLAR(S)				SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION		
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	WIDTH	LENGTH	DIA.	CFM	S.P.			MUA CFM	AC CFM
1	31 HOOD	XXEW-96-S	96	60	24	300 SS 100%	HEAVY	2000	10	19		2000	0.601	1710		281 58	LEFT
2	31 HOOD	XXEW-96-S	96	60	24	300 SS 100%	HEAVY	1800	10	17		1800	0.543	1520		281 58	RIGHT

HOOD INFORMATION

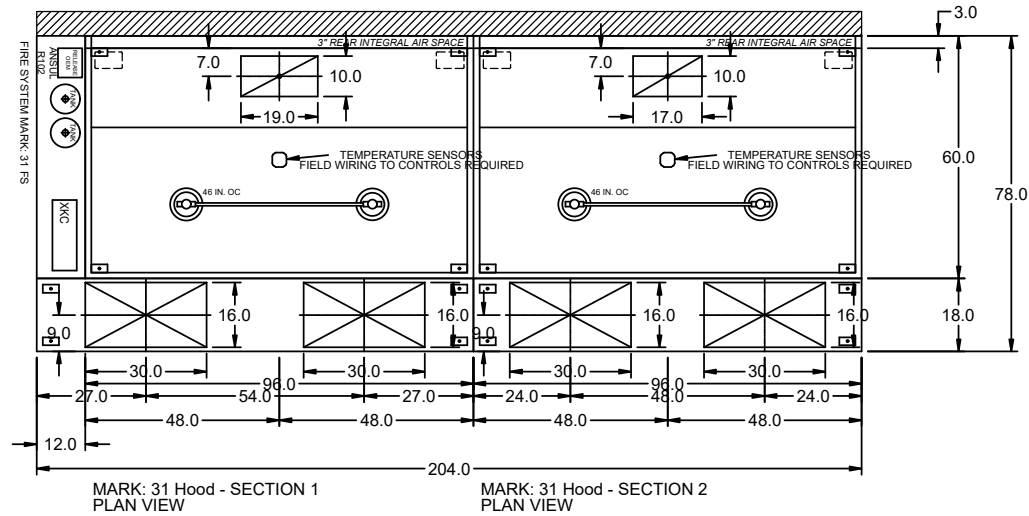
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)				
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM		CONTROLS	
1	31 HOOD	ROUND LED	2	65	X-TRACTOR STAINLESS STEEL	6	16 20	LEFT	TYPE	SIZE	MODEL	INTERFACE
2	31 HOOD	ROUND LED	2	65	X-TRACTOR STAINLESS STEEL	6	16 20					

SUPPLY PLENUM INFORMATION

HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)		INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS							
				L	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.
1	31 HOOD	FRONT	ASP	108	18	4	NO	YES	NO	1710	MUA	FACTORY	2	16	30	855	0.17	257
2	31 HOOD	FRONT	ASP	96	18	4	NO	YES	NO	1520	MUA	FACTORY	2	16	30	760	0.17	228

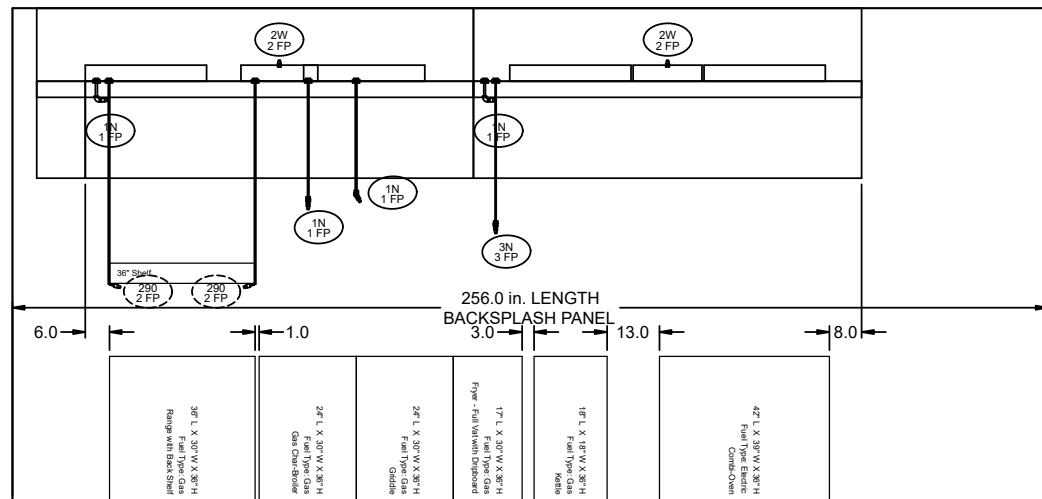
HOOD OPTIONS

UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625  
 BACK INTEGRAL AIR SPACE - 3 IN WIDE  
 FINISHED BACK - FULL LENGTH  
 18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED  
 CONTINUOUS CAPTURE  
 FACTORY MOUNTED EXHAUST COLLAR(S)  
 BACKSPLASH 122.00 IN HIGH 256.00 IN LONG  
 PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY  
 STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH



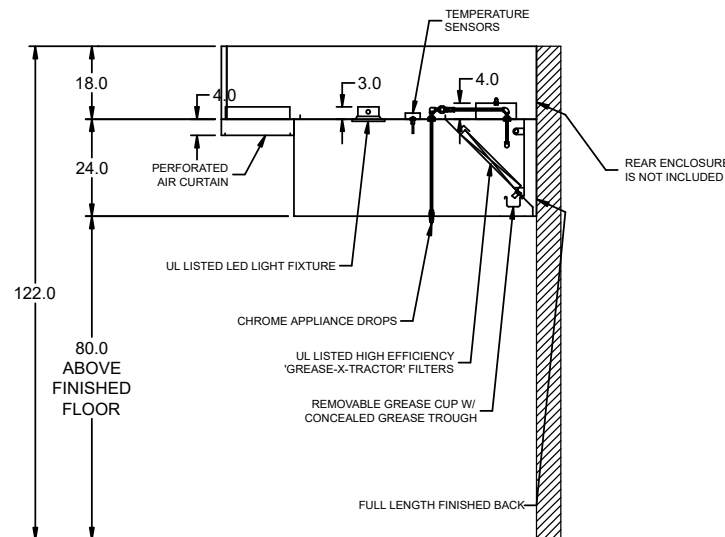
MARK: 31 Hood - SECTION 1 PLAN VIEW

MARK: 31 Hood - SECTION 2 PLAN VIEW



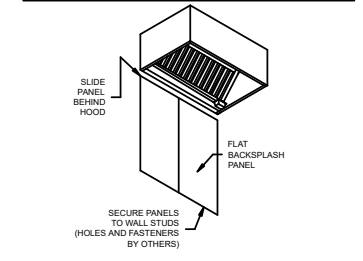
MARK: 31 Hood - SECTION 1 ELEVATION VIEW

MARK: 31 Hood - SECTION 2 ELEVATION VIEW

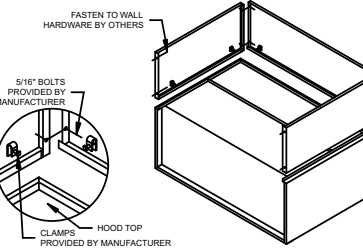


MARK: 31 Hood (LAST HOOD IN ROW) SECTION VIEW

FLAT BACKSPLASH PANEL INST. DETAIL



ENCLOSURE PANEL INSTALLATION DETAIL

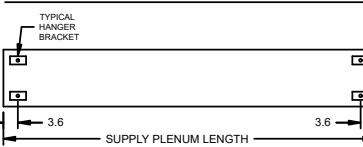


HOOD HANGING HEIGHT FOR FIRE SYSTEMS

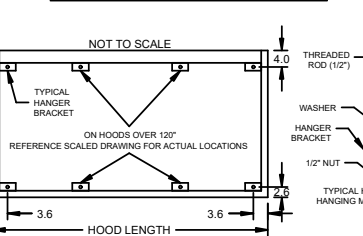
VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

- RECOMMENDED HANGING HEIGHT = 80" FROM FINISHED FLOOR TO LOWER FRONT EDGE OF HOOD.
- OTHER HANGING HEIGHT = \_\_\_\_\_" FROM FINISHED FLOOR TO LOWER EDGE OF HOOD.

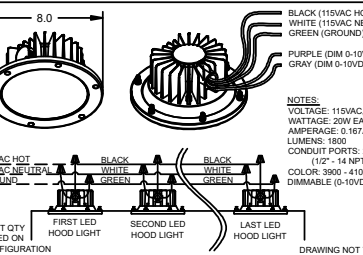
SUPPLY PLENUM HANGER BRACKET DETAIL



HOOD HANGER BRACKET DETAIL



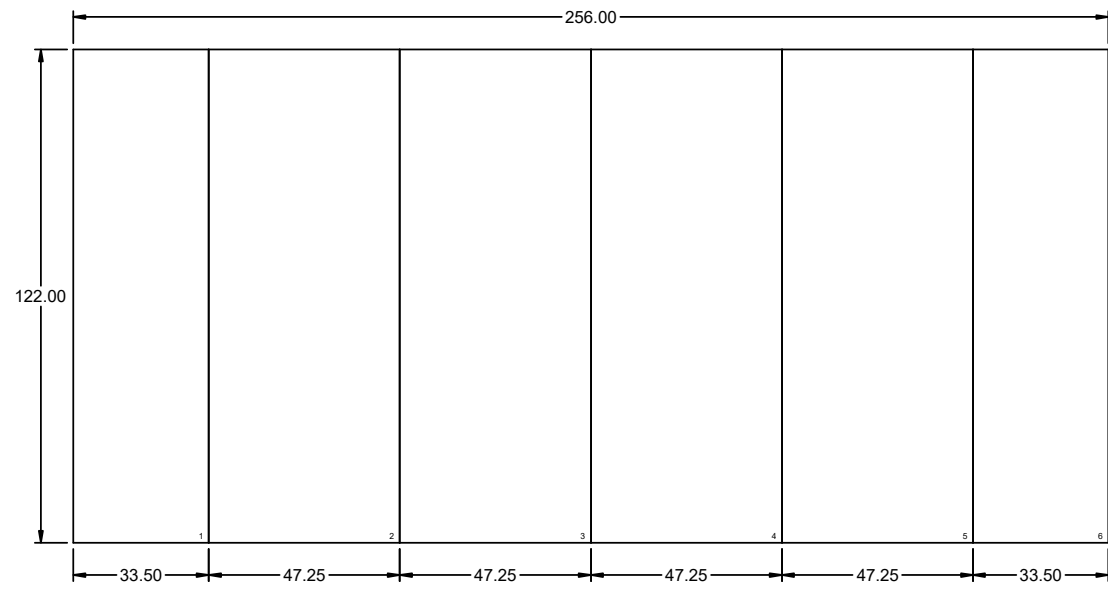
ROUND LED LIGHT DETAIL



**ACCUREX**

PROJECT: 8/19/2022  
 MARK: 31 HOOD  
 ACCUREX CENTRAL, NORTHERN OH MI  
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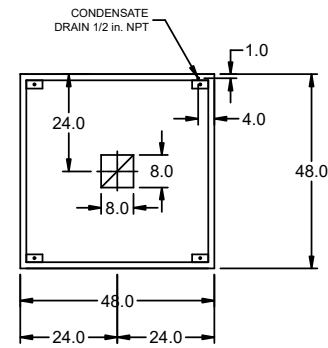


**BACK SPLASH**

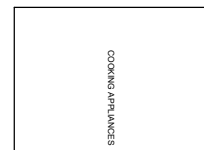
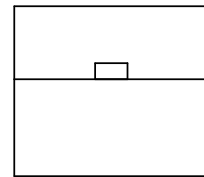
HOOD INFORMATION																
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST COLLAR(S)					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	WIDTH	LENGTH	DIA.	CFM	S.P.	MUA CFM		
1	57 DISH HOOD	XD1-48-S	48.0	48	24	300 SS 100%	600	8	8		600	0.219			97	SINGLE

HOOD INFORMATION																	
HOOD NO.	MARK	LIGHTING DETAILS			BAFFLE FILTRATION DETAILS			UTILITY CABINET(S)									
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM		CONTROLS						
									TYPE	SIZE	MODEL	INTERFACE					
1	57 DISH HOOD																

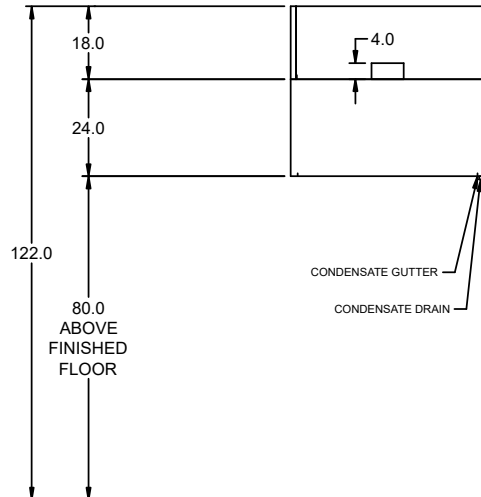
HOOD OPTIONS  
 18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED  
 FACTORY MOUNTED EXHAUST COLLAR(S)  
 MESH FILTER(S) INCLUDED TO COVER DUCT OPENING(S)



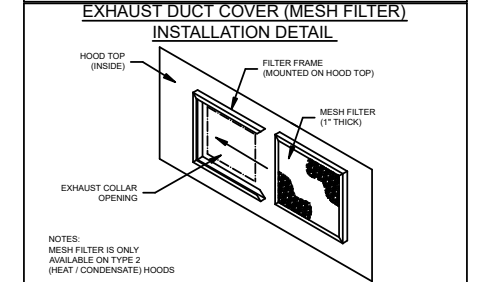
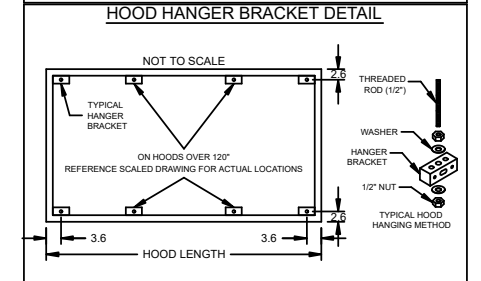
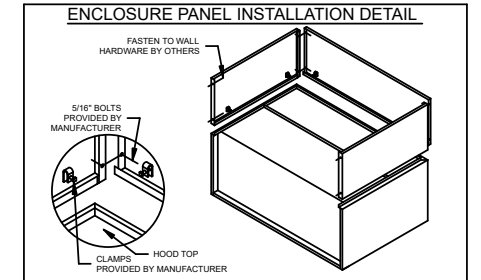
MARK: 57 Dish Hood - SECTION 1  
 PLAN VIEW



MARK: 57 Dish Hood - SECTION 1  
 ELEVATION VIEW



MARK: 57 Dish Hood  
 SECTION VIEW



NOTES:  
 MESH FILTER IS ONLY AVAILABLE ON TYPE 2 (HEAT / CONDENSATE) HOODS

HOOD INFORMATION

HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST COLLAR(S)					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	WIDTH	LENGTH	DIA.	CFM	S.P.	MUA CFM			AC CFM
1	100 HOOD	XXEW-102-S	102	60	24	300 SS 100%	HEAVY	2125	10	20		2125	0.62	1811		294.225	LEFT
2	100 HOOD	XXEW-102-S	102	60	24	300 SS 100%	HEAVY	1913	10	18		1913	0.555	1621		294.225	RIGHT

HOOD INFORMATION

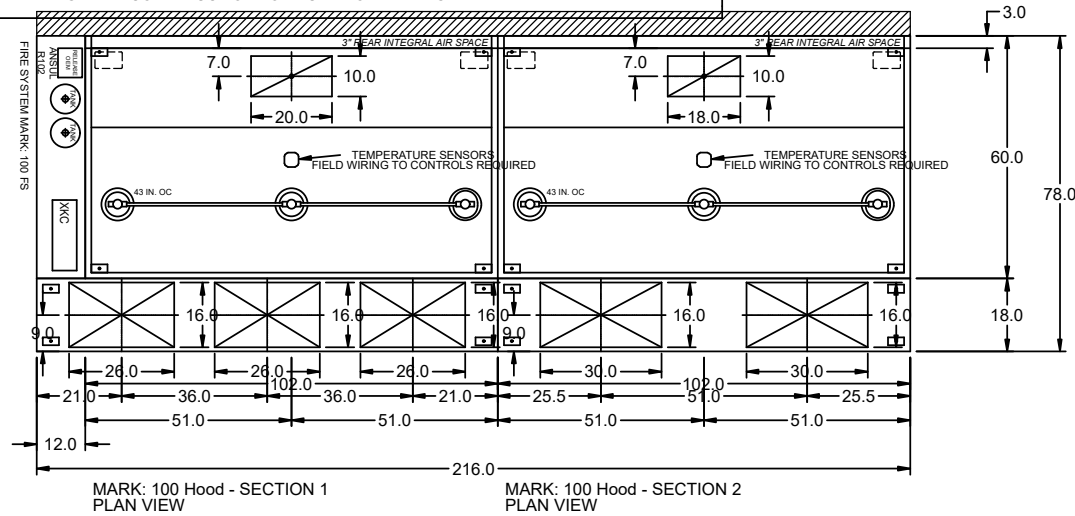
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)				
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM		CONTROLS	
1	100 HOOD	ROUND LED	3	79.02	X-TRACTOR STAINLESS STEEL	5	16 20	LEFT	TYPE	SIZE	MODEL	INTERFACE
2	100 HOOD	ROUND LED	3	79.02	X-TRACTOR STAINLESS STEEL	5	16 20					

SUPPLY PLENUM INFORMATION

HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS							
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.
1	100 HOOD	FRONT	ASP	114	18	4	NO	YES	NO	1811	MUA	FACTORY	3	16	26		604	0.17	209
2	100 HOOD	FRONT	ASP	102	18	4	NO	YES	NO	1621	MUA	FACTORY	2	16	30		811	0.17	243

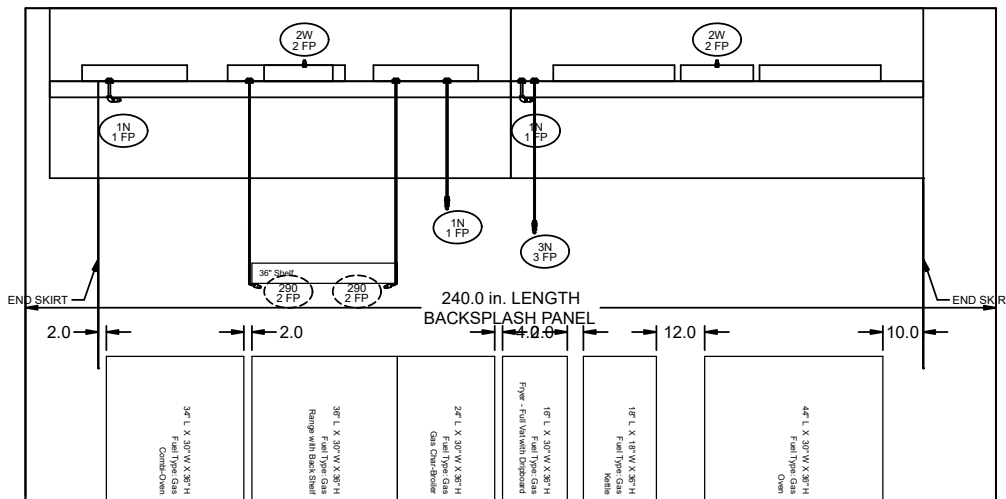
HOOD OPTIONS

UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625  
 BACK INTEGRAL AIR SPACE - 3 IN WIDE  
 FINISHED BACK - FULL LENGTH  
 18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED  
 CONTINUOUS CAPTURE  
 FACTORY MOUNTED EXHAUST COLLAR(S)  
 LEFT FULL END SKIRT - 45 IN HIGH 54.50 IN TOP WIDTH 48.5 IN BOTTOM WIDTH  
 RIGHT FULL END SKIRT - 45 IN HIGH 54.50 IN TOP WIDTH 48.5 IN BOTTOM WIDTH  
 BACKSPLASH 122.00 IN HIGH 240.00 IN LONG  
 PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY  
 STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH



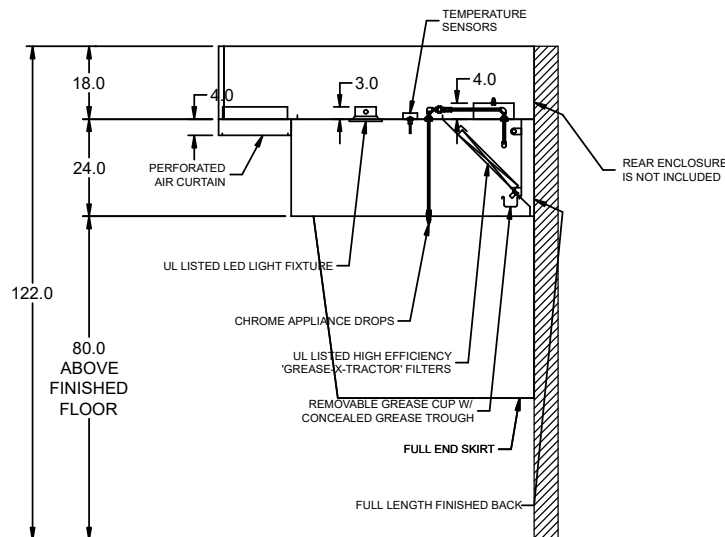
MARK: 100 Hood - SECTION 1  
PLAN VIEW

MARK: 100 Hood - SECTION 2  
PLAN VIEW

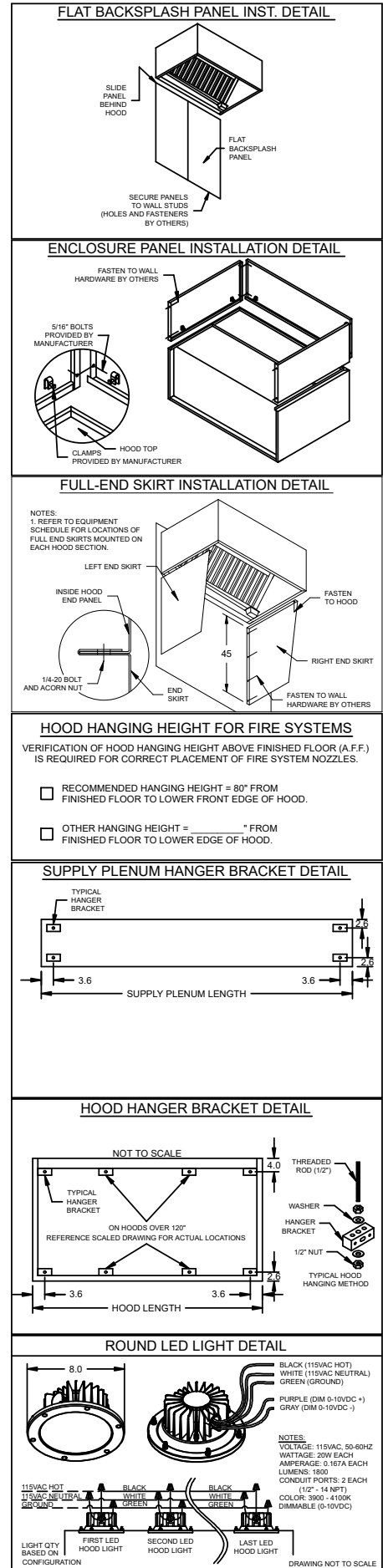


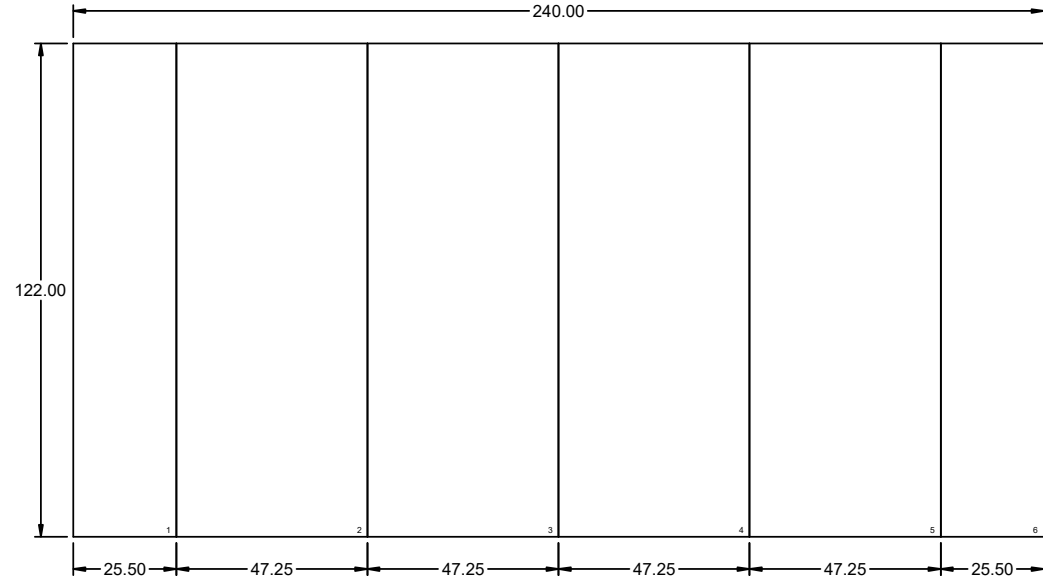
MARK: 100 Hood - SECTION 1  
ELEVATION VIEW

MARK: 100 Hood - SECTION 2  
ELEVATION VIEW



MARK: 100 Hood (LAST HOOD IN ROW)  
SECTION VIEW





**BACK SPLASH**

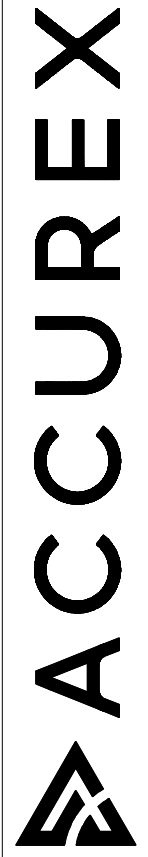
ACCUREX CENTRAL, NORTHERN OH IO  
 Josh Garlitz  
 josh.garlitz@accurex.com  
 (419)707-3685

PROJECT  
 8/19/2022

MARK

Midland CTE R4

100 Hood - SPLASH PANEL LAYOUT





HOOD INFORMATION

HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			COLLAR(S)					MUA CFM	AC CFM			
								TOTAL CFM	WIDTH	LENGTH	DIA.	CFM					S.P.
1	120 HOOD	XXEW-92-S	92	60	24	300 SS 100%	HEAVY	1725	9	17		1725	0.58	1453		270.614	LEFT
2	120 HOOD	XXEW-92-S	92	60	24	300 SS 100%	HEAVY	1917	10	18		1917	0.608	1643		270.614	RIGHT

HOOD INFORMATION

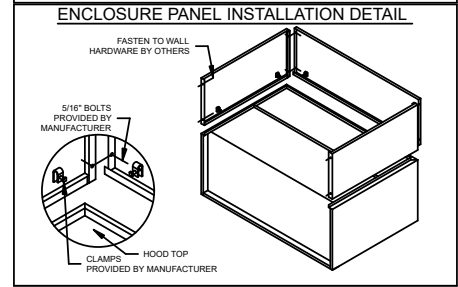
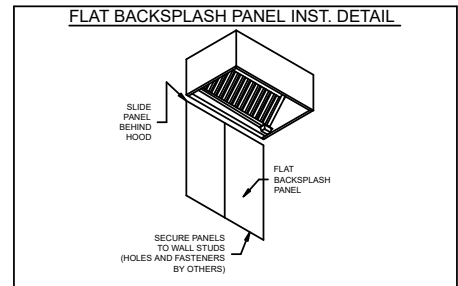
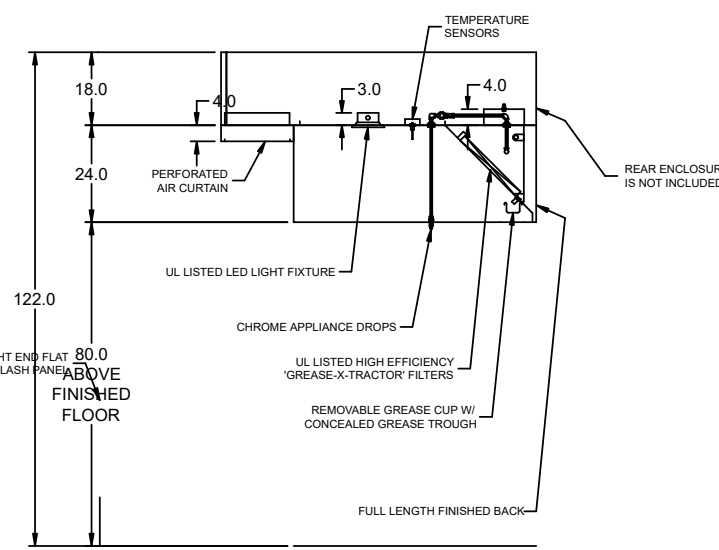
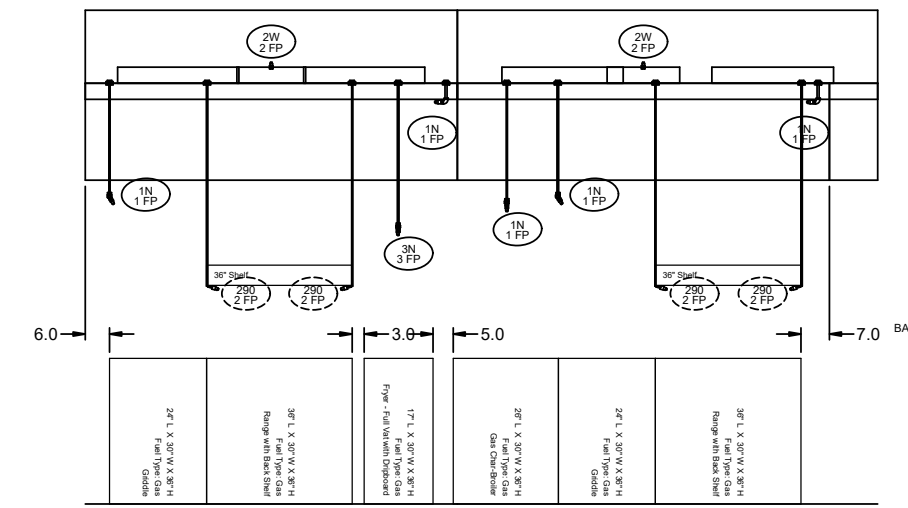
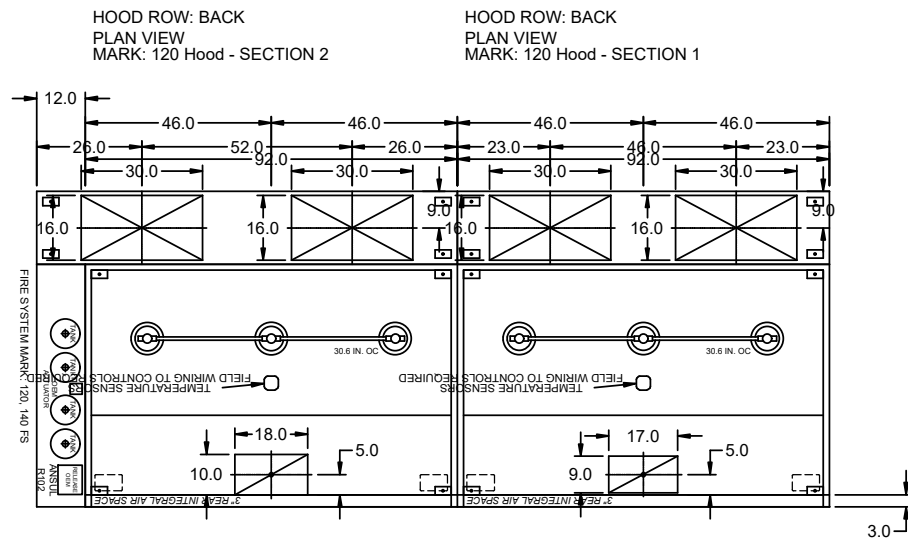
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)					
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM		CONTROLS		
									TYPE	SIZE	MODEL	INTERFACE	
1	120 HOOD	ROUND LED	3	81.74	X-TRACTOR STAINLESS STEEL	3	2 16 20						
2	120 HOOD	ROUND LED	3	81.74	X-TRACTOR STAINLESS STEEL	3	2 16 20	RIGHT	ANSUL R102	12			

SUPPLY PLENUM INFORMATION

HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	120 HOOD	FRONT	ASP	92	18	4	NO	YES	NO	1453	MUA	FACTORY	2	16	30	727	0.17	218		
2	120 HOOD	FRONT	ASP	104	18	4	NO	YES	NO	1643	MUA	FACTORY	2	16	30	822	0.17	247		

HOOD OPTIONS

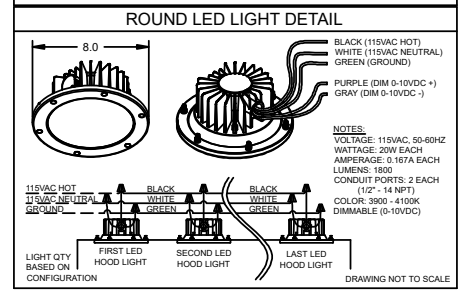
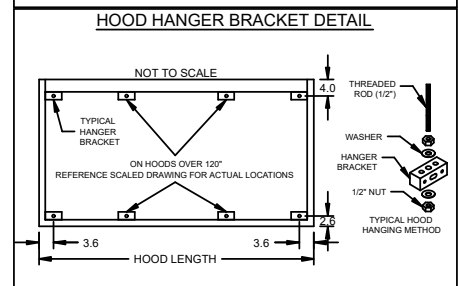
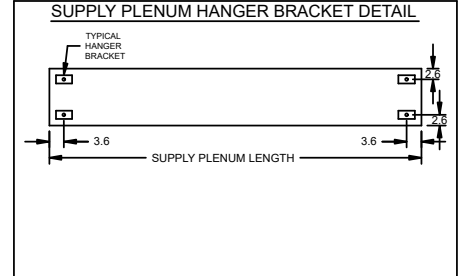
UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625  
 BACK INTEGRAL AIR SPACE - 3 IN WIDE  
 FINISHED BACK - FULL LENGTH  
 18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED  
 CONTINUOUS CAPTURE  
 FACTORY MOUNTED EXHAUST COLLAR(S)  
 HOOD ROW IS BACK SIDE OF DOUBLE ISLAND CONFIGURATION  
 RIGHT SIDESPLASH 12.00 IN HIGH 184.00 IN LONG  
 PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY  
 STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH



HOOD HANGING HEIGHT FOR FIRE SYSTEMS  
 VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

RECOMMENDED HANGING HEIGHT = 80" FROM FINISHED FLOOR TO LOWER FRONT EDGE OF HOOD.

OTHER HANGING HEIGHT = \_\_\_\_\_" FROM FINISHED FLOOR TO LOWER EDGE OF HOOD.



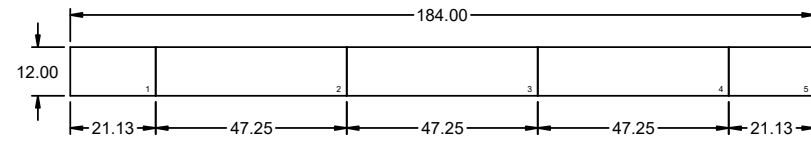
PROJECT: 8/19/2022

MARK

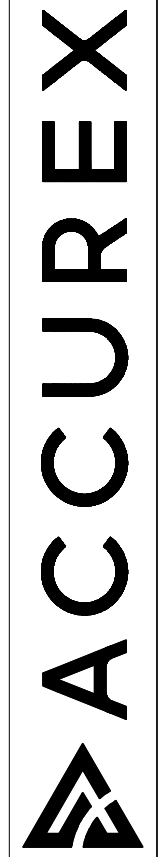
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MIDLAND CTE R4

120 HOOD



RIGHT SIDE SPLASH



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PROJECT  
 8/19/2022

Midland CTE R4

120 Hood - SPLASH PANEL LAYOUT

MARK



HOOD INFORMATION

HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)			MUA CFM	AC CFM				
1	140 HOOD	XXEW-92-S	92	60	24	300 SS 100%	HEAVY	1917	10	18		1917	0.608	1643		270.614	LEFT
2	140 HOOD	XXEW-92-S	92	60	24	300 SS 100%	HEAVY	1725	9	17		1725	0.58	1453		270.614	RIGHT

HOOD INFORMATION

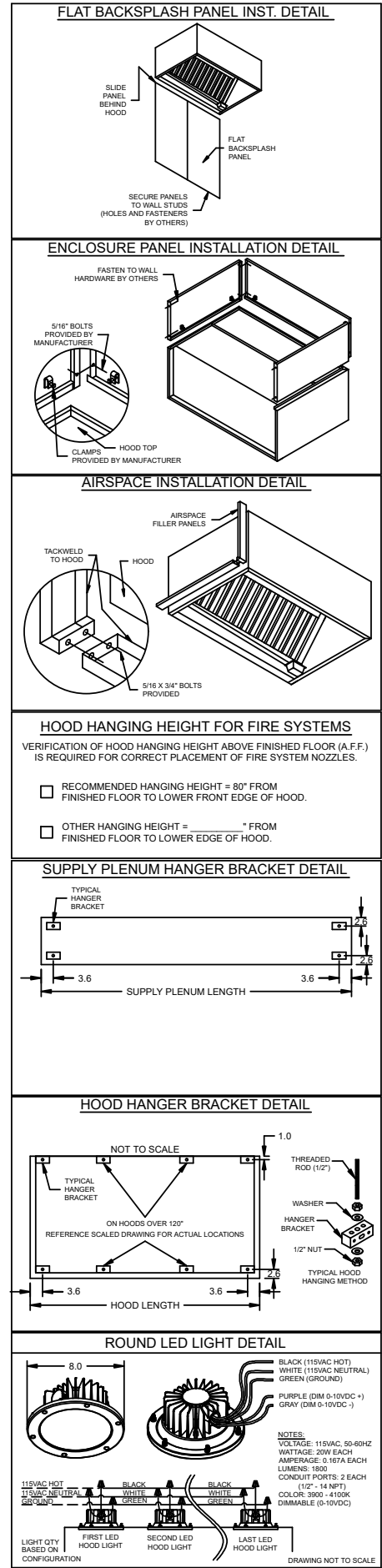
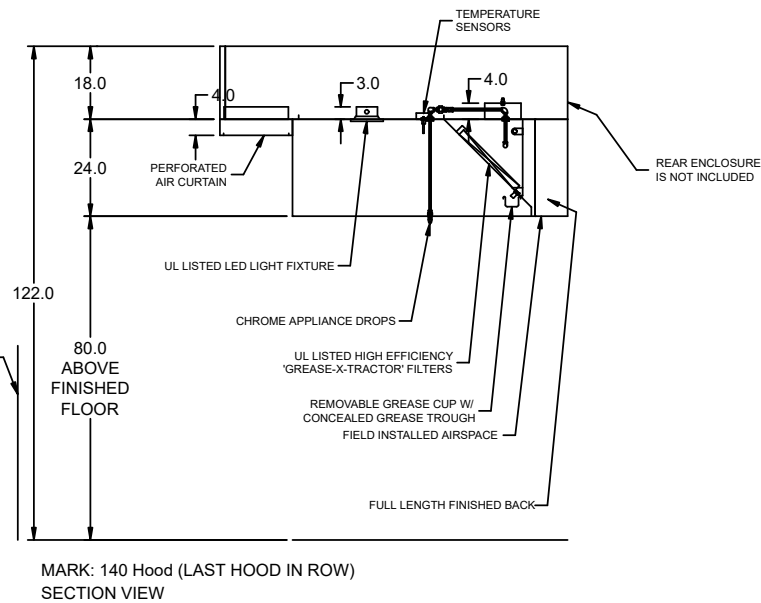
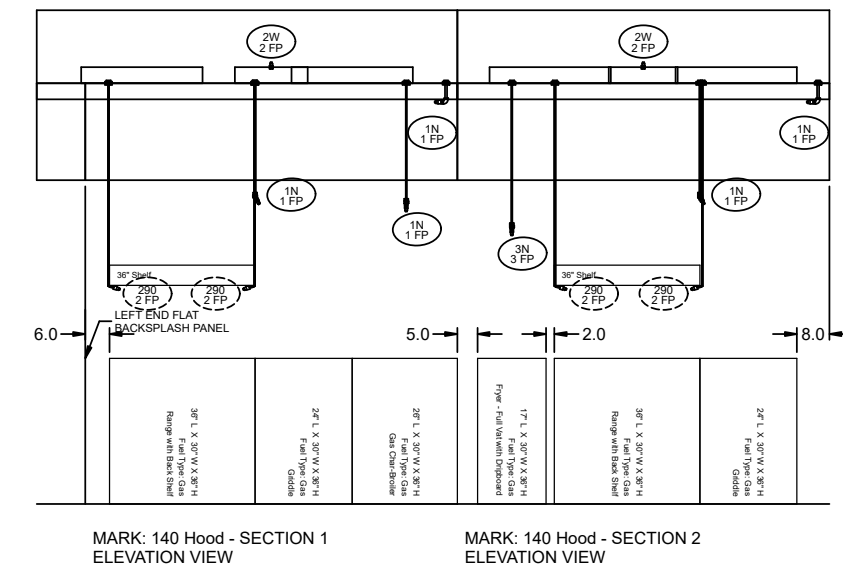
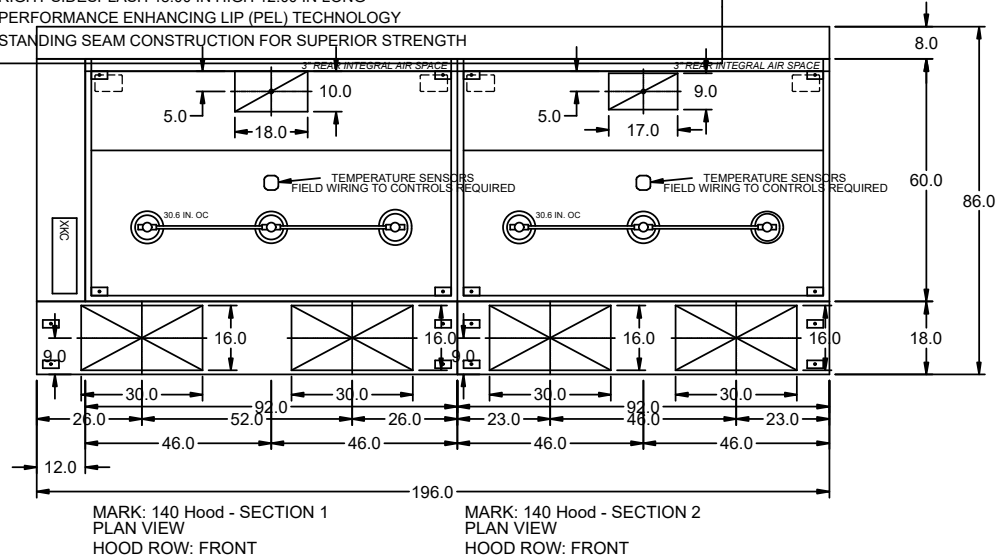
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)				
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM		CONTROLS	
1	140 HOOD	ROUND LED	3	81.74	X-TRACTOR STAINLESS STEEL	3	2 16 20	LEFT			XKC	
2	140 HOOD	ROUND LED	3	81.74	X-TRACTOR STAINLESS STEEL	3	2 16 20					

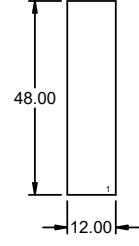
SUPPLY PLENUM INFORMATION

HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	140 HOOD	FRONT	ASP	104	18	4	NO	YES	NO		1643	MUA	FACTORY	2	16	30		822	0.17	247
2	140 HOOD	FRONT	ASP	92	18	4	NO	YES	NO		1453	MUA	FACTORY	2	16	30		727	0.17	218

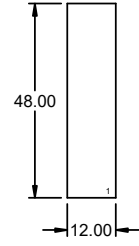
HOOD OPTIONS

UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625  
 BACK INTEGRAL AIR SPACE - 3 IN WIDE  
 BACK NON-INTEGRAL AIR SPACE - 8 IN WIDE  
 FINISHED BACK - FULL LENGTH  
 18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED  
 CONTINUOUS CAPTURE  
 FACTORY MOUNTED EXHAUST COLLAR(S)  
 HOOD ROW IS FRONT SIDE OF DOUBLE ISLAND CONFIGURATION  
 LEFT SIDESPLASH 48.00 IN HIGH 12.00 IN LONG  
 RIGHT SIDESPLASH 48.00 IN HIGH 12.00 IN LONG  
 PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY  
 STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

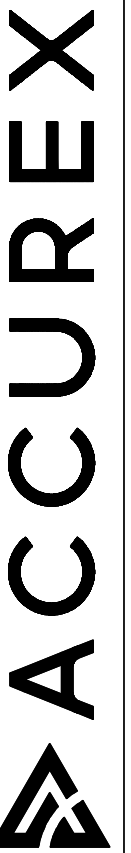




LEFT SIDE SPLASH



RIGHT SIDE SPLASH



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PROJECT  
8/19/2022

MARK

Midland CTE R4

140 Hood - SPLASH PANEL LAYOUT



HOOD INFORMATION																	
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)			MUA CFM	AC CFM				
								WIDTH	LENGTH	DIA.	CFM	S.P.					
1	125 HOOD	XXEW-114-S	114	60	24	300 SS 100%	HEAVY	2138	9	21		2138	0.592	1817		326 57	SINGLE

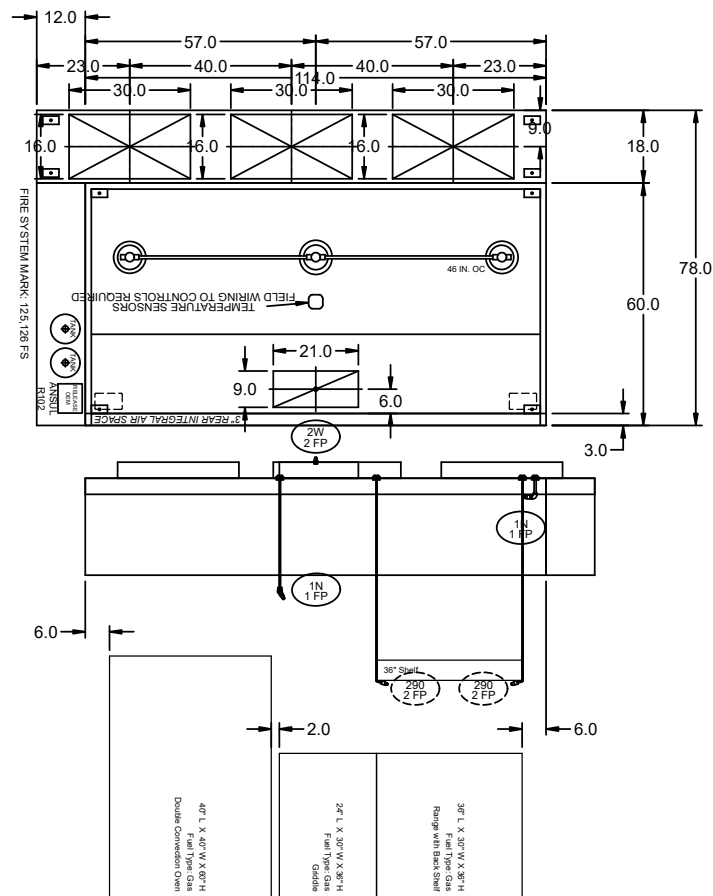
HOOD INFORMATION																	
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)									
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM			CONTROLS					
									TYPE	SIZE	MODEL	INTERFACE					
1	125 HOOD	ROUND LED	3	76.03	X-TRACTOR STAINLESS STEEL	2	16 20	20	RIGHT	ANSUL R102	6						

SUPPLY PLENUM INFORMATION																				
HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	125 HOOD	FRONT	ASP	126	18	4	NO	YES	NO		1817	MUA	FACTORY	3	16	30		606	0.14	182

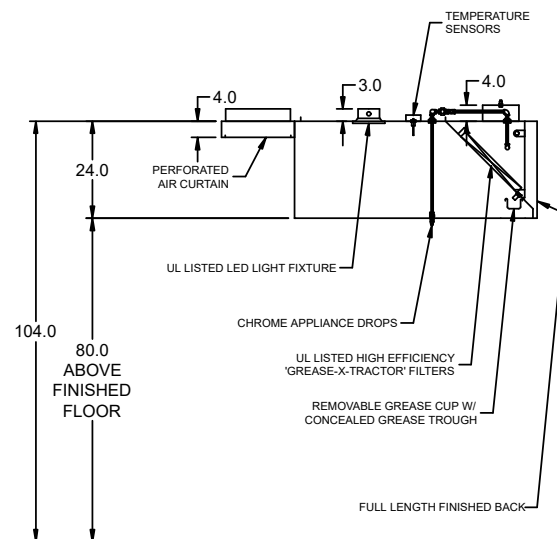
**HOOD OPTIONS**

- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- BACK INTEGRAL AIR SPACE - 3 IN WIDE
- FINISHED BACK - FULL LENGTH
- FACTORY MOUNTED EXHAUST COLLAR(S)
- HOOD ROW IS BACK SIDE OF DOUBLE ISLAND CONFIGURATION
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

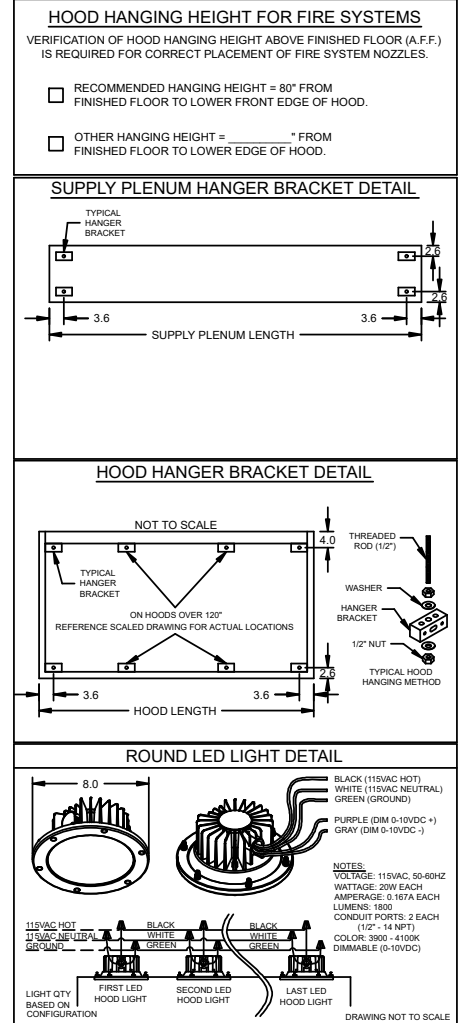
HOOD ROW: BACK  
PLAN VIEW  
MARK: 125 Hood - SECTION 1



MARK: 125 Hood - SECTION 1  
ELEVATION VIEW



MARK: 125 Hood  
SECTION VIEW



PROJECT: 8/19/2022  
MARK

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MIDLAND CTE R4

125 HOOD



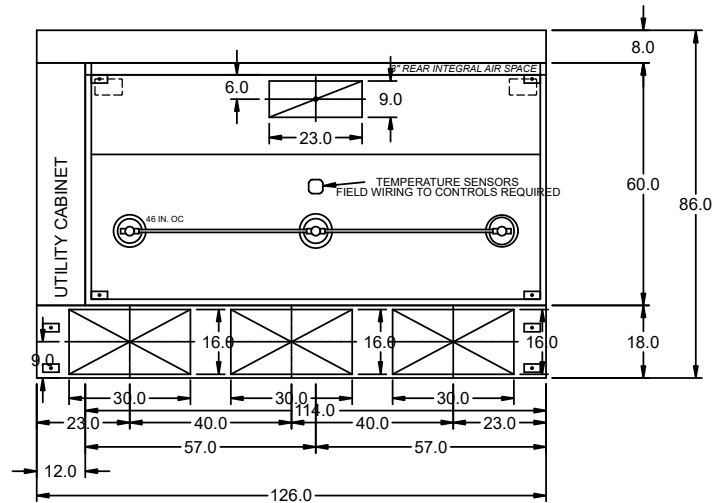
HOOD INFORMATION																	
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)			MUA CFM	AC CFM				
								WIDTH	LENGTH	DIA.	CFM	S.P.					
1	126 HOOD	XXEW-114-S	114	60	24	300 SS 100%	HEAVY	2375	9	23		2375	0.665	2019		322.557	SINGLE

HOOD INFORMATION																
HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS			UTILITY CABINET(S)								
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L H	LOCATION	FIRE SYSTEM			CONTROLS				
									TYPE	SIZE	MODEL	INTERFACE				
1	126 HOOD	ROUND LED	3	76.03	X-TRACTOR STAINLESS STEEL	2	16 20	20								

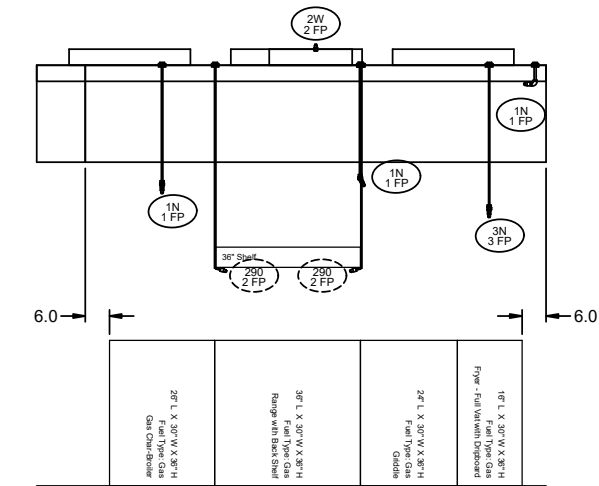
SUPPLY PLENUM INFORMATION																				
HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)		TOTAL CFM	COLLARS								
				L	W	H			SUPPLIED	QTY		TYPE	MOUNTING	QTY	W	L	DIA.	CFM	S.P.	VEL.
1	126 HOOD	FRONT	ASP	126	18	4	NO	YES	NO		2019	MUA	FACTORY	3	16	30		673	0.17	202

**HOOD OPTIONS**

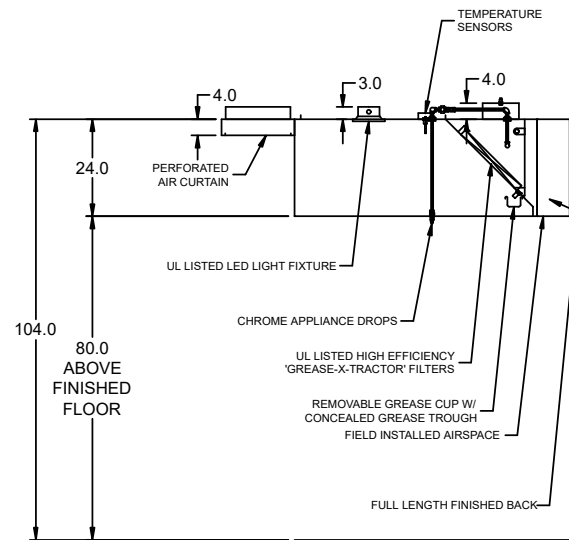
- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- BACK INTEGRAL AIR SPACE - 3 IN WIDE
- BACK NON-INTEGRAL AIR SPACE - 8 IN WIDE
- FINISHED BACK - FULL LENGTH
- FACTORY MOUNTED EXHAUST COLLAR(S)
- HOOD ROW IS FRONT SIDE OF DOUBLE ISLAND CONFIGURATION
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH



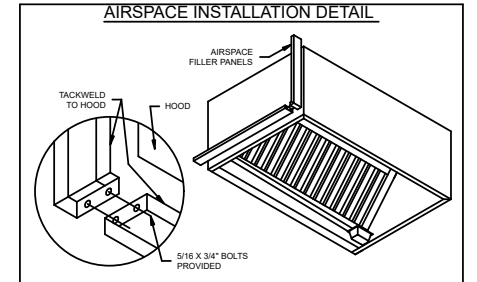
MARK: 126 Hood - SECTION 1  
PLAN VIEW  
HOOD ROW: FRONT



MARK: 126 Hood - SECTION 1  
ELEVATION VIEW

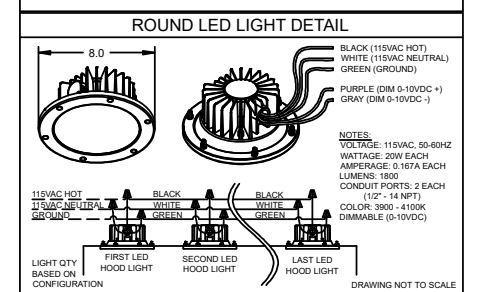
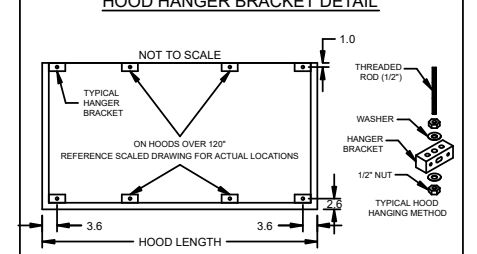
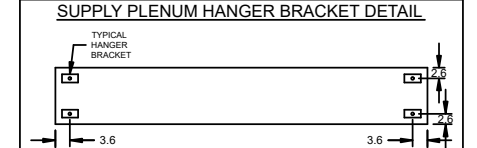


MARK: 126 Hood  
SECTION VIEW



**HOOD HANGING HEIGHT FOR FIRE SYSTEMS**  
VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

- RECOMMENDED HANGING HEIGHT = 90" FROM FINISHED FLOOR TO LOWER FRONT EDGE OF HOOD.
- OTHER HANGING HEIGHT = \_\_\_\_\_" FROM FINISHED FLOOR TO LOWER EDGE OF HOOD.



HOOD INFORMATION

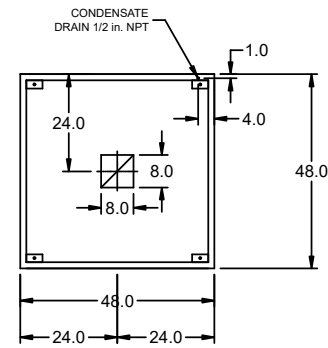
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST COLLAR(S)					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	WIDTH	LENGTH	DIA.	CFM	S.P.	MUA CFM			AC CFM
1	132 DISH HOOD	XD1-48-S	48.0	48	24	300 SS 100%	600	8	8		600	0.219			97	SINGLE	

HOOD INFORMATION

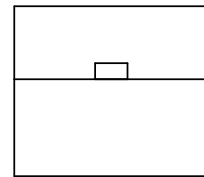
HOOD NO.	MARK	LIGHTING DETAILS			BAFFLE FILTRATION DETAILS			UTILITY CABINET(S)								
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.)		LOCATION	FIRE SYSTEM		CONTROLS				
							L	H		TYPE	SIZE	MODEL	INTERFACE			
1	132 DISH HOOD															

HOOD OPTIONS

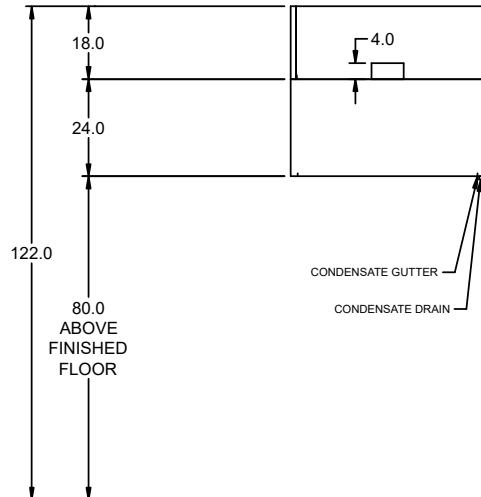
18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED  
 FACTORY MOUNTED EXHAUST COLLAR(S)  
 MESH FILTER(S) INCLUDED TO COVER DUCT OPENING(S)



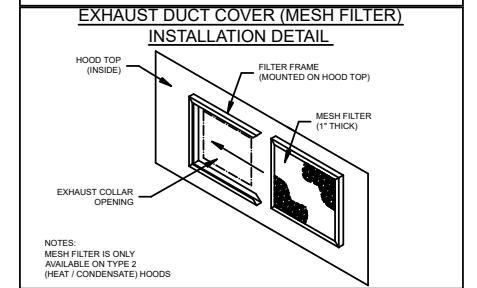
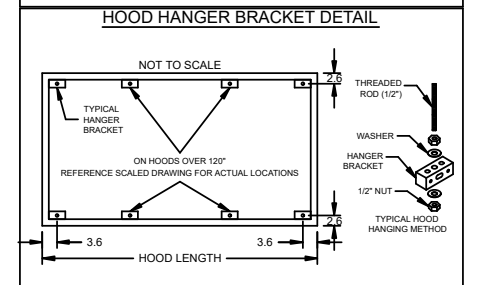
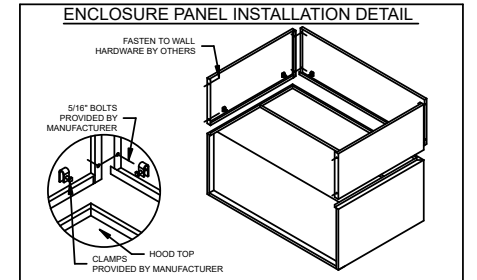
MARK: 132 Dish Hood - SECTION 1  
 PLAN VIEW



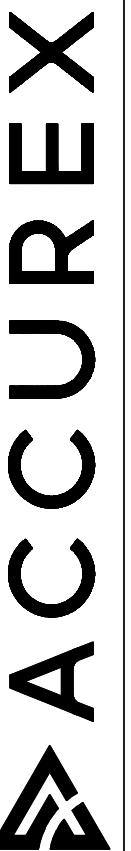
MARK: 132 Dish Hood - SECTION 1  
 ELEVATION VIEW



MARK: 132 Dish Hood  
 SECTION VIEW



PROJECT 8/19/2022  
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 (419)707-3685  
 MARK  
 MIDLAND CTE R4  
 132 DISH HOOD  
 ACCUREX



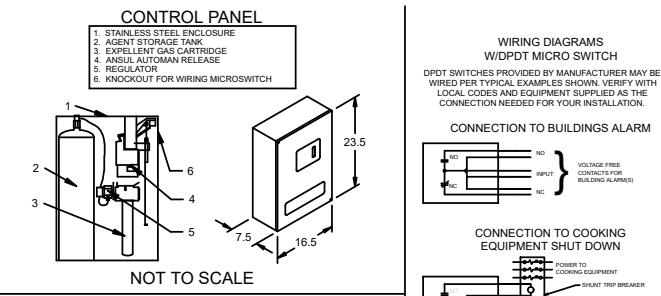
**FIRE SYSTEM INFORMATION**

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
26, 27 FS	ANSUL R-102 WET CHEMICAL	CABINET – LEFT END OF 26 HOOD	26 UTILIZED		CONTINUOUS	FUSIBLE LINK	26 HOOD SECTION 1
			33 AVAILABLE				27 HOOD SECTION 1

**FIRE SYSTEM OPTIONS AND ACCESSORIES**

- FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
- CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
- METAL BLOW-OFF CAPS - INCLUDED
- GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200
- HOOD SUPPRESSION TANK - INCLUDED - 9 GAL. - [(3) 3.0 TANK(S)]
- REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS

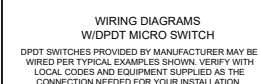
**ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FS5C**



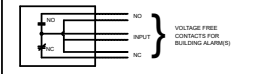
NOT TO SCALE

**NOTES:**

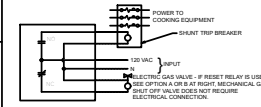
- WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.
- VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
- ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
- ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.
- THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:
  - GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
  - MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.
- THE BASIC FIRE SYSTEM DOES NOT INCLUDE THE FOLLOWING:
  - FULL DUMP TEST OTHER THAN WHAT IS SPECIFIED PER THE INSTALLATION MANUAL, OR TO SATISFY A STATE OR LOCAL CODE. PERMIT AND TESTING FEES ARE NOT INCLUDED UNLESS NOTED UNDER THE EQUIPMENT SCHEDULE FOR THE FIRE SYSTEM.
  - MORE THAN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL DISTANCE IS FIRST 50 MI. (80.5 KM) FROM OFFICE.
  - SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS
  - INSTALLATION OF GAS SHUT-OFF VALVE.
  - SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR PS APPROVAL STAMP.
  - UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
  - ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER), OR ACTIVATE AN ALARM SYSTEM, ETC.
  - ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
  - ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
  - INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M).
  - PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS, OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THAN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.



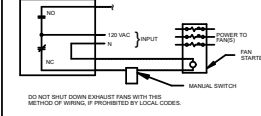
CONNECTION TO BUILDINGS ALARM



CONNECTION TO COOKING EQUIPMENT SHUT DOWN



CONNECTION TO FAN SHUT DOWN



CONNECTION TO FAN SHUT DOWN

- NOTES:
- 1. ——— DENOTES FIELD INSTALLATION.
- 2. ——— DENOTES FACTORY INSTALLATION.
- 3. DO NOT USE BLACK WIRE OR SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEOUS ALARM, LIGHT CIRCUITS, ETC.

**ACCUREX**

PROJECT: 8/19/2022  
MARK

MIDLAND CTE R4  
26, 27 FS

ACCUREX CENTRAL, NORTHERN OH MI  
JOSH GARLITZ  
JOSH.GARLITZ@ACCUREX.COM  
(419)707-3685

**ACCUREX**



**FIRE SYSTEM INFORMATION**

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
28, 29 FS	ANSUL R-102 WET CHEMICAL	CABINET – RIGHT END OF 29 HOOD	26 UTILIZED 33 AVAILABLE		CONTINUOUS	FUSIBLE LINK	28 HOOD SECTION 1 29 HOOD SECTION 1

**FIRE SYSTEM OPTIONS AND ACCESSORIES**

- FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
- CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
- METAL BLOW-OFF CAPS - INCLUDED
- GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200
- HOOD SUPPRESSION TANK - INCLUDED - 9 GAL. - [(3) 3.0 TANK(S)]
- REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS

**ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FS5C**

**CONTROL PANEL**

**NOT TO SCALE**

**NOTES:**

WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.

- VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
- ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
- ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.

THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:

- GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
- MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

THE BASIC FIRE SYSTEM DOES NOT INCLUDE THE FOLLOWING:

- FULL DUMP TEST OTHER THAN WHAT IS SPECIFIED PER THE INSTALLATION MANUAL, OR TO SATISFY A STATE OR LOCAL CODE. PERMIT AND TESTING FEES ARE NOT INCLUDED UNLESS NOTED UNDER THE EQUIPMENT SCHEDULE FOR THE FIRE SYSTEM.
- MORE THAN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL DISTANCE IS FIRST 50 MI. (80.5 KM) FROM OFFICE.
- SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS
- INSTALLATION OF GAS SHUT-OFF VALVE.
- SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR PS APPROVAL STAMP.
- UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
- ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER), OR ACTIVATE AN ALARM SYSTEM, ETC.
- ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
- ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
- INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M).
- PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS, OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THAN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

**WIRING DIAGRAMS W/DPDT MICRO SWITCH**

DPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED PER TYPICAL EXAMPLES SHOWN. VERIFY WITH LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.

**CONNECTION TO BUILDINGS ALARM**

**CONNECTION TO COOKING EQUIPMENT SHUT DOWN**

**CONNECTION TO FAN SHUT DOWN**

**NOTES:**

1. \_\_\_\_\_ DENOTES FIELD INSTALLATION.
2. \_\_\_\_\_ DENOTES FACTORY INSTALLATION.
3. DO NOT USE BLACK WIRE OR SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEOUS ALARM, LIGHT CIRCUITS, ETC.

**ACCUREX**

PROJECT: 8/19/2022

MARK: 28, 29 FS

MIDLAND CTE R4

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**FIRE SYSTEM INFORMATION**

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
31 FS	ANSUL R-102 WET CHEMICAL	CABINET – LEFT END OF 31 HOOD	15 UTILIZED 22 AVAILABLE		CONTINUOUS	FUSIBLE LINK	31 HOOD SECTION 1 31 HOOD SECTION 2

**FIRE SYSTEM OPTIONS AND ACCESSORIES**

- FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
- CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
- METAL BLOW-OFF CAPS - INCLUDED
- GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200
- HOOD SUPPRESSION TANK - INCLUDED - 6 GAL. - [(2) 3.0 TANK(S)]
- REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS

**ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FS5C**

**CONTROL PANEL**

**NOT TO SCALE**

**NOTES:**

WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.

- VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
- ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
- ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.

THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:

- GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
- MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

THE BASIC FIRE SYSTEM DOES NOT INCLUDE THE FOLLOWING:

- FULL DUMP TEST OTHER THAN WHAT IS SPECIFIED PER THE INSTALLATION MANUAL, OR TO SATISFY A STATE OR LOCAL CODE. PERMIT AND TESTING FEES ARE NOT INCLUDED UNLESS NOTED UNDER THE EQUIPMENT SCHEDULE FOR THE FIRE SYSTEM.
- MORE THAN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL DISTANCE IS FIRST 50 MI. (80.5 KM) FROM OFFICE.
- SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS
- INSTALLATION OF GAS SHUT-OFF VALVE.
- SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR PS APPROVAL STAMP.
- UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
- ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER), OR ACTIVATE AN ALARM SYSTEM, ETC.
- ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
- ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
- INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M).
- PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS, OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THAN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

**WIRING DIAGRAMS W/DPDT MICRO SWITCH**

DPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED PER TYPICAL EXAMPLES SHOWN, VERIFY WITH LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.

**CONNECTION TO BUILDINGS ALARM**

**CONNECTION TO COOKING EQUIPMENT SHUT DOWN**

**CONNECTION TO FAN SHUT DOWN**

**NOTES:**

1. \_\_\_\_\_ DENOTES FIELD INSTALLATION.
2. \_\_\_\_\_ DENOTES FACTORY INSTALLATION.
3. DO NOT USE BLACK WIRE OR SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEOUS ALARM, LIGHT CIRCUITS, ETC.

**ACCUREX**

PROJECT: 8/19/2022  
MARK: 31 FS

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MIDLAND CTE R4

**FIRE SYSTEM INFORMATION**

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
100 FS	ANSUL R-102 WET CHEMICAL	CABINET – LEFT END OF 100 HOOD	14 UTILIZED 22 AVAILABLE		CONTINUOUS	FUSIBLE LINK	100 HOOD SECTION 1 100 HOOD SECTION 2

**FIRE SYSTEM OPTIONS AND ACCESSORIES**

- FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
- CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
- METAL BLOW-OFF CAPS - INCLUDED
- GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200
- HOOD SUPPRESSION TANK - INCLUDED - 6 GAL. - [(2) 3.0 TANK(S)]
- REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS

**ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FS5C**

**CONTROL PANEL**

1. STAINLESS STEEL ENCLOSURE  
2. AGENT STORAGE TANK  
3. EXPELLENT GAS CARTRIDGE  
4. ANSUL AUTOMAN RELEASE  
5. REGULATOR  
6. KNOCKOUT FOR WIRING MICROSWITCH

23.5  
16.5  
7.5

**NOT TO SCALE**

**WIRING DIAGRAMS W/DPDT MICRO SWITCH**

DPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED PER TYPICAL EXAMPLES SHOWN. VERIFY WITH LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.

**CONNECTION TO BUILDINGS ALARM**

**CONNECTION TO COOKING EQUIPMENT SHUT DOWN**

**CONNECTION TO FAN SHUT DOWN**

DO NOT SHUT DOWN EXHAUST FANS WITH THIS METHOD OF WIRING, IF PROHIBITED BY LOCAL CODES.

**NOTES:**

WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.

- VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
- ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
- ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.

THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:

- GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
- MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

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- FULL DUMP TEST OTHER THAN WHAT IS SPECIFIED PER THE INSTALLATION MANUAL, OR TO SATISFY A STATE OR LOCAL CODE. PERMIT AND TESTING FEES ARE NOT INCLUDED UNLESS NOTED UNDER THE EQUIPMENT SCHEDULE FOR THE FIRE SYSTEM.
- MORE THAN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL DISTANCE IS FIRST 50 MI. (80.5 KM) FROM OFFICE.
- SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS
- INSTALLATION OF GAS SHUT-OFF VALVE.
- SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR PS APPROVAL STAMP.
- UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
- ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER), OR ACTIVATE AN ALARM SYSTEM, ETC.
- ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
- ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
- INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M).
- PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS, OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THEN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

**NOTES:**

- 1. \_\_\_\_\_ DENOTES FIELD INSTALLATION.
- 2. \_\_\_\_\_ DENOTES FACTORY INSTALLATION.
- 3. DO NOT USE BLACK WIRE OR SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEIOUS ALARM, LIGHT CIRCUITS, ETC.

PROJECT  
8/19/2022

MARK

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MIDLAND CTE R4

100 FS

**FIRE SYSTEM INFORMATION**

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
120, 140 FS	ANSUL R-102 WET CHEMICAL	CABINET – RIGHT END OF 120 HOOD	40 UTILIZED 44 AVAILABLE		CONTINUOUS	FUSIBLE LINK	120 HOOD SECTION 1
							120 HOOD SECTION 2
							140 HOOD SECTION 1
							140 HOOD SECTION 2

**FIRE SYSTEM OPTIONS AND ACCESSORIES**

FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)  
 CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED  
 METAL BLOW-OFF CAPS - INCLUDED  
 GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200  
 HOOD SUPPRESSION TANK - INCLUDED - 12 GAL. - [(4) 3.0 TANK(S)]  
 REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS

**ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FS5C**

**CONTROL PANEL**

**NOT TO SCALE**

**NOTES:**

WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.

- VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
- ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
- ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.

THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:

- GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
- MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

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- MORE THAN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL DISTANCE IS FIRST 50 MI. (80.5 KM) FROM OFFICE.
- SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS.
- INSTALLATION OF GAS SHUT-OFF VALVE.
- SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR PS APPROVAL STAMP.
- UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
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- ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
- INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M).
- PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS, OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THEN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

**WIRING DIAGRAMS W/DPDT MICRO SWITCH**

DPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED PER TYPICAL EXAMPLES SHOWN. VERIFY WITH LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.

**CONNECTION TO BUILDINGS ALARM**

**CONNECTION TO COOKING EQUIPMENT SHUT DOWN**

**CONNECTION TO FAN SHUT DOWN**

**NOTES:**

1. ——— DENOTES FIELD INSTALLATION.
2. ——— DENOTES FACTORY INSTALLATION.
3. DO NOT USE BLACK WIRE OR SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEOUS ALARM, LIGHT CIRCUITS, ETC.

**ACCUREX**

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**PROJECT**  
8/19/2022

**MARK**

**MIDLAND CTE R4**

120, 140 FS

UL LISTED  
CONFORMS TO UL 300

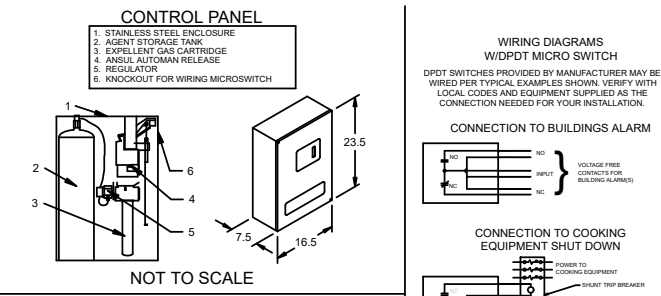
**FIRE SYSTEM INFORMATION**

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
125,126 FS	ANSUL R-102 WET CHEMICAL	CABINET – RIGHT END OF 125 HOOD	20 UTILIZED		CONTINUOUS	FUSIBLE LINK	125 HOOD SECTION 1 126 HOOD SECTION 1

**FIRE SYSTEM OPTIONS AND ACCESSORIES**

- FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
- CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
- METAL BLOW-OFF CAPS - INCLUDED
- GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200
- HOOD SUPPRESSION TANK - INCLUDED - 6 GAL. - [(2) 3.0 TANK(S)]
- REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS

**ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FS5C**



**NOT TO SCALE**

**NOTES:**

WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.

- VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
- ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
- ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.

THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:

- GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
- MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

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- INSTALLATION OF GAS SHUT-OFF VALVE.
- SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR PS APPROVAL STAMP.
- UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
- ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER), OR ACTIVATE AN ALARM SYSTEM, ETC.
- ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
- ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
- INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M).
- PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS, OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THEN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

**WIRING DIAGRAMS W/DPDT MICRO SWITCH**

DPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED PER TYPICAL EXAMPLES SHOWN, VERIFY WITH LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.

**CONNECTION TO BUILDINGS ALARM**

VOICED FIRE CONTACTS FOR BUILDING ALARM

**CONNECTION TO COOKING EQUIPMENT SHUT DOWN**

SHUNT TRIP BREAKER

POWER TO COOKING EQUIPMENT

ELECTRIC GAS VALVE - IF RESET RELAY IS USED USE OF FOLIA OR 2" AT RIGHT MECHANICAL GAS SHUT OFF VALVE DOES NOT REQUIRE ELECTRICAL CONNECTION.

**CONNECTION TO FAN SHUT DOWN**

POWER TO FAN SHUTTER

MANUAL SWITCH

DO NOT SHUT DOWN EXHAUST FANS WITH THIS METHOD OF WIRING, IF PROHIBITED BY LOCAL CODES.

**NOTES:**

- 1. \_\_\_\_\_ DENOTES FIELD INSTALLATION.
- 2. \_\_\_\_\_ DENOTES FACTORY INSTALLATION.
- 3. DO NOT USE BLACK WIRE OR SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEOUS ALARM, LIGHT CIRCUITS, ETC.

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PROJECT  
8/19/2022

MIDLAND CTE R4

MARK

125,126 FS

ACCUREX

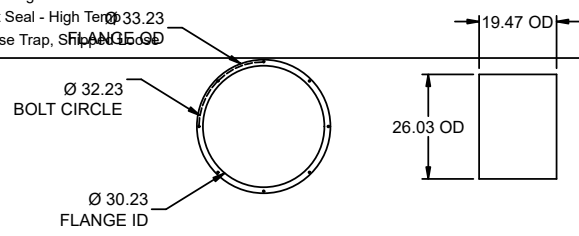
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	26.27 EF	XUEF-24	5,500	2.5	1,118	3.16	515	5	460/60/3	OP	1725	1	7.6

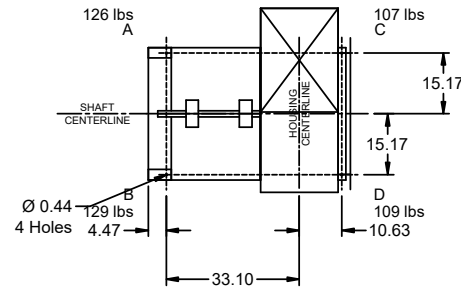
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory

26.27 EF : SELECTED OPTIONS AND ACCESSORIES

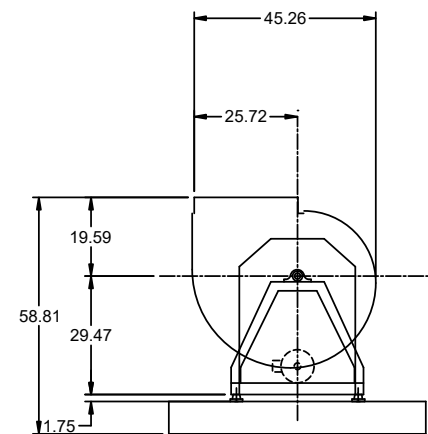
- Finish - Coated
- Coating - Permatecor, Concrete Gray-RAL 7023, Fan and Attached Accessories
- Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired
- Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A
- Rotation - CW
- Bearings - L(10) Life of 80k Hours
- Discharge Position - UB
- UL/cUL-762 Outdoor - Power Vent. for Restaurant Exhaust Appliances
- Polished Steel Shaft
- Access Door - Bolted
- Equipment Supports (Qty:2), GESI-64-4-G8, No Coating
- Drain Connection - 1" Pipe Thread w/Plug
- Inlet Connection, Punched
- Outlet Connection, Slip Fit
- Weatherhood - Steel
- Heat Slinger
- Shaft Seal - High Temp
- Grease Trap, Slip Fit



0.44 DIA. 8 HOLES INLET  
OUTLET  
CONNECTIONS



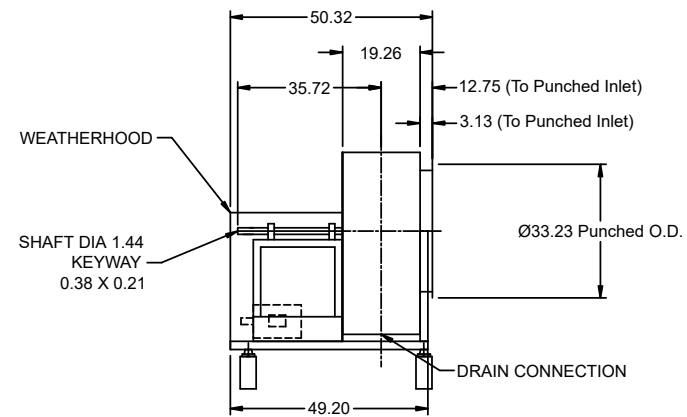
FAN FOOTPRINT



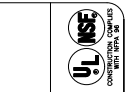
SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE

\*FANS ARE SUBJECT TO ±.125 INCH TOLERANCE  
\*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



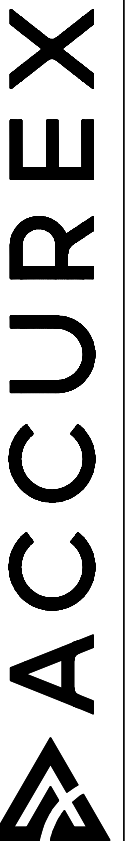
END VIEW



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MARK  
26.27 EF

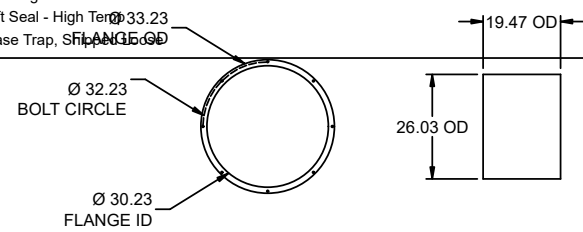
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION							MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*	
1	28,29 EF	XUEF-24	5,500	2.5	1,118	3.16	515	5	460/60/3	OP	1725	1	7.6	

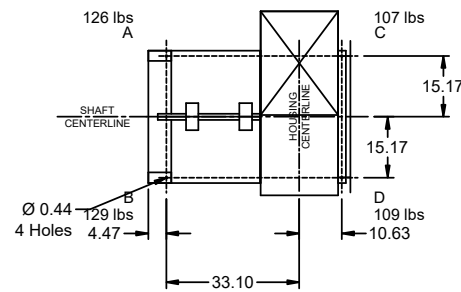
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory

28,29 EF : SELECTED OPTIONS AND ACCESSORIES

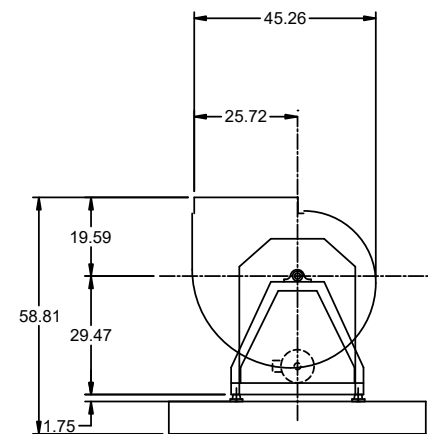
- Finish - Coated
- Coating - Permatecor, Concrete Gray-RAL 7023, Fan and Attached Accessories
- Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired
- Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A
- Rotation - CW
- Bearings - L(10) Life of 80k Hours
- Discharge Position - UB
- UL/cUL-762 Outdoor - Power Vent. for Restaurant Exhaust Appliances
- Polished Steel Shaft
- Access Door - Bolted
- Equipment Supports (Qty:2), GESI-64-4-G8, No Coating
- Drain Connection - 1" Pipe Thread w/Plug
- Inlet Connection, Punched
- Outlet Connection, Slip Fit
- Weatherhood - Steel
- Heat Slinger
- Shaft Seal - High Temp
- Grease Trap, Slip Fit



0.44 DIA. 8 HOLES INLET  
OUTLET  
CONNECTIONS



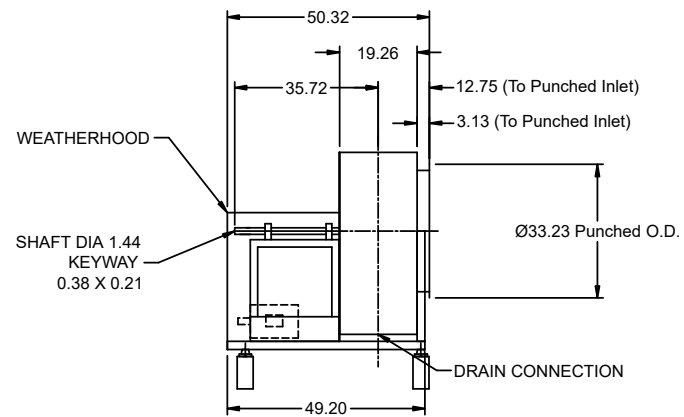
FAN FOOTPRINT



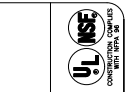
SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE

\*FANS ARE SUBJECT TO ±.125 INCH TOLERANCE  
\*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



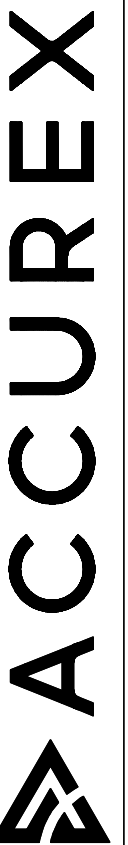
END VIEW



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MARK  
28,29 EF

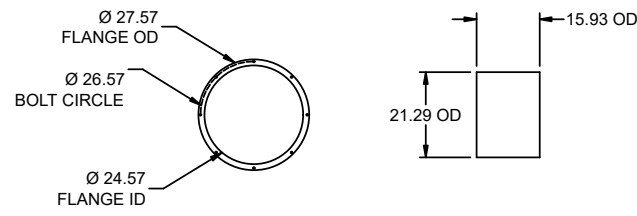
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	31 EF	XUEF-20	3,800	2.25	1,327	2.01	371	3	460/60/3	OP	1725	1	4.8

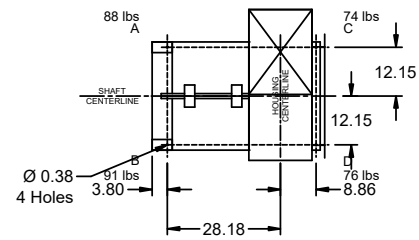
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory

31 EF : SELECTED OPTIONS AND ACCESSORIES

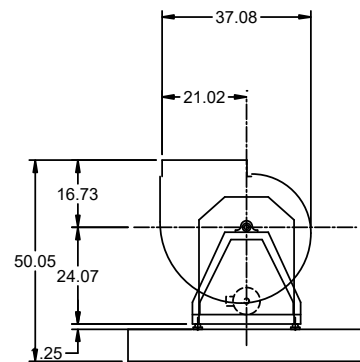
- Finish - Coated
- Coating - Permatecor, Concrete Gray-RAL 7023, Fan and Attached Accessories
- Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired
- Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A
- Rotation - CW
- Bearings - L(10) Life of 80k Hours
- Discharge Position - UB
- UL/cUL-762 Outdoor - Power Vent. for Restaurant Exhaust Appliances
- Polished Steel Shaft
- Access Door - Bolted
- Equipment Supports (Qty:2), GESI-59-4-G8, No Coating
- Drain Connection - 1" Pipe Thread w/Plug
- Inlet Connection, Punched
- Outlet Connection, Slip Fit
- Weatherhood - Steel
- Heat Slinger
- Shaft Seal - High Temp
- Grease Trap, Shipped Loose



0.44 DIA. 8 HOLES INLET  
OUTLET  
CONNECTIONS

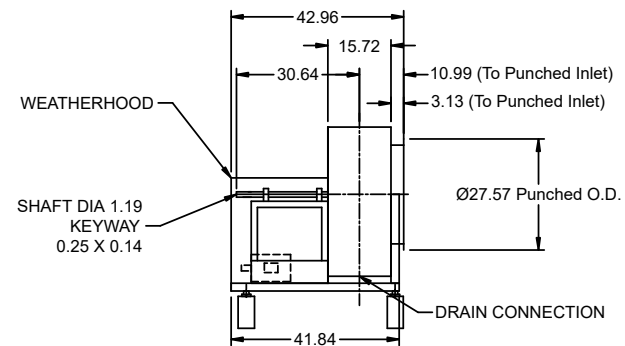


FAN FOOTPRINT



SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE



END VIEW

\*FANS ARE SUBJECT TO ±.125 INCH TOLERANCE

\*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE

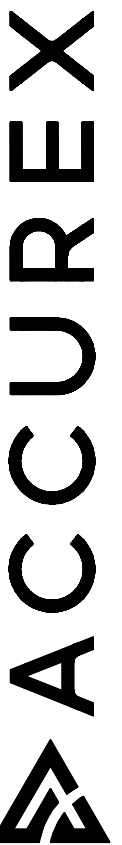


MIDLAND CTE R4

PROJECT  
8/19/2022

MARK  
31 EF

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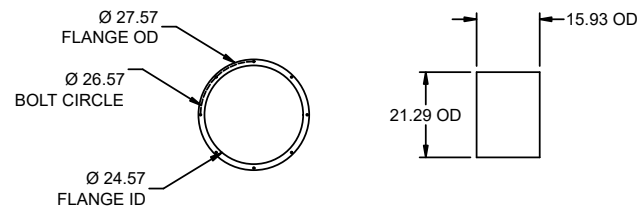
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	100 EF	XUEF-20	4,038	2.5	1,403	2.37	390	5	460/60/3	TF	1725	1	7.6

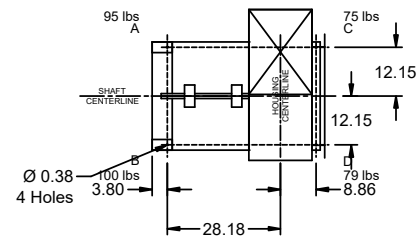
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory

100 EF : SELECTED OPTIONS AND ACCESSORIES

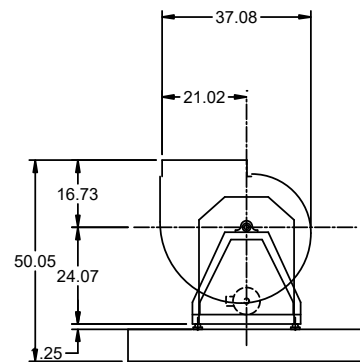
- Finish - Coated
- Coating - Permatecor, Concrete Gray-RAL 7023, Fan and Attached Accessories
- Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired
- Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A
- Rotation - CW
- Bearings - L(10) Life of 80k Hours
- Discharge Position - UB
- UL/cUL-762 Outdoor - Power Vent. for Restaurant Exhaust Appliances
- Polished Steel Shaft
- Access Door - Bolted
- Equipment Supports (Qty:2), GESI-59-4-G8, No Coating
- Drain Connection - 1" Pipe Thread w/Plug
- Inlet Connection, Punched
- Outlet Connection, Slip Fit
- Weatherhood - Steel
- Heat Slinger
- Shaft Seal - High Temp
- Grease Trap, Shipped Loose



0.44 DIA. 8 HOLES INLET  
OUTLET  
CONNECTIONS

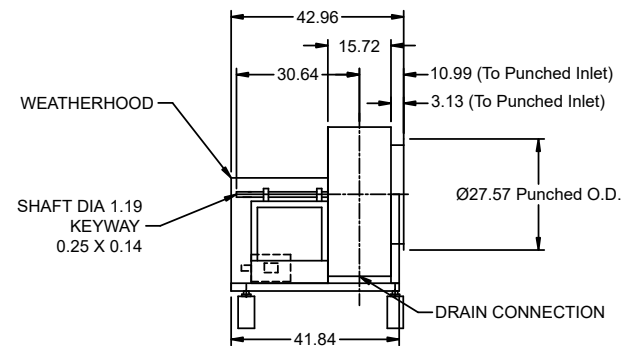


FAN FOOTPRINT



SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE



END VIEW

\*FANS ARE SUBJECT TO ±.125 INCH TOLERANCE

\*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



MIDLAND CTE R4

PROJECT  
8/19/2022

MARK  
100 EF

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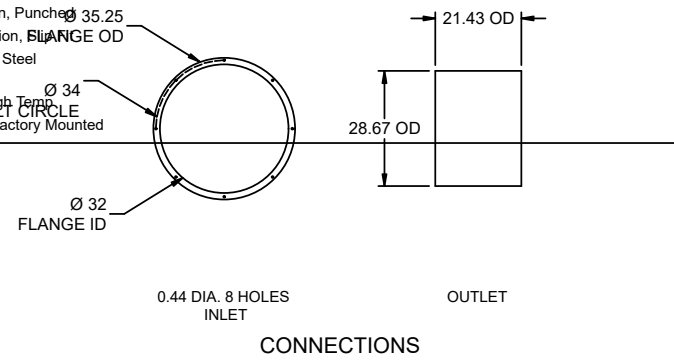
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	120,140 EF	XUEF-27	7,284	2.6	1,040	4.19	870	7.5	460/60/3	TF	1725	1	11

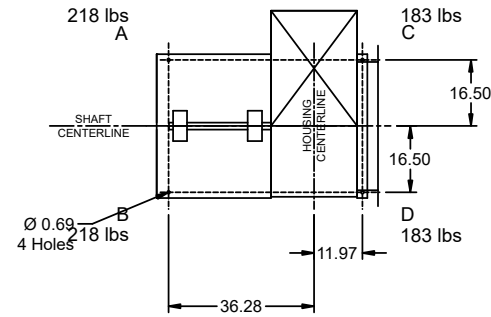
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory"

120,140 EF : SELECTED OPTIONS AND ACCESSORIES

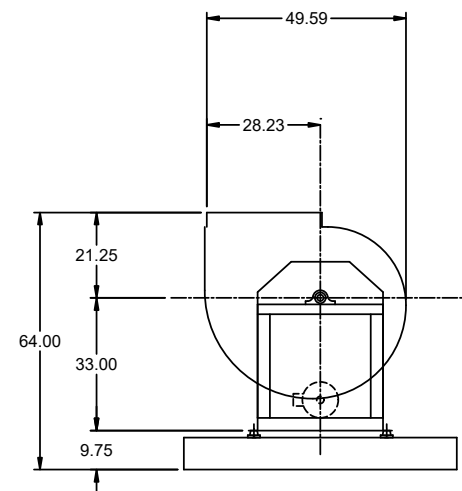
- Finish - Coated
- Coating - Permatecor, Concrete Gray-RAL 7023, Fan and Attached Accessories
- Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Ship Separate
- Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A
- Rotation - CW
- Bearings - L(10) Life of 80k Hours
- Discharge Position - UB
- UL/cUL-762 Outdoor - Power Vent. for Restaurant Exhaust Appliances
- Polished Steel Shaft
- Access Door - Bolted
- Equipment Supports (Qty:2), GESI-68-4-G8, No Coating
- Drain Connection - 1" Pipe Thread w/Plug
- Inlet Connection, Punched  $\phi$  35.25
- Outlet Connection, Flange OD
- Weatherhood - Steel
- Heat Slinger
- Shaft Seal - High Temp
- Bolt Circle
- Grease Trap, Factory Mounted



CONNECTIONS

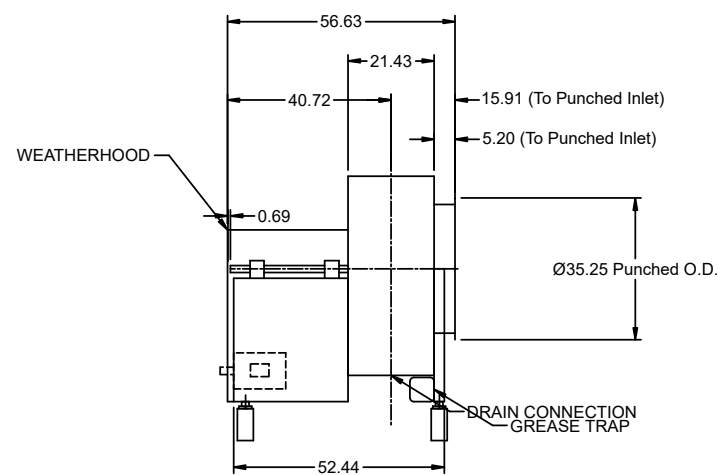


FAN FOOTPRINT

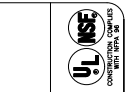


SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE



END VIEW



MIDLAND CTE R4

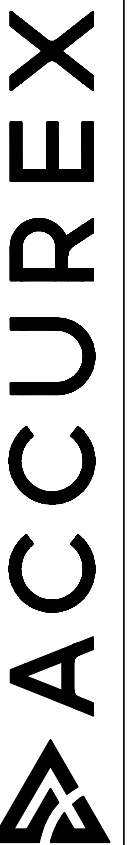
120,140 EF

PROJECT

8/19/2022

MARK

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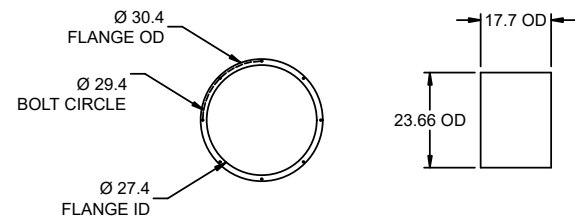
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	125,126 EF	XUEF-22	4,513	2.6	1,242	2.7	451	5	460/60/3	TF	1725	1	7.6

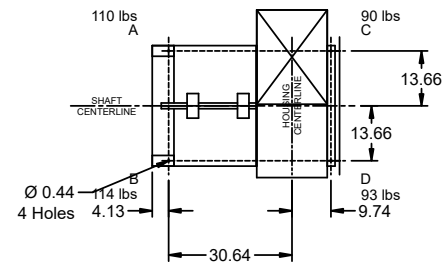
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory"

125,126 EF : SELECTED OPTIONS AND ACCESSORIES

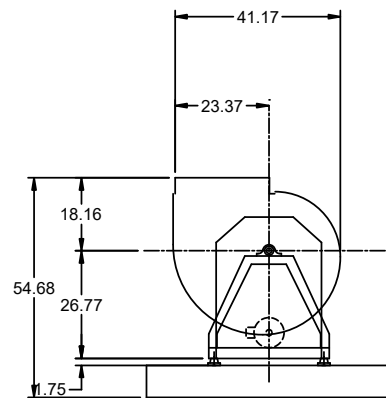
- Finish - Coated
- Coating - Permator, Concrete Gray-RAL 7023, Fan and Attached Accessories
- Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired
- Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A
- Rotation - CW
- Bearings - L(10) Life of 80k Hours
- Discharge Position - UB
- UL/cUL-762 Outdoor - Power Vent. for Restaurant Exhaust Appliances
- Polished Steel Shaft
- Access Door - Bolted
- Equipment Supports (Qty:2), GESI-61-4-G8, No Coating
- Drain Connection - 1" Pipe Thread w/Plug
- Inlet Connection, Punched
- Outlet Connection, Slip Fit
- Weatherhood - Steel
- Heat Slinger
- Shaft Seal - High Temp
- Grease Trap, Shipped Loose



0.44 DIA. 8 HOLES INLET  
OUTLET  
CONNECTIONS



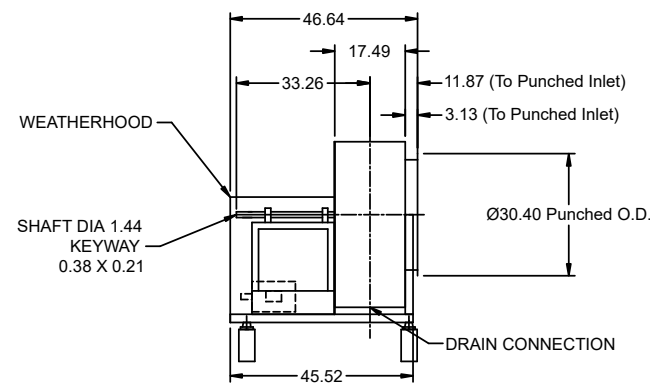
FAN FOOTPRINT



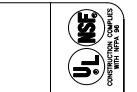
SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE

\*FANS ARE SUBJECT TO ±.125 INCH TOLERANCE  
\*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



END VIEW



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PROJECT  
8/19/2022

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MARK  
125,126 EF

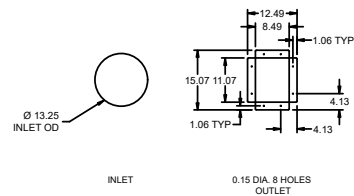
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	57 EF-Dish	XUEF-08	600	1.15	1,835	0.31	166	0.5	115/60/1	TF	1725	1	9.8

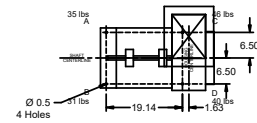
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory"

57 EF-Dish : SELECTED OPTIONS AND ACCESSORIES

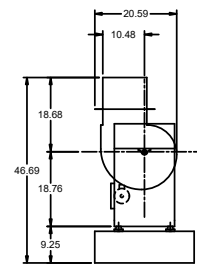
Finish - Galvanized  
 Galvanized Finish on Steel Components  
 Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired  
 Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A  
 Discharge Position - UB  
 Bearings - L(10) Life of 80k Hours  
 UL/cUL-705 - "Power Ventilators"  
 Polished Steel Shaft  
 Access Door - Bolted  
 Equipment Supports (Qty:2), GESI-25-4-G8, No Coating  
 Damper, Gravity, WD-340, Galv. Blade, 8.4x11.3, Parallel, w/ Mill Finish  
 Drain Connection - 1" Drain Hole, Unthreaded  
 Inlet Connection, Slip Fit  
 Outlet Flange, Punched  
 Weatherhood - Galvanized Construction  
 Extended Lube Lines - Nylon  
 Shaft Seal - Aluminum



CONNECTIONS



FAN FOOTPRINT

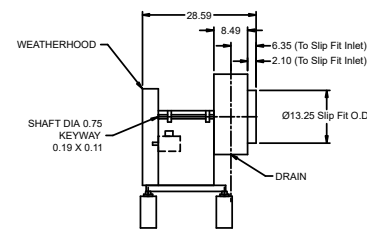


SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE

\*FANS ARE SUBJECT TO ± 12% INCH TOLERANCE

\*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



END VIEW

\*OUTLET DIMENSION SHOWS FAN WITH DAMPER OPERATING CLEARANCE

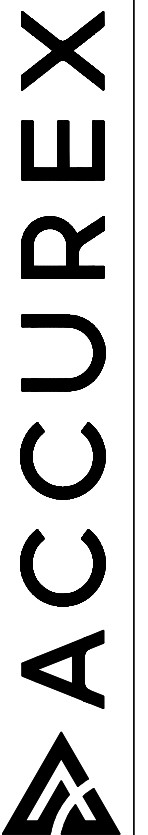


MIDLAND CTE R4

PROJECT  
8/19/2022

MARK  
57 EF-DISH

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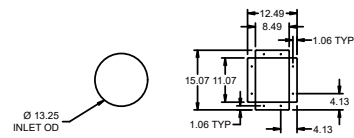
Universal Single Width Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	132 EF-Dish	XUEF-08	600	1.3	1,923	0.35	166	0.5	115/60/1	TF	1725	1	9.8

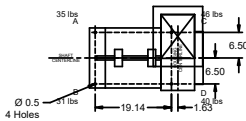
\*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory"

132 EF-Dish : SELECTED OPTIONS AND ACCESSORIES

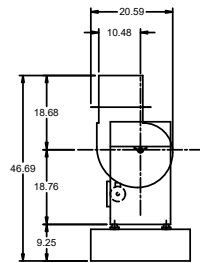
Finish - Galvanized  
 Galvanized Finish on Steel Components  
 Switch - NEMA-3R, Toggle, For Indoor or Outdoor Use, Mounted and Wired  
 Direct Mount Isolators, Isolator-Rubber Mount, 0.50 Inch, Base Coating - N/A  
 Discharge Position - UB  
 Bearings - L(10) Life of 80k Hours  
 UL/cUL-705 - "Power Ventilators"  
 Polished Steel Shaft  
 Access Door - Bolted  
 Equipment Supports (Qty:2), GESI-25-4-G8, No Coating  
 Damper, Gravity, WD-340, Galv. Blade, 8.4x11.3, Parallel, w/ Mill Finish  
 Drain Connection - 1" Drain Hole, Unthreaded  
 Inlet Connection, Slip Fit  
 Outlet Flange, Punched  
 Weatherhood - Galvanized Construction  
 Extended Lube Lines - Nylon  
 Shaft Seal - Aluminum



CONNECTIONS



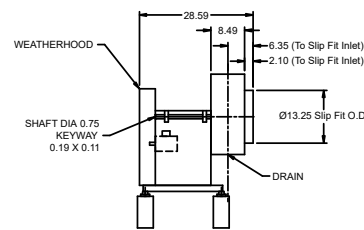
FAN FOOTPRINT



SIDE VIEW

\*SIDE VIEW IS VIEWED FROM DRIVE SIDE

\*FANS ARE SUBJECT TO ± 12% INCH TOLERANCE  
 \*DUE TO CONTINUAL IMPROVEMENTS DIMENSIONS MAY CHANGE



END VIEW

\*OUTLET DIMENSION SHOWS FAN WITH DAMPER OPERATING CLEARANCE

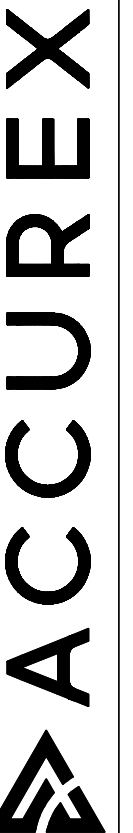


MIDLAND CTE R4

PROJECT  
8/19/2022

MARK  
132 EF-DISH

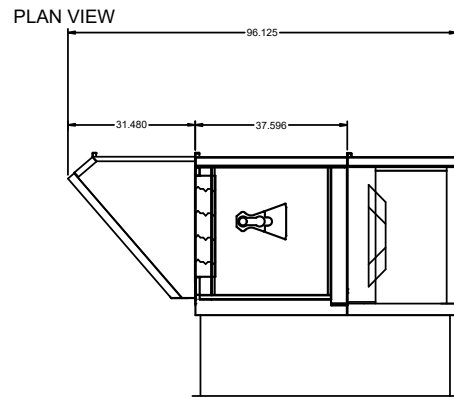
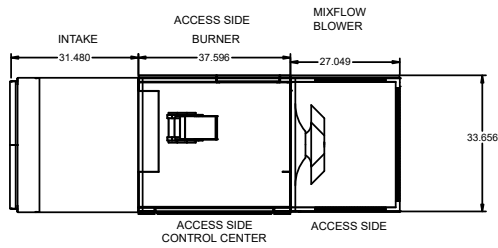
ACCUREX CENTRAL, NORTHERN OH MI  
 JOSH GARLITZ  
 JOSH.GARLITZ@ACCUREX.COM  
 (419)707-3685



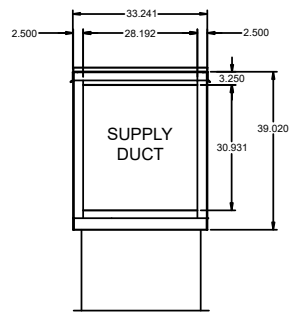
EQUIPMENT SCHEDULE										
Tempered Make-Up Air Unit										
Qty	Accurex Model	Volume	External SP	Total SP	FRPM	Operating Power	Weight	Mark: 26.27 MUA		
1	XDGX-P116-H12-MF	4,676 CFM	0.55 in. wg	1,628 in. wg	1868	2.21 hp	698 lb			
Motor Information										
Size	V/C/P	Enclosure	Motor HP	Motor RPM	Windings	MCA	MOP			
3 hp	460/60/3	ODP	No	1725	1	6.3	15			
Heating										
Type	Gas Type	Temperature			Energy	Connection	Building	Control		
Direct Gas	Natural	Winter DB	Max Δ	Max LAT	Input	Output	Efficiency	Gas	Pressure	
		6.0 F	64.0 F	70.0 F	351.3 MSH	323.2 MSH	92%	3/4"	1/2 PSI	
Outlet Sound Power By Octave Band										
dB	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
81.8	78.4	76.6	78.7	78.9	75.7	74.2	71.7	83.3	72.3	20.4

**OPTIONS AND ACCESSORIES**

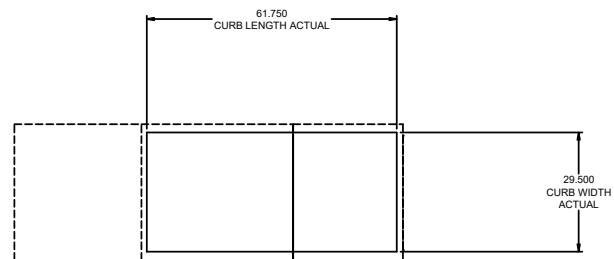
Air Flow Arrangement: Outdoor Air Only  
 Weatherhood: Aluminum Mesh, 16x20x2 - (4)  
 Damper: Inlet  
 Outdoor Air Intake Position: End  
 Discharge Position: End  
 Coating: Galvanized  
 Insulation: Double Wall - Tempering On  
 Supply Fan Control: VFD  
 VFD Control: Constant Volume  
 Access Side: Right-Hand  
 Control Center  
 Heat Inlet Air Sensor  
 Unit Controls: Terminal Strip  
 Temperature Control: Discharge  
 Direct Gas Options/Accessories  
 Approvals: ETL  
 FM Compliant  
 Flame Sensing: Flame Rod  
 Ignition Control: Pilot  
 Unit Rated Gas Pressure: 1/2 PSI  
 Unit Warranty: 1 Yr (Standard)



ELEVATION VIEW



END VIEW



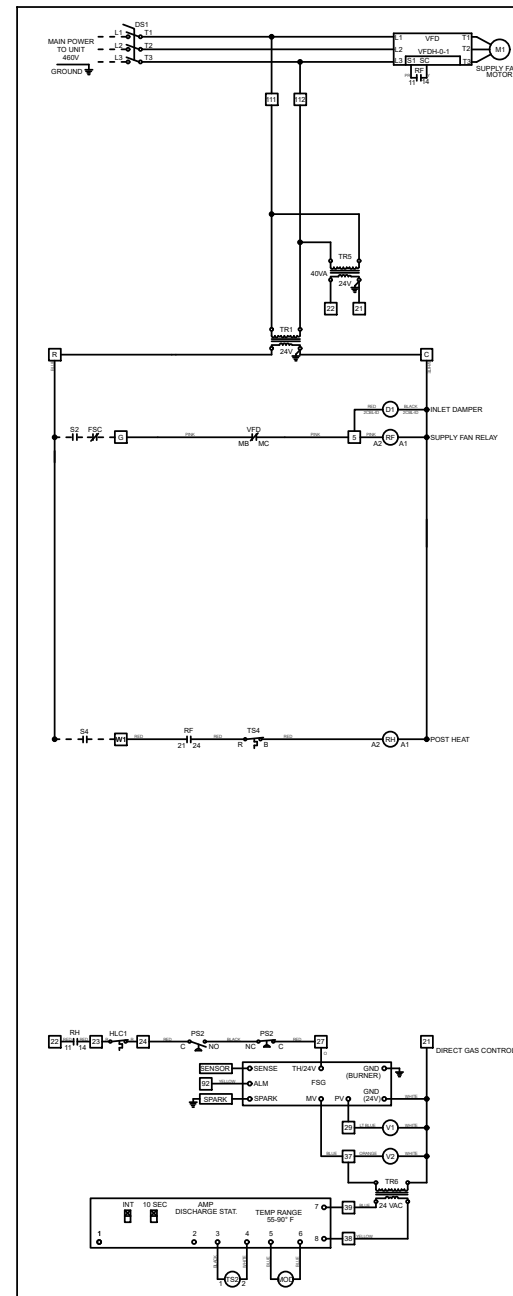
NOTE: Roof Opening Requirements:

Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides.  
 For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

Maximum Roof Opening: There must be a minimum perimeter of 1.75 in. between the roof opening and the roof curb.  
 For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.

NOTE: The weatherhood and filter sections of the make-up air unit are not supported by the curb.  
 This is by design, in order to help alleviate water infiltration issues.

FOOTPRINT



Wiring Diagram Code:  
**AD61N601B010N10NM24**

**CAUTION**  
 UNIT SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. POWER MUST BE OFF WHILE SERVICING.

**NOTES**  
 USE COPPER CONDUCTORS ONLY  
 60°C FOR TERMINALS RATED LESS THAN 100 AMPS.  
 75°C FOR TERMINALS RATED 100 AMPS OR MORE.  
 FIELD CONTROL WIRING RESISTANCE SHOULD NOT EXCEED 0.75 OHM.  
 FIELD WIRED - - - - -  
 FACTORY SUPPLIED AND WIRED - - - - -

**WIRE COLOR CODE**  
 BK BLACK, BR BROWN, BL BLUE, LT BL LIGHT BLUE, O ORANGE, GR GRAY, LT BL LIGHT BLUE, P PURPLE, R RED, PK PINK, PR PURPLE, Y YELLOW, W WHITE

**LEGEND**  
 AMP AMP LIFIER, D1 INLET DAMPER, D31 MAIN DISCONNECT SWITCH, FSC FIRE SYSTEM CONTACT, FSG FLAME SAFE GUARD, H.C. HIGH LIMIT CONTROL, M MOTOR, MOD MODULATING VALVE, P2 AIR PROVING SWITCH, RF SUPPLY FAN RELAY, RH HEAT RELAY, S2 FAN SWITCH, S4 HEAT AND COOL SWITCH, SG SPARK GENERATOR, ST MOTOR STARTER, TR TRANSFORMER, TS DISCHARGE AIR SENSOR, T2 INLET AIR SENSOR - HEAT, V1 PILOT VALVE, V2 MAIN VALVE, V3 VARIABLE FREQUENCY DRIVE

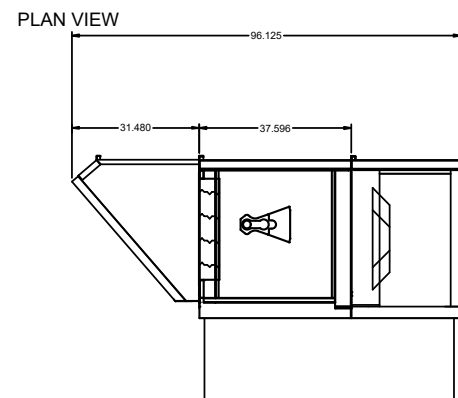
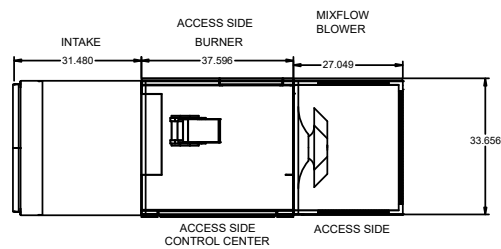
**ACCUREX**

PROJECT: 8/19/2022  
 MARK: MIDLAND CTE R4  
 26.27 MUA

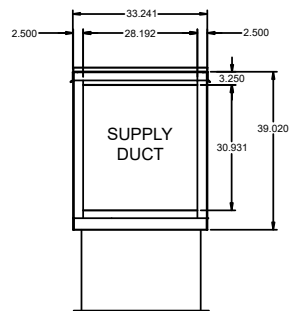
ACCUREX CENTRAL, NORTHERN OH MI  
 JOSH GARLITZ  
 JOSH.GARLITZ@ACCUREX.COM  
 (419)707-3685

**ACCUREX**

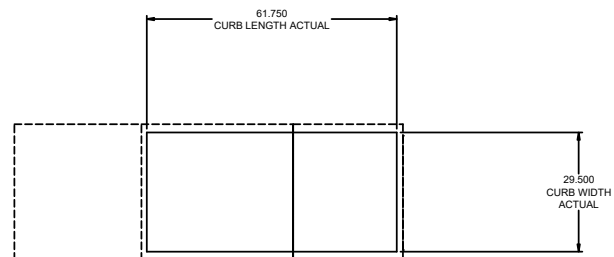
EQUIPMENT SCHEDULE										OPTIONS AND ACCESSORIES														
<b>Tempered Make-Up Air Unit</b>										Air Flow Arrangement: Outdoor Air Only														
Mark: 28.29 MUA										Weatherhood: Aluminum Mesh, 16x20x2 - (4)														
Qty										Dampers: Inlet														
Accurex Model										Outdoor Air Intake Position: End														
Volume										Discharge Position: End														
External SP										Coating: Galvanized														
Total SP										Insulation: Double Wall - Tempering On														
FRPM										Supply Fan Control: VFD														
Operating Power										VFD Control: Constant Volume														
Weight										Access Side: Right-Hand														
Control Center										Control Center														
Heat Inlet Air Sensor										Unit Controls: Terminal Strip														
Temperature Control: Discharge										Direct Gas Options/Accessories														
Approvals: ETL										FM Compliant														
Flame Sensing: Flame Rod										Ignition Control: Pilot														
Unit Rated Gas Pressure: 1/2 PSI										Unit Warranty: 1 Yr (Standard)														
Unit Weight: 698 lb																								
<b>Motor Information</b>										<b>Heating</b>														
Size	V/C/P	Enclosure	Motor HP	Motor RPM	Winding	MCA	MOP	Type	Gas Type	Temperature	Energy	Connection	Building	Control										
3 hp	460/60/3	ODP	No	1725	1	6.3	15	Direct Gas	Natural	Winter DB	Max Δ	Max LAT	Input	Output	Efficiency	Gas	Pressure	Access						
										6.0 F	64.0 F	70.0 F	351.3 MSH	323.2 MSH	92%	3/4"	1/2 PSI	11a						
<b>Outlet Sound Power By Octave Band</b>																								
82.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones														
81.8	78.4	76.6	78.7	78.9	75.7	74.2	71.7	83.3	72.3	20.4														



ELEVATION VIEW



END VIEW



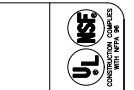
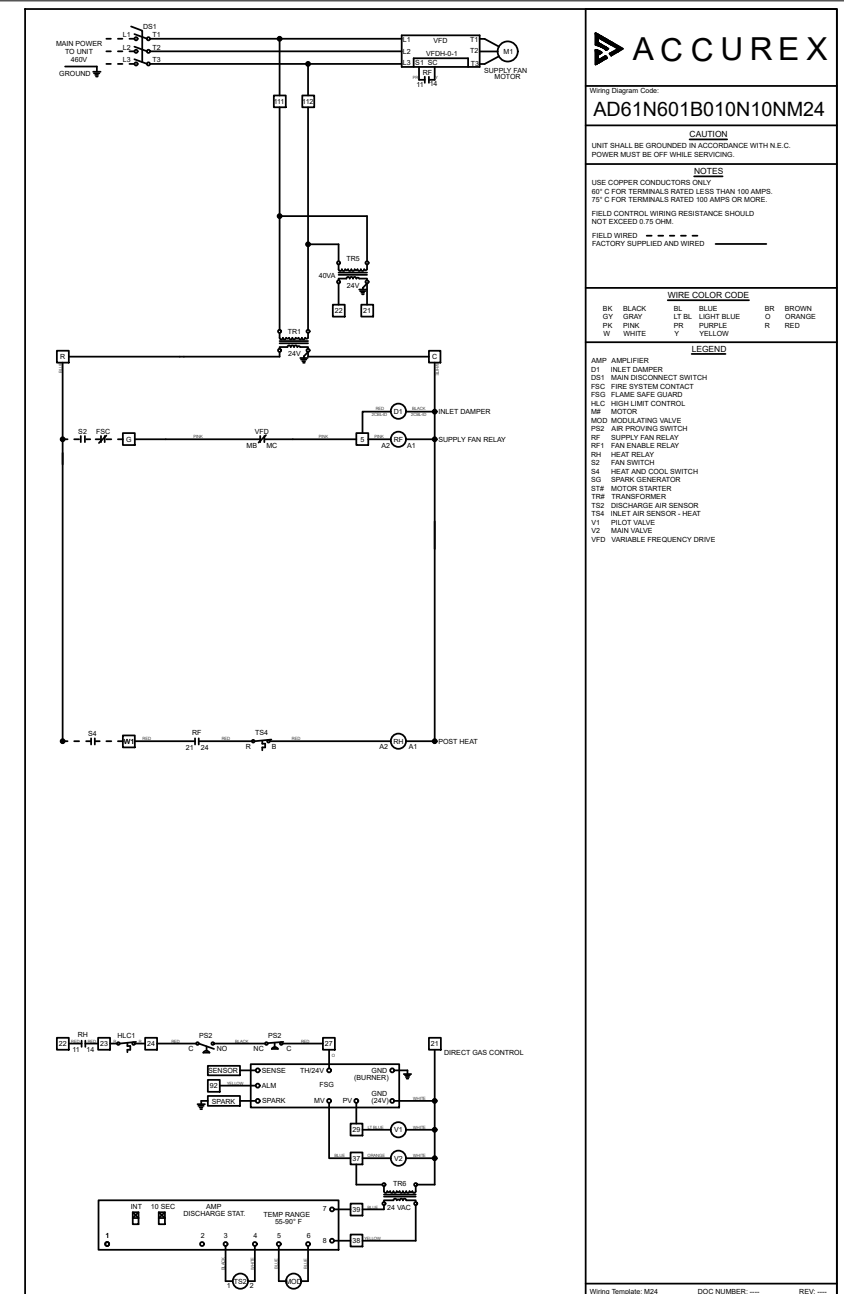
FOOTPRINT

NOTE: Roof Opening Requirements:

Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides. For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

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NOTE: The weatherhood and filter sections of the make-up air unit are not supported by the curb. This is by design, in order to help alleviate water infiltration issues.



MIDLAND CTE R4

PROJECT

8/19/2022

MARK

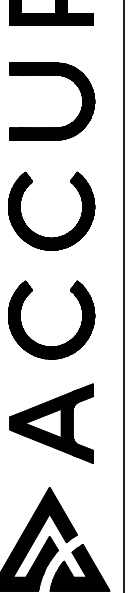
ACCUREX CENTRAL, NORTHERN OH MI

JOSH GARLITZ

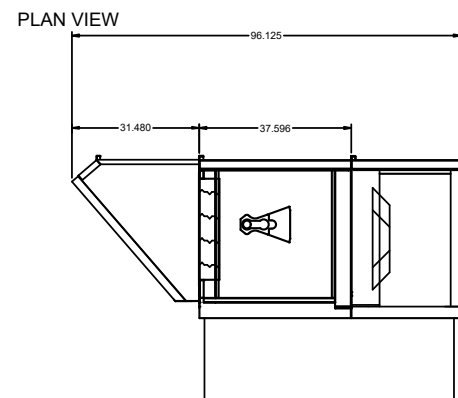
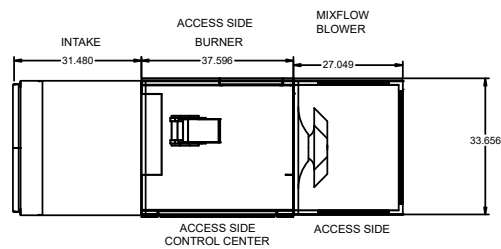
JOSH.GARLITZ@ACCUREX.COM

(419)707-3685

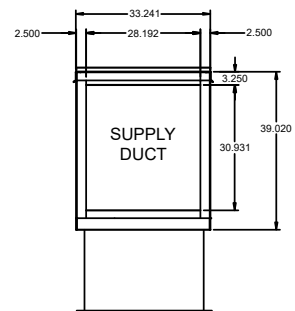
28.29 MUA



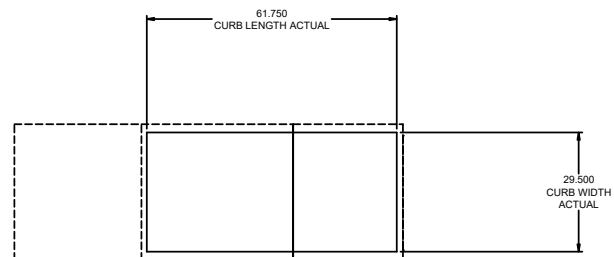
EQUIPMENT SCHEDULE										OPTIONS AND ACCESSORIES									
<b>Tempered Make-Up Air Unit</b>										Air Flow Arrangement: Outdoor Air Only Weatherhood: Aluminum Mesh, 16x20x2 - (4) Dampers: Inlet Outdoor Air Intake Position: End Discharge Position: End Coating: Galvanized Insulation: Double Wall - Tempering On Supply Fan Control: VFD VFD Control: Constant Volume Access Side: Right-Hand Control Center Heat Inlet Air Sensor Unit Controls: Terminal Strip Temperature Control: Discharge Direct Gas Options/Accessories Approvals: ETL FM Compliant Flame Sensing: Flame Rod Ignition Control: Pilot Unit Rated Gas Pressure: 1/2 PSI Unit Warranty: 1 Yr (Standard)									
Mark: 31 MUA																			
Qty	Accurex Model	Volume	External SP	Total SP	FRPM	Operating Power	Weight												
1	XDGX-P116-H12-MF	3,230 CFM	0.55 in. wg	1,391 in. wg	1531	1.26 hp	654 lb												
<b>Motor Information</b>																			
Size	V/C/P	Enclosure	Motor HP	Motor RPM	Windings	MCA	MOP												
1 1/2 hp	460/60/3	ODP	No	1725	1	4.1	15												
<b>Heating</b>																			
Type	Gas Type	Temperature			Energy		Connection	Building	Control										
Direct Gas	Natural	Winter DB	Max Δ	Max LAT	Input	Output	Efficiency	Gas	Pressure	Access									
		6.0 F	64.0 F	70.0 F	242.7 MBH	223.3 MBH	92%	3/4"	1/2 PSI	11a									
<b>Outlet Sound Power By Octave Band</b>																			
62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones									
78.5	74.7	72.5	73.7	73.3	71	69.3	71.4	78.7	67.7	16.8									



ELEVATION VIEW



END VIEW



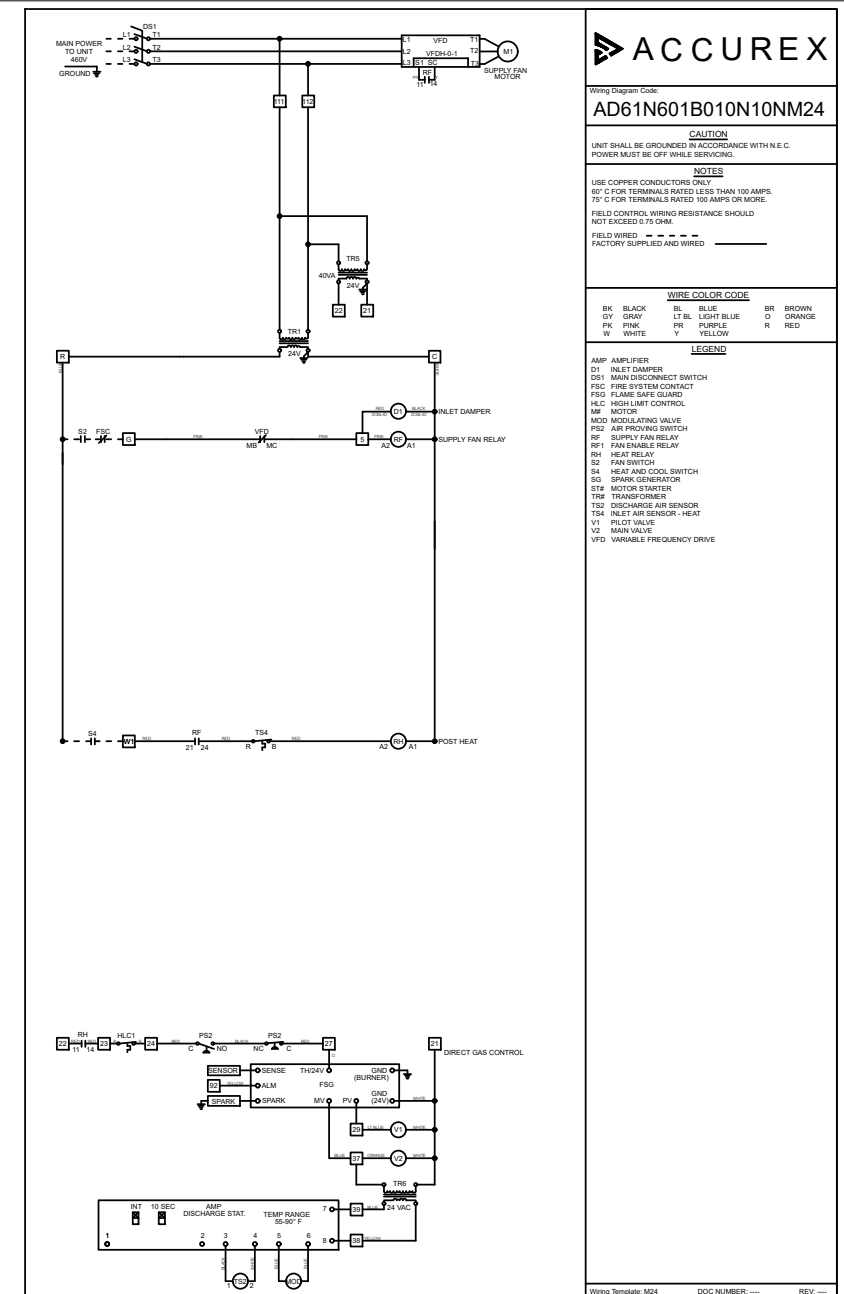
FOOTPRINT

NOTE: Roof Opening Requirements:

Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides.  
For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

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For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.

NOTE: The weatherhood and filter sections of the make-up air unit are not supported by the curb.  
This is by design, in order to help alleviate water infiltration issues.

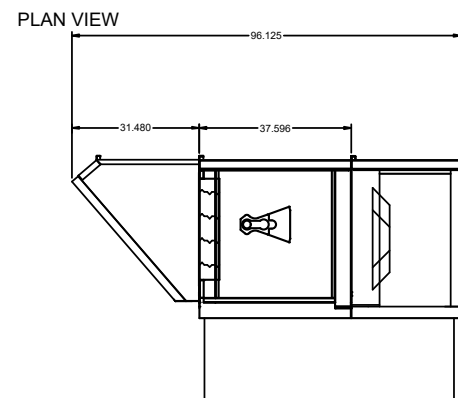
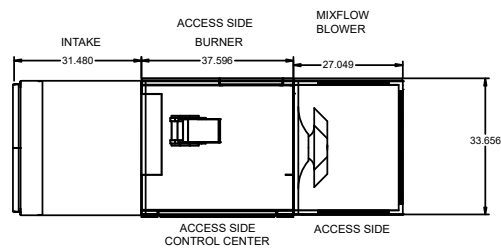




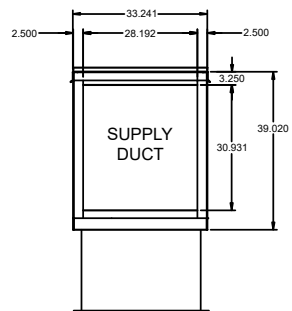
EQUIPMENT SCHEDULE											
Tempered Make-Up Air Unit											
Qty	Accurex Model	Volume	External SP	Total SP	FRPM	Operating Power	Weight	Mark: 100 MUA			
1	XDGX-P116-H12-MF	3,432 CFM	0.55 in. wg	1,419 in. wg	1575	1.37 hp	678 lb				
Motor Information											
Size	V/C/P	Enclosure	Motor HP	Motor RPM	Windings	MCA	MOP				
2 hp	460/60/3	ODP	No	1725	1	4.6	15				
Heating											
Type	Gas Type	Temperature			Energy	Connection	Building Gas Pressure	Control Access			
Direct Gas	Natural	Winter DB	Max Δ	Max LAT	Input	Output	Efficiency	3/4"	1/2 PSI	11a	
		6.0 F	64.0 F	70.0 F	257.9 MSH	237.2 MSH	92%				
Outlet Sound Power By Octave Band											
	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
	79	74.7	73.2	74.6	74.1	71.7	70.1	71.2	79.4	68.4	17.3

**OPTIONS AND ACCESSORIES**

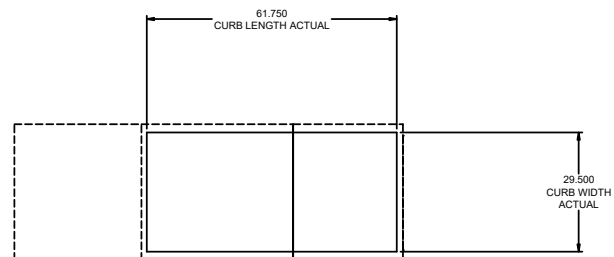
Air Flow Arrangement: Outdoor Air Only  
 Weatherhood: Aluminum Mesh, 16x20x2 - (4)  
 Damper: Inlet  
 Outdoor Air Intake Position: End  
 Discharge Position: End  
 Coating: Galvanized  
 Insulation: Double Wall - Tempering On  
 Supply Fan Control: VFD  
 VFD Control: Constant Volume  
 Access Side: Right-Hand  
 Control Center  
 Heat Inlet Air Sensor  
 Unit Controls: Terminal Strip  
 Temperature Control: Discharge  
 Direct Gas Options/Accessories  
 Approvals: ETL  
 FM Compliant  
 Flame Sensing: Flame Rod  
 Ignition Control: Pilot  
 Unit Rated Gas Pressure: 1/2 PSI  
 Unit Warranty: 1 Yr (Standard)



ELEVATION VIEW



END VIEW



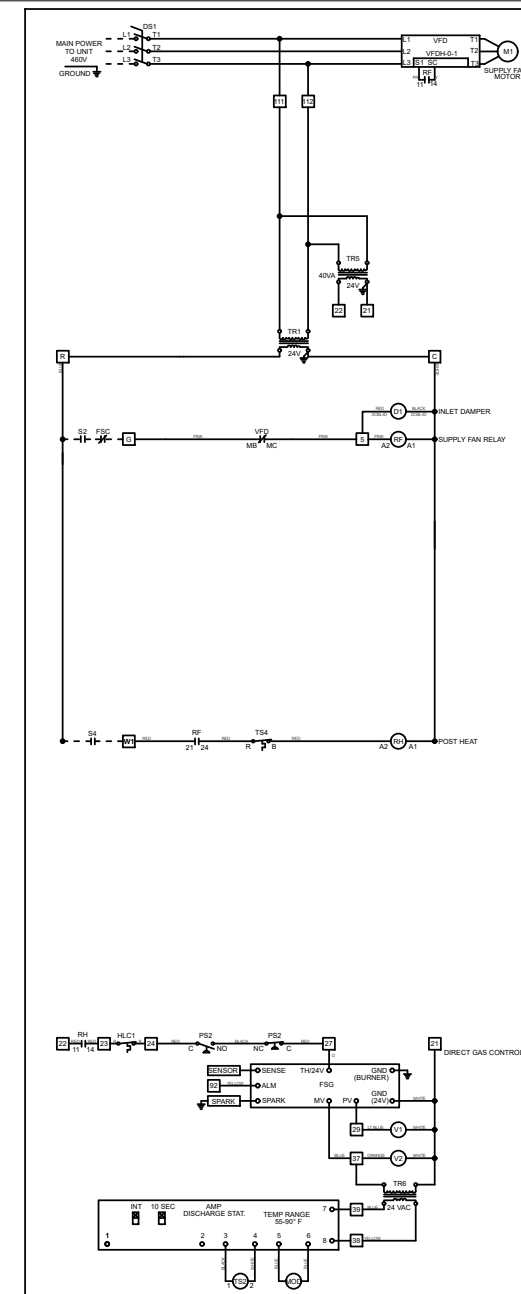
FOOTPRINT

**NOTE: Roof Opening Requirements:**

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 For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

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 For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.

**NOTE:** The weatherhood and filter sections of the make-up air unit are not supported by the curb.  
 This is by design, in order to help alleviate water infiltration issues.



Wiring Diagram Code:  
**AD61N601B010N10NM24**

**CAUTION**  
 UNIT SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. POWER MUST BE OFF WHILE SERVICING.

**NOTES**  
 USE COPPER CONDUCTORS ONLY  
 60°C FOR TERMINALS RATED LESS THAN 100 AMPS.  
 75°C FOR TERMINALS RATED 100 AMPS OR MORE.  
 FIELD CONTROL WIRING RESISTANCE SHOULD NOT EXCEED 0.75 OHM.  
 FIELD WIRED - - - - -  
 FACTORY SUPPLIED AND WIRED - - - - -

**WIRE COLOR CODE**  
 BK BLACK, BR BROWN, BL BLUE, LT BL LIGHT BLUE, O ORANGE, GR GRAY, LT BL LIGHT BLUE, R RED, PK PINK, PR PURPLE, W WHITE, Y YELLOW

- LEGEND**
- AMP AMP LIFIER
  - D1 INLET DAMPER
  - D31 MAIN DISCONNECT SWITCH
  - FSC FIRE SYSTEM CONTACT
  - FSG FLAME SAFE GUARD
  - H.C. HIGH LIMIT CONTROL
  - MF MOTOR
  - MOD MODULATING VALVE
  - PI2 AIR PROVING SWITCH
  - RF SUPPLY FAN RELAY
  - RH HEAT RELAY
  - S2 FAN SWITCH
  - S4 HEAT AND COOL SWITCH
  - SG SPARK GENERATOR
  - T1F TRANSFORMER
  - STA MOTOR STARTER
  - T2S DISCHARGE AIR SENSOR
  - T2S INLET AIR SENSOR - HEAT
  - V1 PILOT VALVE
  - V2 MAIN VALVE
  - VFD VARIABLE FREQUENCY DRIVE

**ACCUREX**

MIDLAND CTE R4

PROJECT: 8/19/2022

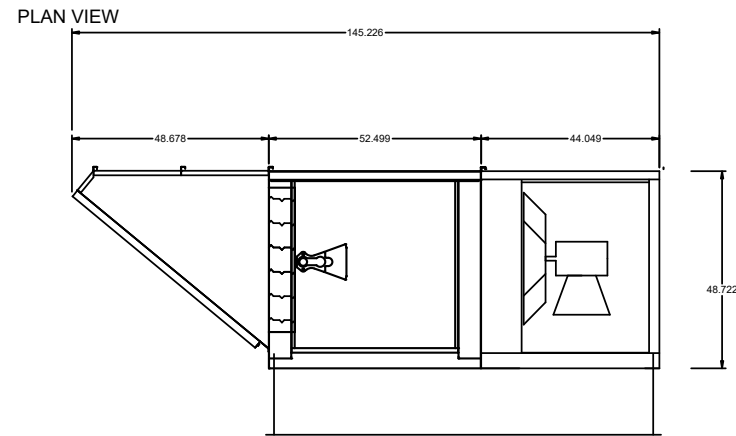
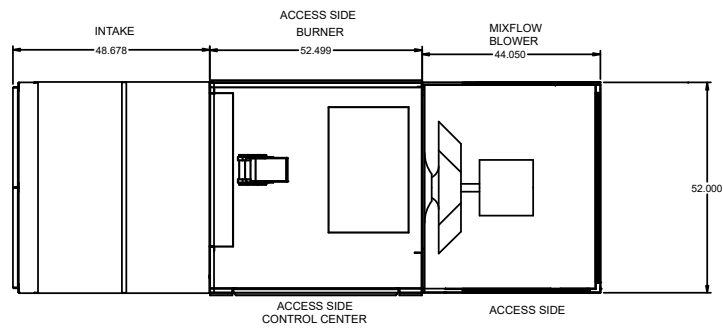
MARK: 100 MUA

ACCUREX CENTRAL, NORTHERN OH MI  
 JOSH GARLITZ  
 JOSH.GARLITZ@ACCUREX.COM  
 (419)707-3685

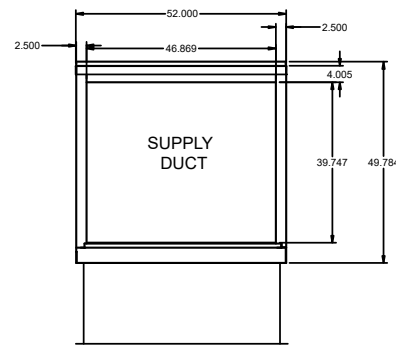
**ACCUREX**

EQUIPMENT SCHEDULE										OPTIONS AND ACCESSORIES
Tempered Make-Up Air Unit										Mark: 120,125,126,140 MUA
Qty	Accurex Model	Volume	External SP	Total SP	FRPM	Operating Power	Weight			
1	XDGX-P127-H32-MF	10,028 CFM	0.6 in. wg	1,548 in. wg	1007	4.3 hp	1,215 lb			
Motor Information										
Size	V/C/P	Enclosure	Motor with Enclosure	Motor RPM	Windings	MCA	MOP			
7 1/2 hp	460/60/3	ODP	No	1180	1	14.6	25			
Heating										
Type	Gas Type	Temperature			Energy		Connection	Building Gas Pressure	Control Access	
Direct Gas	Natural	Winter DB	Max Δ	Max LAT	Input	Output	Efficiency	1"	1/2 PSI	11a
		6.0 F	64.0 F	70.0 F	753.4 MBH	693.1 MBH	92%			
Outlet Sound Power By Octave Band										
dB	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
62.5	75.6	80.5	85.4	77.6	75.4	76	67.3	85.4	74.4	20.8

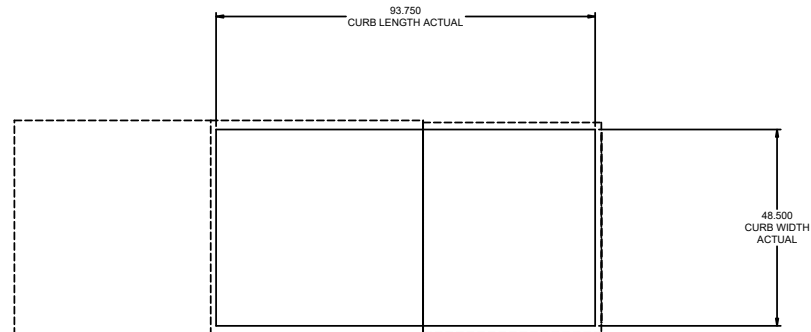
Air Flow Arrangement: Outdoor Air Only  
 Weatherhood: Aluminum Mesh, 20x25x2 - (6)  
 Damper: Inlet  
 Outdoor Air Intake Position: End  
 Discharge Position: End  
 Coating: Galvanized  
 Insulation: Double Wall - Tempering On  
 Supply Fan Control: VFD  
 VFD Control: Constant Volume  
 Access Side: Right-Hand  
 Control Center  
 Heat Inlet Air Sensor  
 Unit Controls: Terminal Strip  
 Temperature Control: Discharge  
 Direct Gas Options/Accessories  
 Approvals: ETL  
 FM Compliant  
 Flame Sensing: Flame Rod  
 Ignition Control: Pilot  
 Unit Rated Gas Pressure: 1/2 PSI  
 Unit Warranty: 1 Yr (Standard)



ELEVATION VIEW



END VIEW



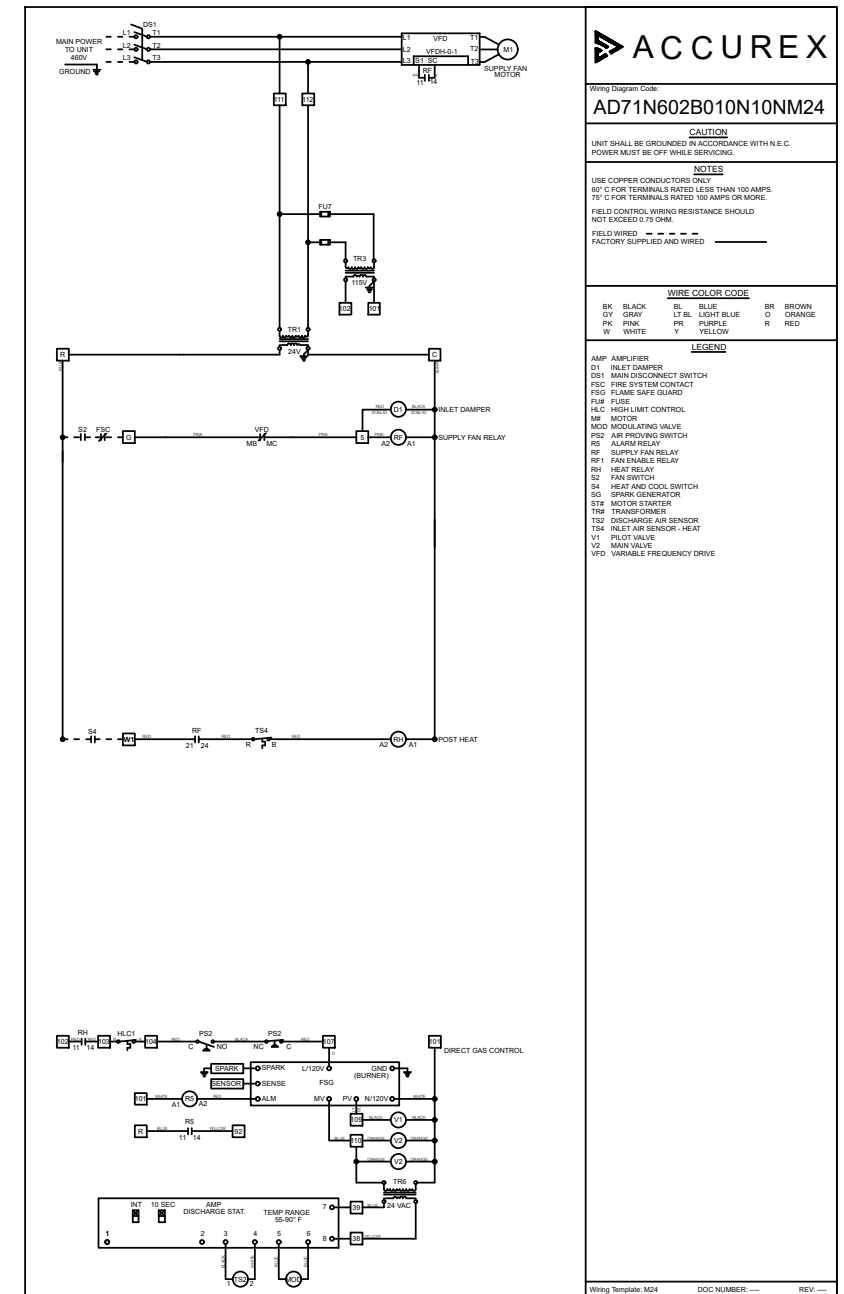
FOOTPRINT

NOTE: Roof Opening Requirements:

Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides.  
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ACCUREX

Wiring Diagram Code:  
**AD71N602B010N10NM24**

CAUTION  
 UNIT SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C.  
 POWER MUST BE OFF WHILE SERVICING.

NOTES  
 USE COPPER CONDUCTORS ONLY  
 60°C FOR TERMINALS RATED LESS THAN 100 AMPS  
 75°C FOR TERMINALS RATED 100 AMPS OR MORE.  
 FIELD CONTROL WIRING RESISTANCE SHOULD  
 NOT EXCEED 0.75 OHM.  
 FIELD WIRED - - - - -  
 FACTORY SUPPLIED AND WIRED - - - - -

WIRE COLOR CODE  
 BK BLACK BL BLUE BR BROWN  
 GY GRAY LT BL LIGHT BLUE O ORANGE  
 PK PINK PR PURPLE R RED  
 W WHITE Y YELLOW

LEGEND  
 AMP AMPLIFIER  
 D1 INLET DAMPER  
 D31 MAIN DISCONNECT SWITCH  
 FSC FIRE SYSTEM CONTACT  
 FSG FLAME SAFE GUARD  
 FUSE FUSE  
 ILC INLET LIMIT CONTROL  
 IM MOTOR  
 MCV MODULATING VALVE  
 PSD AIR PROVING SWITCH  
 RE ALARM RELAY  
 RF SUPPLY FAN RELAY  
 RFI FAN ENABLE RELAY  
 RH HEAT RELAY  
 S2 FAN SWITCH  
 S4 HEAT AND COOL SWITCH  
 SG SPARK GENERATOR  
 ST MOTOR STARTER  
 TRF TRANSFORMER  
 TS2 DISCHARGE AIR SENSOR  
 TS3 INLET AIR SENSOR - HEAT  
 V1 PILOT VALVE  
 V2 MAIN VALVE  
 VFD VARIABLE FREQUENCY DRIVE

PROJECT: 8/19/2022  
 MARK  
 ACCUREX CENTRAL, NORTHERN OH MI  
 JOSH GARLITZ  
 JOSH.GARLITZ@ACCUREX.COM  
 (419)707-3685

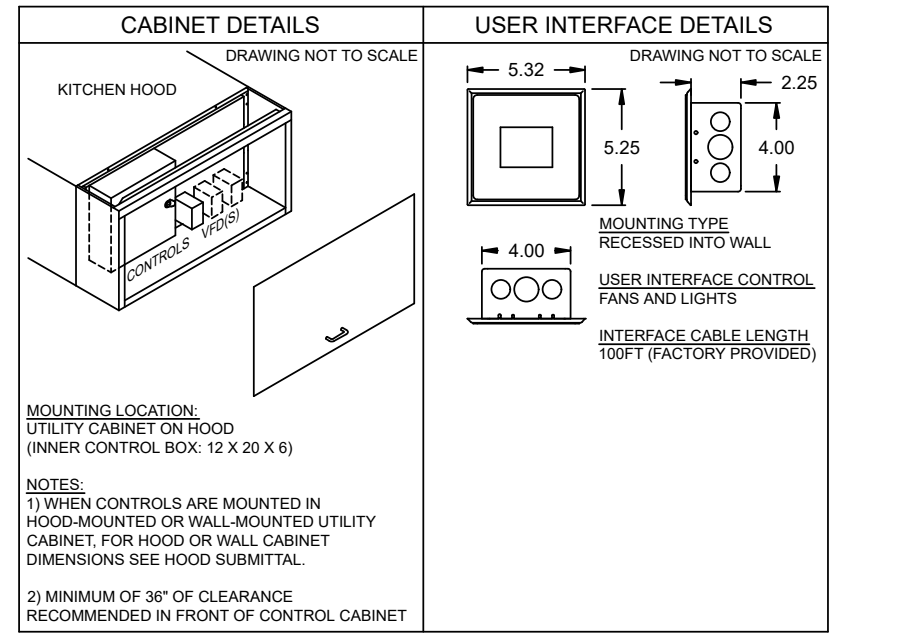
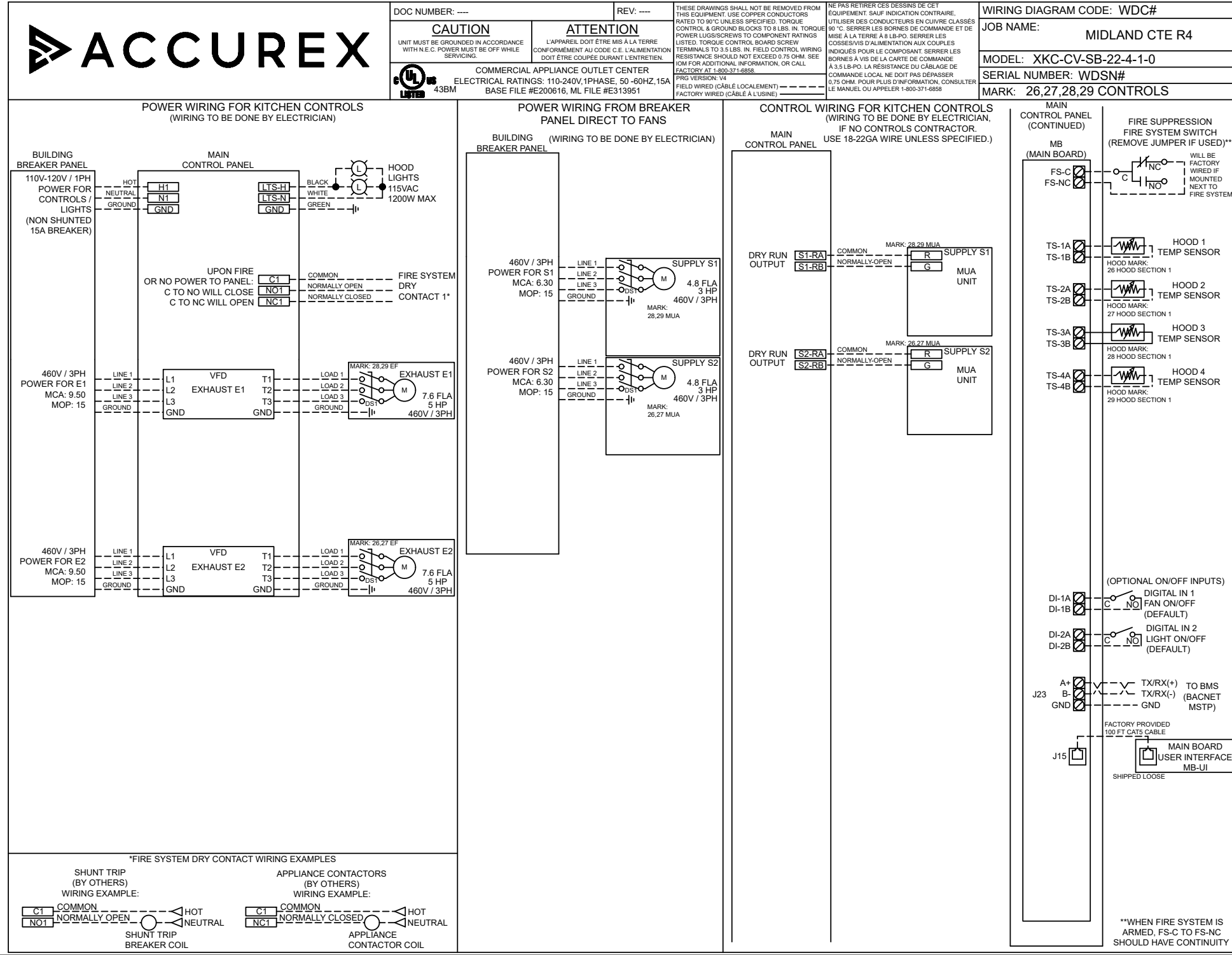
ACCUREX

MIDLAND CTE R4  
 120,125,126,140 MUA

CONTROL INFORMATION

MARK	ELECTRICAL CONTROL PACKAGE		USER INTERFACE		FANS CONTROLLED											
	MODEL	LOCATION	TYPE	LOCATION	FAN #	TYPE	FAN	FAN MARK	ZONE	CFM	MOTOR HP	MOTOR VOLT	CYCLE	MOTOR PHASE	MOTOR STARTER IN PANEL	VFD IN PANEL
26,27,28,29 CONTROLS	XKC-CV-SB-22-4-1-0	LEFT CABINET ON 28 HOOD	FULL COLOR TOUCHSCREEN	SHIP LOOSE	1	EXHAUST	E1	28,29 EF	2	5500	5	460	60	3	NO	YES
					2	SUPPLY	S1	28,29 MUA	2	4676	3	460	60	3	NO	NO
					3	SUPPLY	S2	26,27 MUA	1	4676	3	460	60	3	NO	NO
					4	EXHAUST	E2	26,27 EF	1	5500	5	460	60	3	NO	YES

**CONTROL FEATURES**  
 HOOD LIGHT CONTROL  
 TEMP SENSORS (FACTORY INSTALLED) - QTY. 4  
 DRY FIRE CONTACTS - QTY. 1  
 LIGHTS OFF DURING FIRE  
 EXHAUST MAX DURING FIRE  
 SUPPLY OFF DURING FIRE  
 BMS INTEGRATION - BACNET MSTP  
 VFD(S) IN CONTROL PANEL PROVIDED FOR BALANCING



**ZONE CONFIGURATION**

ZONE #	ZONE	ROOM TEMP
1	Z1	PRESET
2	Z2	PRESET

**HOOD CONFIGURATION**

HOOD #	HOOD	HOOD MARK	ZONE	EXHAUST	SUPPLY	MB-TEMP SENSORS	HC
1	H1	26 HOOD SECTION 1	Z1	E2	S2	TS1	NO
2	H2	27 HOOD SECTION 1	Z1	E2	S2	TS2	NO
3	H3	28 HOOD SECTION 1	Z2	E1	S1	TS3	NO
4	H4	29 HOOD SECTION 1	Z2	E1	S1	TS4	NO

**WIRING DIAGRAM CODE: WDC#**

**JOB NAME: MIDLAND CTE R4**

**MODEL: XKC-CV-SB-22-4-1-0**

**SERIAL NUMBER: WDSN#**

**MARK: 26,27,28,29 CONTROLS**

**DOC NUMBER: ---**

**DEFAULT SETTINGS / PARAMÈTRES PAR DÉFAUT**

**FACTORY SETTINGS**  
 TYPE: CV  
 CONFIGURATION: STANDARD  
 ZONES: 2  
 HOODS: 4  
 SUMPS: 0  
 EXHAUST FANS: 2  
 SUPPLY FANS: 2  
 MB ROOM SENSOR: NO  
 MB TEMP SENSORS: 4  
 HIGH TEMP FAULT: NO  
 FREEZE PROTECTION: YES  
 GAS RESET: NO  
 FAN PROVING: NO  
 BMS: BACNET MSTP

**ZONE SETTINGS**  
 SEE ZONE CONFIGURATION IN TABLE ON LEFT

**HOOD SETTINGS**  
 SEE HOOD CONFIGURATION IN TABLE ON LEFT

**EXHAUST FAN SETTINGS**  
 SEE FAN CONFIGURATION IN TABLE ON LEFT

**SUPPLY FAN SETTINGS**  
 SEE FAN CONFIGURATION IN TABLE ON LEFT

**SENSOR SETTINGS**  
 SEE HOOD CONFIGURATION IN TABLE ON LEFT

**USER INTERFACE SETTINGS (MB)**  
 FAN & LIGHT BUTTONS: SHOW BOTH (SEPERATE)

**USER INTERFACE SETTINGS (HCB)**  
 NA

**GENERAL SETTINGS**  
 TIME ZONE: CENTRAL DAYLIGHT (DEFAULT)

**FIRE FAULT SETTINGS**  
 EXHAUST DURING FIRE: MAX  
 SUPPLY DURING FIRE: OFF  
 LIGHTS DURING FIRE: OFF

**BMS SETTINGS**  
 BAUD RATE: 9600  
 MAC ADDRESS: 0  
 MAX MASTER: 127  
 MAX INFO FRAMES: 20

**FAN CONFIGURATION**

FAN #	TYPE	FAN	FAN MARK	ZONE	MIN CFM	MAX CFM	MODBUS VFD	VFD ADDRESS	MIN FREQ	MAX FREQ	MIN VDC	MAX VDC
1	EXHAUST	E1	28,29 EF	Z2	-	5500	YES	1	30	60	-	-
2	SUPPLY	S1	28,29 MUA	Z2	-	4676	NO	-	-	-	-	10.0
3	SUPPLY	S2	26,27 MUA	Z1	-	4676	NO	-	-	-	-	10.0
4	EXHAUST	E2	26,27 EF	Z1	-	5500	YES	4	30	60	-	-

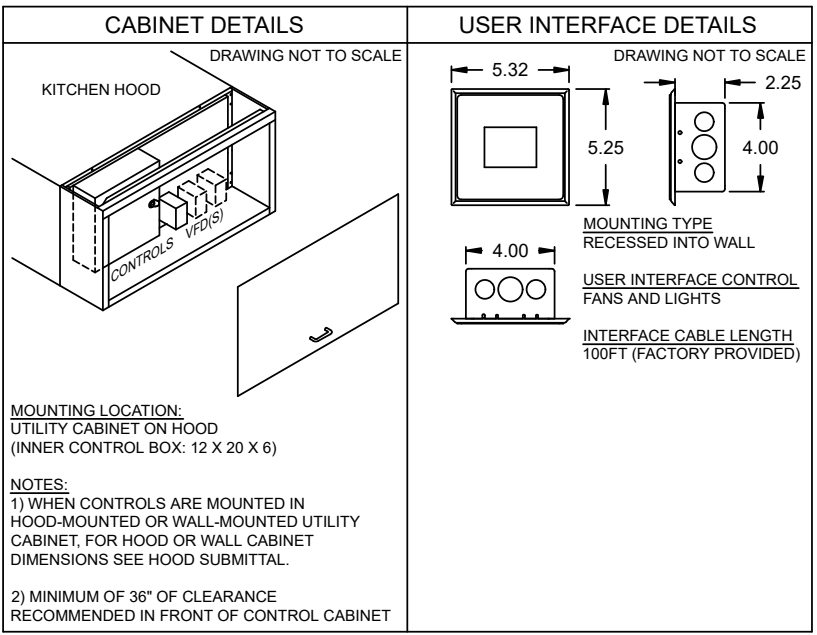
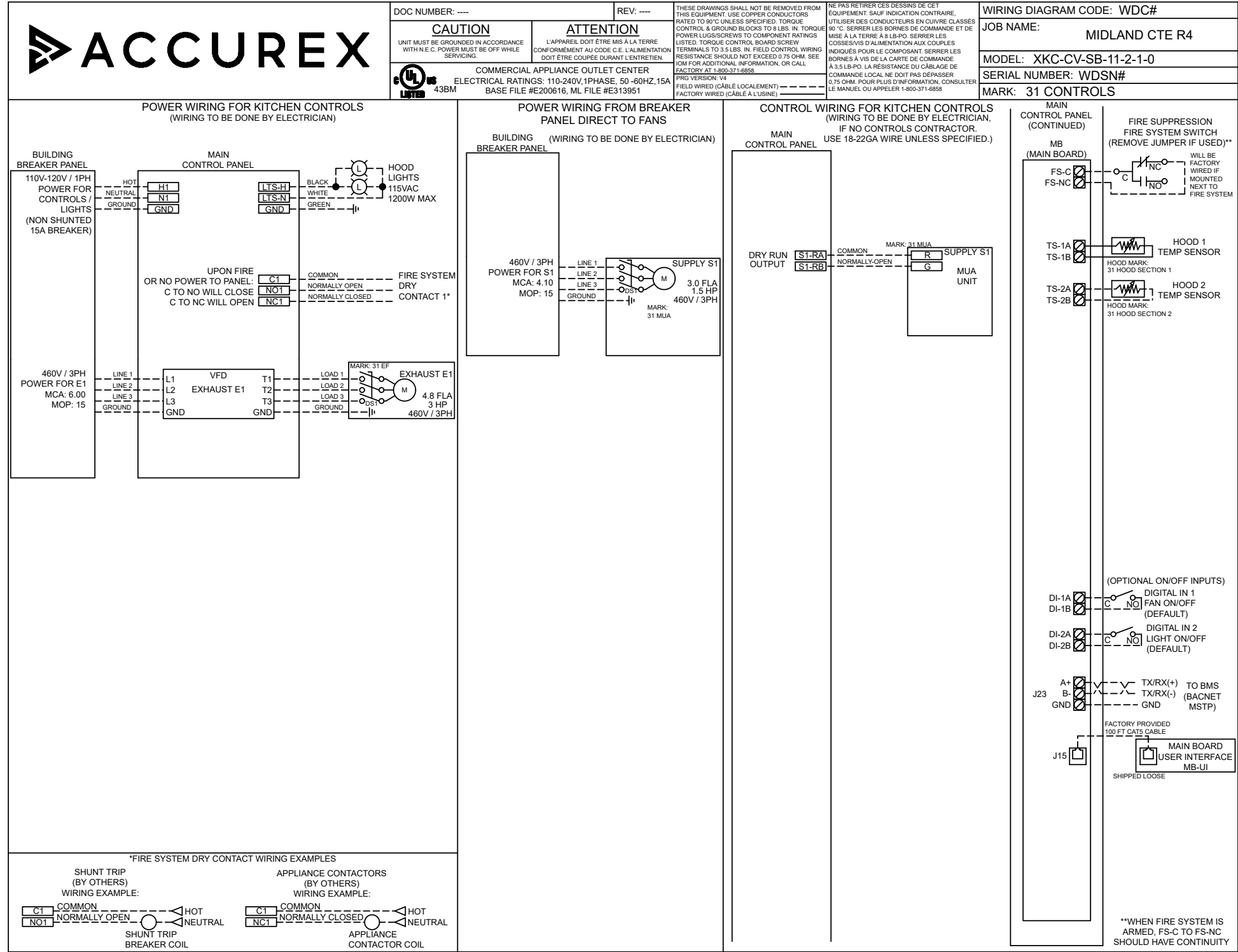
**PRG VERSION: V4**

**\*\*WHEN FIRE SYSTEM IS ARMED, FS-C TO FS-NC SHOULD HAVE CONTINUITY**

CONTROL INFORMATION

MARK	ELECTRICAL CONTROL PACKAGE		USER INTERFACE		FANS CONTROLLED											
	MODEL	LOCATION	TYPE	LOCATION	FAN #	TYPE	FAN	FAN MARK	ZONE	CFM	MOTOR HP	MOTOR VOLT	CYCLE	MOTOR PHASE	MOTOR STARTER IN PANEL	VFD IN PANEL
31 CONTROLS	XKC-CV-SB-11-2-1-0	LEFT CABINET ON 31 HOOD	FULL COLOR TOUCHSCREEN	SHIP LOOSE	1	EXHAUST	E1	31 EF	1	3800	3	460	60	3	NO	YES
					2	SUPPLY	S1	31 MUA	1	3230	1.5	460	60	3	NO	NO

**CONTROL FEATURES**  
 HOOD LIGHT CONTROL  
 TEMP SENSORS (FACTORY INSTALLED) - QTY. 2  
 DRY FIRE CONTACTS - QTY. 1  
 LIGHTS OFF DURING FIRE  
 EXHAUST MAX DURING FIRE  
 SUPPLY OFF DURING FIRE  
 BMS INTEGRATION - BACNET MSTP  
 VFD(S) IN CONTROL PANEL PROVIDED FOR BALANCING



**ZONE CONFIGURATION**

ZONE #	ZONE	ROOM TEMP
1	Z1	PRESET

**HOOD CONFIGURATION**

HOOD #	HOOD	HOOD MARK	ZONE	EXHAUST	SUPPLY	MB-TEMP SENSORS	HC
1	H1	31 HOOD SECTION 1	Z1	E1	S1	TS1	NO
2	H2	31 HOOD SECTION 2	Z1	E1	S1	TS2	NO

**WIRING DIAGRAM CODE: WDC#**  
MIDLAND CTE R4

**MODEL: XKC-CV-SB-11-2-1-0**  
**SERIAL NUMBER: WDSN#**  
**MARK: 31 CONTROLS**

**DEFAULT SETTINGS / PARAMÈTRES PAR DÉFAUT**

**FACTORY SETTINGS**  
 TYPE: CV  
 CONFIGURATION: STANDARD  
 ZONES: 1  
 HOODS: 2  
 SUMPS: 0  
 EXHAUST FANS: 1  
 SUPPLY FANS: 1  
 MB ROOM SENSOR: NO  
 MB TEMP SENSORS: 2  
 HIGH TEMP FAULT: NO  
 FREEZE PROTECTION: YES  
 GAS RESET: NO  
 FAN PROVING: NO  
 BMS: BACNET MSTP

**ZONE SETTINGS**  
 SEE ZONE CONFIGURATION IN TABLE ON LEFT

**HOOD SETTINGS**  
 SEE HOOD CONFIGURATION IN TABLE ON LEFT

**EXHAUST FAN SETTINGS**  
 SEE FAN CONFIGURATION IN TABLE ON LEFT

**SUPPLY FAN SETTINGS**  
 SEE FAN CONFIGURATION IN TABLE ON LEFT

**SENSOR SETTINGS**  
 SEE HOOD CONFIGURATION IN TABLE ON LEFT

**USER INTERFACE SETTINGS (MB)**  
 FAN & LIGHT BUTTONS: SHOW BOTH (SEPERATE)

**USER INTERFACE SETTINGS (HCB)**  
 NA

**GENERAL SETTINGS**  
 TIME ZONE: CENTRAL DAYLIGHT (DEFAULT)

**FIRE FAULT SETTINGS**  
 EXHAUST DURING FIRE: MAX  
 SUPPLY DURING FIRE: OFF  
 LIGHTS DURING FIRE: OFF

**BMS SETTINGS**  
 BAUD RATE: 9600  
 MAC ADDRESS: 0  
 MAX MASTER: 127  
 MAX INFO FRAMES: 20

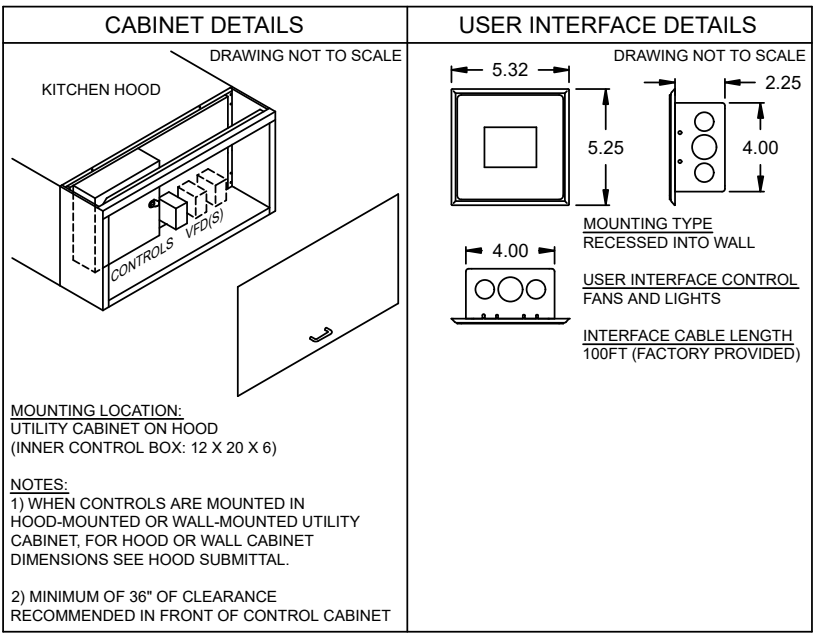
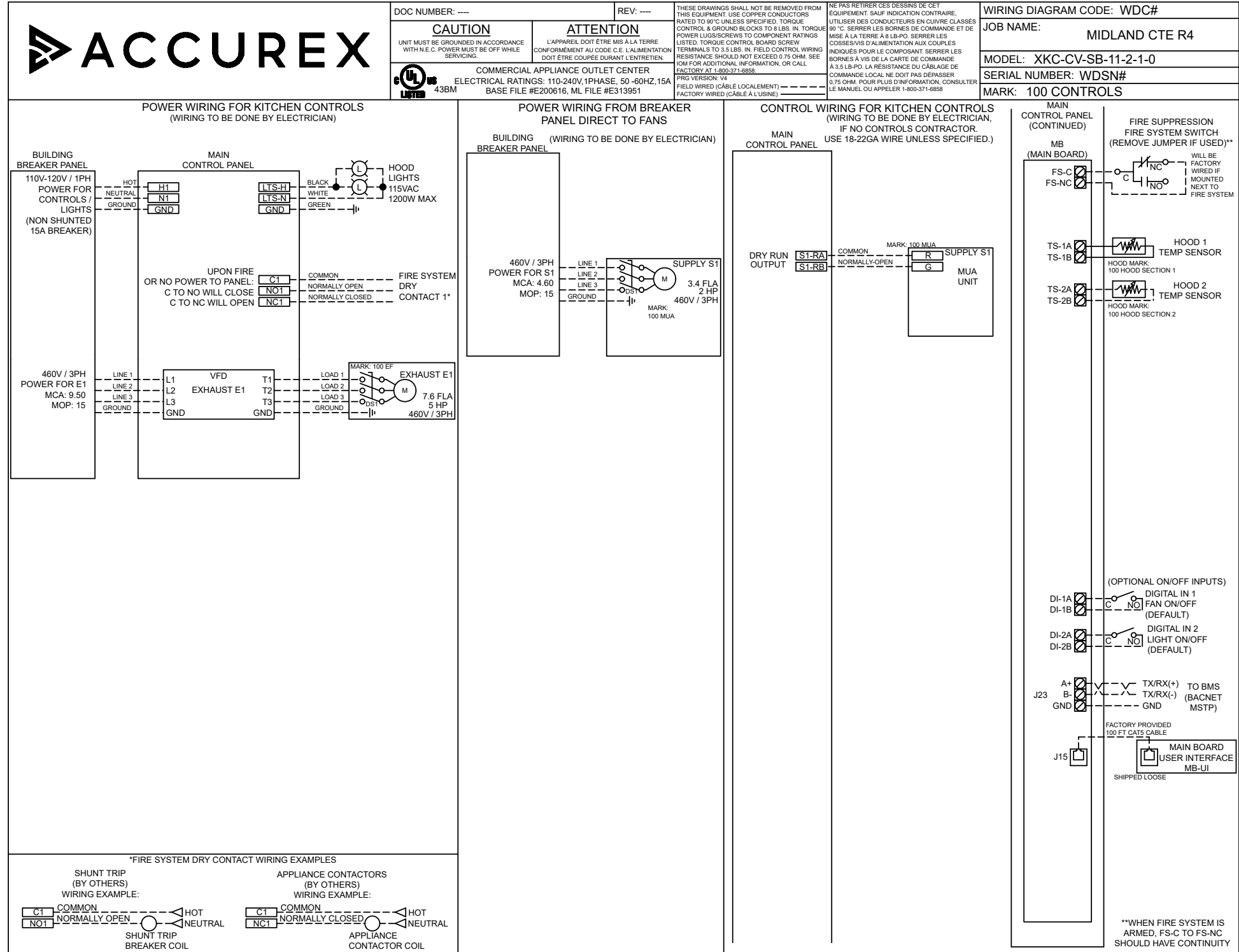
**FAN CONFIGURATION**

FAN #	TYPE	FAN	FAN MARK	ZONE	MIN CFM	MAX CFM	MODBUS VFD	VFD ADDRESS	MIN FREQ	MAX FREQ	MIN VDC	MAX VDC
1	EXHAUST	E1	31 EF	Z1	-	3800	YES	1	30	60	-	-
2	SUPPLY	S1	31 MUA	Z1	-	3230	NO	-	-	-	-	10.0

CONTROL INFORMATION

MARK	ELECTRICAL CONTROL PACKAGE		USER INTERFACE		FANS CONTROLLED											
	MODEL	LOCATION	TYPE	LOCATION	FAN #	TYPE	FAN	FAN MARK	ZONE	CFM	MOTOR HP	MOTOR VOLT	CYCLE	MOTOR PHASE	MOTOR STARTER IN PANEL	VFD IN PANEL
100 CONTROLS	XKC-CV-SB-11-2-1-0	LEFT CABINET ON 100 HOOD	FULL COLOR TOUCHSCREEN	SHIP LOOSE	1	EXHAUST	E1	100 EF	1	4038	5	460	60	3	NO	YES
					2	SUPPLY	S1	100 MUA	1	3432	2	460	60	3	NO	NO

**CONTROL FEATURES**  
 HOOD LIGHT CONTROL  
 TEMP SENSORS (FACTORY INSTALLED) - QTY. 2  
 DRY FIRE CONTACTS - QTY. 1  
 LIGHTS OFF DURING FIRE  
 EXHAUST MAX DURING FIRE  
 SUPPLY OFF DURING FIRE  
 BMS INTEGRATION - BACNET MSTP  
 VFD(S) IN CONTROL PANEL PROVIDED FOR BALANCING



**WIRING DIAGRAM CODE: WDC#**  
**JOB NAME: MIDLAND CTE R4**  
**MODEL: XKC-CV-SB-11-2-1-0**  
**SERIAL NUMBER: WDSN#**  
**MARK: 100 CONTROLS**  
**DOC NUMBER: ---** **REV: ---**

**DEFAULT SETTINGS / PARAMÈTRES PAR DÉFAUT**

**FACTORY SETTINGS**  
 TYPE: CV  
 CONFIGURATION: STANDARD  
 ZONES:  
 HOODS: 2  
 SUMPS: 0  
 EXHAUST FANS: 1  
 SUPPLY FANS: 1  
 MB ROOM SENSOR: NO  
 MB TEMP SENSORS: 2  
 HIGH TEMP FAULT: NO  
 FREEZE PROTECTION: YES  
 GAS RESET: NO  
 FAN PROVING: NO  
 BMS: BACNET MSTP

**ZONE SETTINGS**  
 SEE ZONE CONFIGURATION IN TABLE ON LEFT

**HOOD SETTINGS**  
 SEE HOOD CONFIGURATION IN TABLE ON LEFT

**EXHAUST FAN SETTINGS**  
 SEE FAN CONFIGURATION IN TABLE ON LEFT

**SUPPLY FAN SETTINGS**  
 SEE FAN CONFIGURATION IN TABLE ON LEFT

**SENSOR SETTINGS**  
 SEE HOOD CONFIGURATION IN TABLE ON LEFT

**USER INTERFACE SETTINGS (MB)**  
 FAN & LIGHT BUTTONS: SHOW BOTH (SEPERATE)

**USER INTERFACE SETTINGS (HCB)**  
 NA

**GENERAL SETTINGS**  
 TIME ZONE: CENTRAL DAYLIGHT (DEFAULT)

**FIRE FAULT SETTINGS**  
 EXHAUST DURING FIRE: MAX  
 SUPPLY DURING FIRE: OFF  
 LIGHTS DURING FIRE: OFF

**BMS SETTINGS**  
 BAUD RATE: 9600  
 MAC ADDRESS: 0  
 MAX MASTER: 127  
 MAX INFO FRAMES: 20

**PRG VERSION: V4**

ZONE CONFIGURATION											
ZONE #	ZONE	ROOM TEMP									
1	Z1	PRESET									

HOOD CONFIGURATION							
HOOD #	HOOD	HOOD MARK	ZONE	EXHAUST	SUPPLY	MB-TEMP SENSORS	HCB
1	H1	100 HOOD SECTION 1	Z1	E1	S1	TS1	NO
2	H2	100 HOOD SECTION 2	Z1	E1	S1	TS2	NO

FAN CONFIGURATION												
FAN #	TYPE	FAN	FAN MARK	ZONE	MIN CFM	MAX CFM	MODBUS VFD	VFD ADDRESS	MIN FREQ	MAX FREQ	MIN VDC	MAX VDC
1	EXHAUST	E1	100 EF	Z1	-	4038	YES	1	30	60	-	-
2	SUPPLY	S1	100 MUA	Z1	-	3432	NO	-	-	-	-	10.0

CONTROL INFORMATION

MARK	ELECTRICAL CONTROL PACKAGE		USER INTERFACE		FANS CONTROLLED											
	MODEL	LOCATION	TYPE	LOCATION	FAN #	TYPE	FAN	FAN MARK	ZONE	CFM	MOTOR HP	MOTOR VOLT	CYCLE	MOTOR PHASE	MOTOR STARTER IN PANEL	VFD IN PANEL
120,125,126,140 CONTROLS	XKC-CV-SB-21-6-1-0	LEFT CABINET ON 140 HOOD	FULL COLOR TOUCHSCREEN	SHIP LOOSE	1	EXHAUST	E1	120,140 EF	1	7284	7.5	460	60	3	NO	YES
					2	EXHAUST	E2	125,126 EF	1	4513	5	460	60	3	NO	YES
					3	SUPPLY	S1	120,125,126,140 MUA	1	10028	7.5	460	60	3	NO	NO

CONTROL FEATURES

- HOOD LIGHT CONTROL
- TEMP SENSORS (FACTORY INSTALLED) - QTY. 6
- DRY FIRE CONTACTS - QTY. 1
- LIGHTS OFF DURING FIRE
- EXHAUST MAX DURING FIRE
- SUPPLY OFF DURING FIRE
- BMS INTEGRATION - BACNET MSTP
- VFD(S) IN CONTROL PANEL PROVIDED FOR BALANCING



DOC NUMBER: --- REV: ---

**CAUTION**  
UNIT MUST BE GROUNDED IN ACCORDANCE WITH N.E.C. POWER MUST BE OFF WHILE SERVICING.

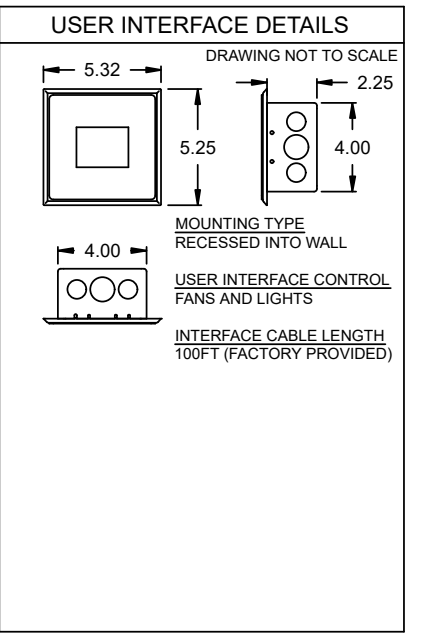
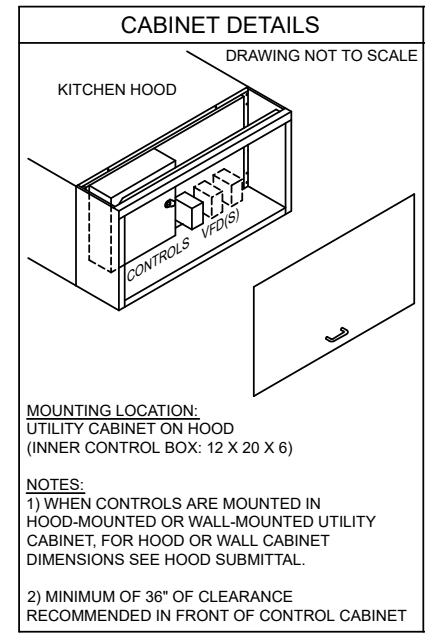
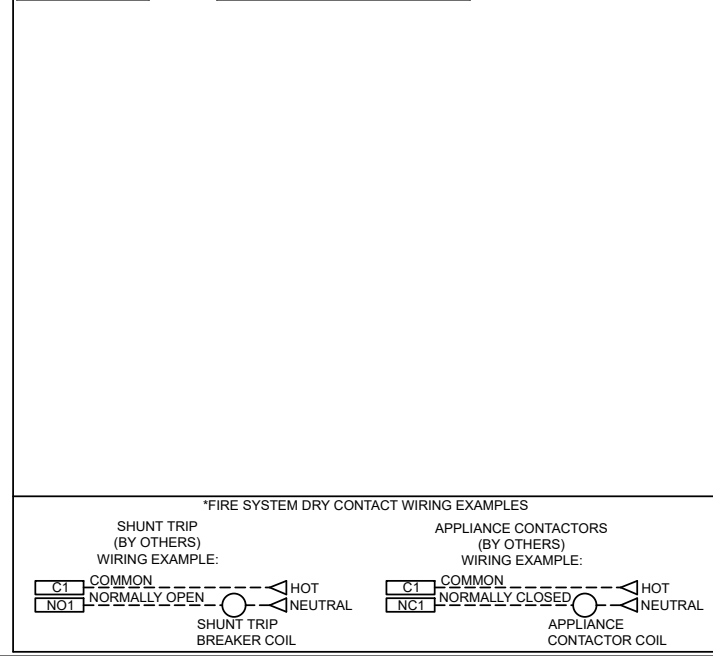
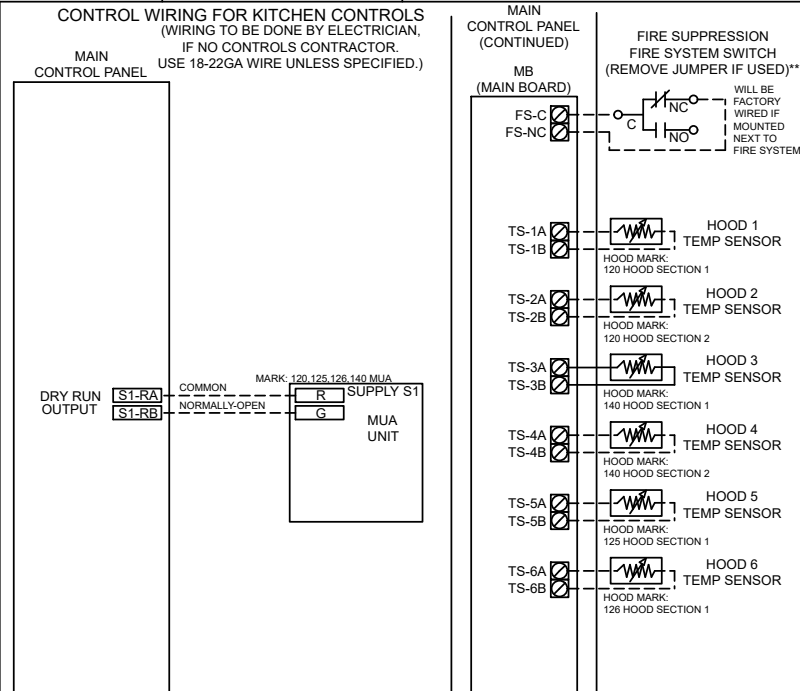
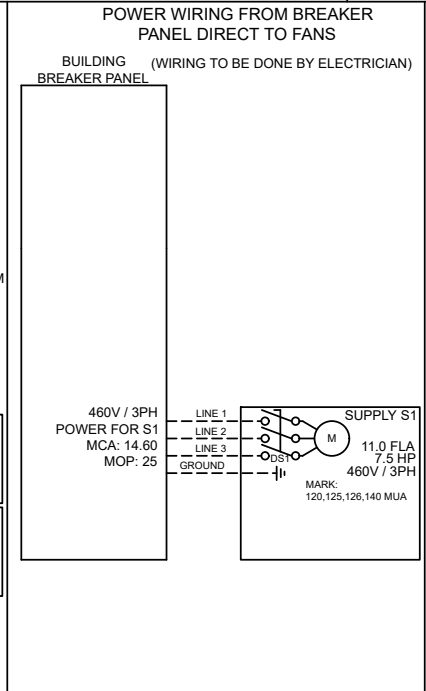
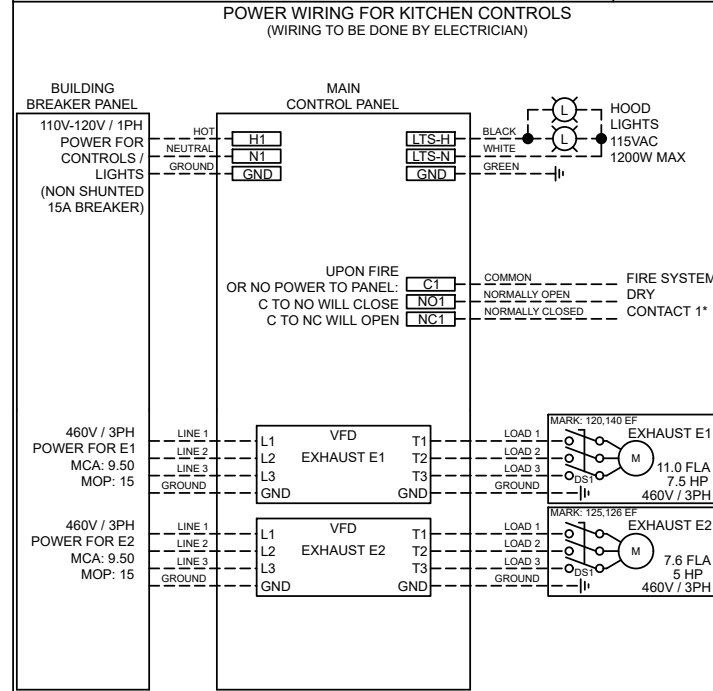
**ATTENTION**  
L'APPAREIL DOIT ÊTRE MIS À LA TERRE CONFORMÉMENT AU CODE C.E. L'ALIMENTATION DOIT ÊTRE COUPÉE DURANT L'ENTRETIEN.

COMMERCIAL APPLIANCE OUTLET CENTER  
ELECTRICAL RATINGS: 110-240V, 1PHASE, 50-60HZ, 15A  
BASE FILE #E200616, ML FILE #E313951

PRG VERSION: V4  
FIELD WIRING (CÂBLE LOCALÉMENT) ---  
FACTORY WIRING (CÂBLE À L'USINE) ---

NE PAS RETIRER CES DESSINS DE CET ÉQUIPEMENT SAUF INDICATION CONTRAIRE. UTILISER DES CONDUCTEURS EN CUIVRE CLASSÉS 90 °C. SERRER LES BORNES DE COMMANDE ET DE MISE À LA TERRE À 8 LB-PO. SERRER LES COSSÉS/VIS D'ALIMENTATION AUX COUPLES INDICUÉS POUR LE COMPOSANT. SERRER LES BORNES À VIS DE LA CARTE DE COMMANDE À 3.5 LB-PO. LA RÉSISTANCE DU CÂBLAGE DE COMMANDE LOCAL NE DOIT PAS DÉPASSER 0.75 OHM. POUR PLUS D'INFORMATION, CONSULTEZ LE MANUEL OU APPELÉZ 1-800-371-8858.

WIRING DIAGRAM CODE: WDC#  
JOB NAME: MIDLAND CTE R4  
MODEL: XKC-CV-SB-21-6-1-0  
SERIAL NUMBER: WDSN#  
MARK: 120,125,126,140 CONTROLS



ZONE CONFIGURATION

ZONE #	ZONE	ROOM TEMP
1	Z1	PRESET

WIRING DIAGRAM CODE: WDC#  
JOB NAME: MIDLAND CTE R4  
MODEL: XKC-CV-SB-21-6-1-0  
SERIAL NUMBER: WDSN#  
MARK: 120,125,126,140 CONTROLS  
DOC NUMBER: --- REV: ---

HOOD CONFIGURATION

HOOD #	HOOD	HOOD MARK	ZONE	EXHAUST	SUPPLY	MB-TEMP SENSORS	HC
1	H1	120 HOOD SECTION 1	Z1	E1	S1	TS1	NO
2	H2	120 HOOD SECTION 2	Z1	E1	S1	TS2	NO
3	H3	140 HOOD SECTION 1	Z1	E1	S1	TS3	NO
4	H4	140 HOOD SECTION 2	Z1	E1	S1	TS4	NO
5	H5	125 HOOD SECTION 1	Z1	E2	S1	TS5	NO
6	H6	126 HOOD SECTION 1	Z1	E2	S1	TS6	NO

DEFAULT SETTINGS / PARAMÈTRES PAR DÉFAUT

FACTORY SETTINGS  
TYPE: CV  
CONFIGURATION: STANDARD  
ZONES: 1  
HOODS: 6  
SUMPS: 0  
EXHAUST FANS: 2  
SUPPLY FANS: 1  
MB ROOM SENSOR: NO  
MB TEMP SENSORS: 6  
HIGH TEMP FAULT: NO  
FREEZE PROTECTION: YES  
GAS RESET: NO  
FAN PROVING: NO  
BMS: BACNET MSTP

ZONE SETTINGS  
SEE ZONE CONFIGURATION IN TABLE ON LEFT

HOOD SETTINGS  
SEE HOOD CONFIGURATION IN TABLE ON LEFT

EXHAUST FAN SETTINGS  
SEE FAN CONFIGURATION IN TABLE ON LEFT

SUPPLY FAN SETTINGS  
SEE FAN CONFIGURATION IN TABLE ON LEFT

SENSOR SETTINGS  
SEE HOOD CONFIGURATION IN TABLE ON LEFT

USER INTERFACE SETTINGS (MB)  
FAN & LIGHT BUTTONS: SHOW BOTH (SEPERATE)

USER INTERFACE SETTINGS (HCB)  
NA

GENERAL SETTINGS  
TIME ZONE: CENTRAL DAYLIGHT (DEFAULT)

FIRE FAULT SETTINGS  
EXHAUST DURING FIRE: MAX  
SUPPLY DURING FIRE: OFF  
LIGHTS DURING FIRE: OFF

BMS SETTINGS  
BAUD RATE: 9600  
MAC ADDRESS: 0  
MAX MASTER: 127  
MAX INFO FRAMES: 20

PRG VERSION: V4

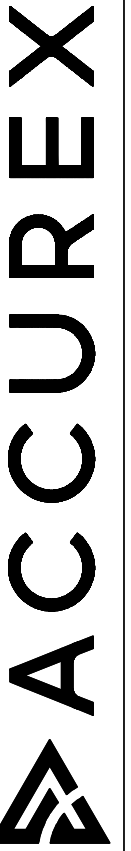
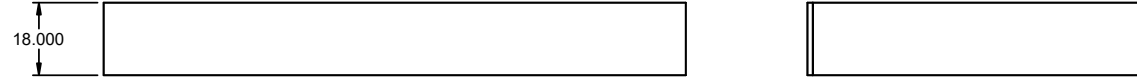
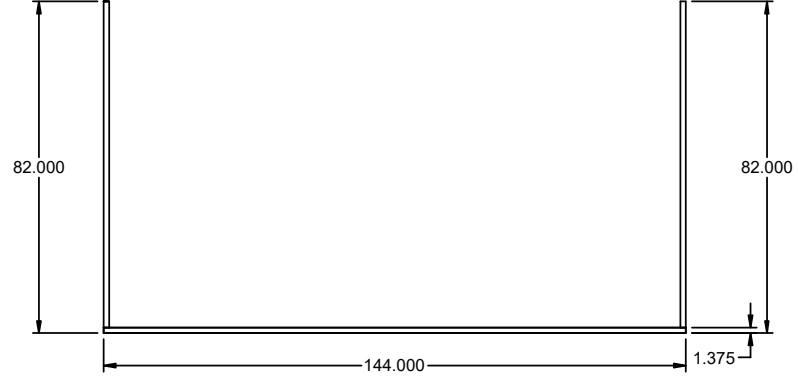
FAN CONFIGURATION

FAN #	TYPE	FAN	FAN MARK	ZONE	MIN CFM	MAX CFM	MODBUS VFD	VFD ADDRESS	MIN FREQ	MAX FREQ	MIN VDC	MAX VDC
1	EXHAUST	E1	120,140 EF	Z1	-	7284	YES	1	30	60	-	-
2	EXHAUST	E2	125,126 EF	Z1	-	4513	YES	2	30	60	-	-
3	SUPPLY	S1	120,125,126,140 MUA	Z1	-	10028	NO	-	-	-	-	10.0

PROJECT: 8/19/2022  
 ACCUREX CENTRAL, NORTHERN OH MI  
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 (419)707-3685  
 MIDLAND CTE R4  
 120, 125, 126, 140 CONTROLS  
 ACCUREX

ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
26 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		144	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



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PROJECT  
 8/19/2022

MARK

MIDLAND CTE R4

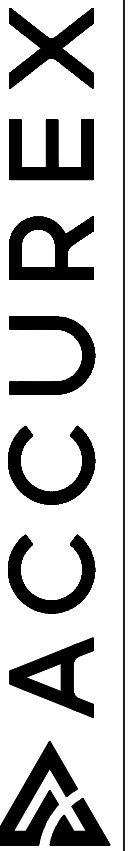
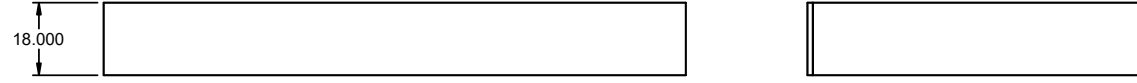
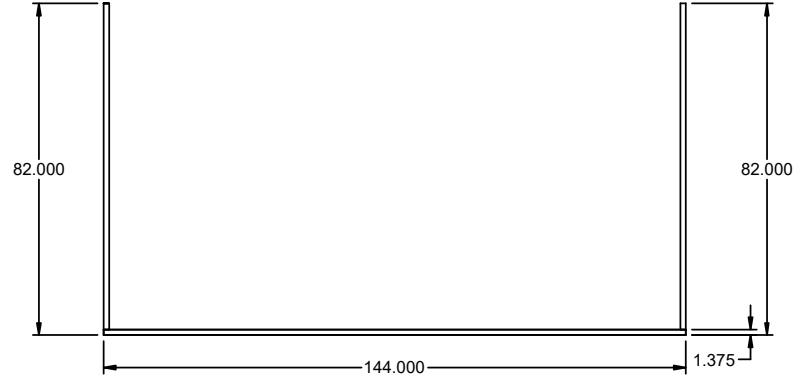
26 CEILING ENCLOSURES



CONDENSED AIR QUALITY

ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
27 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		144	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



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MARK

MIDLAND CTE R4

27 CEILING ENCLOSURES

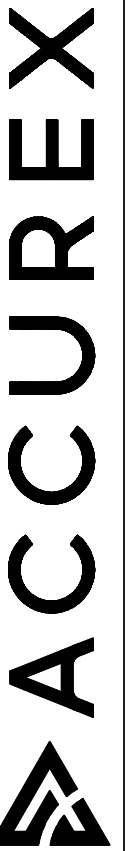
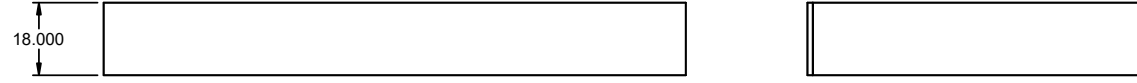
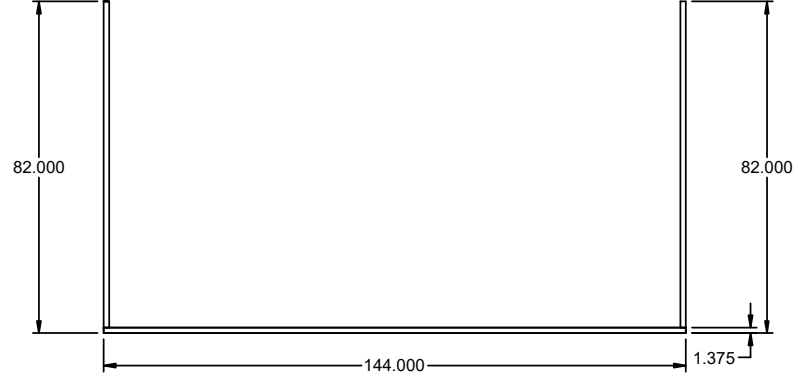


CONDENSED AIR QUALITY



ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
28 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		144	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



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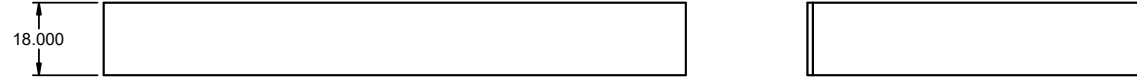
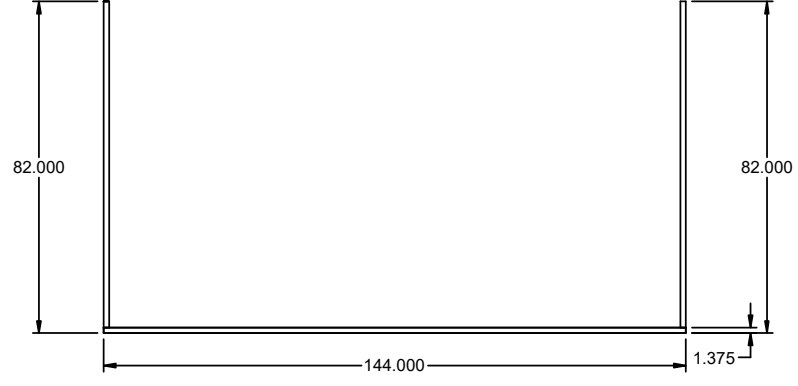
MIDLAND CTE R4

28 CEILING ENCLOSURES



ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
29 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		144	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



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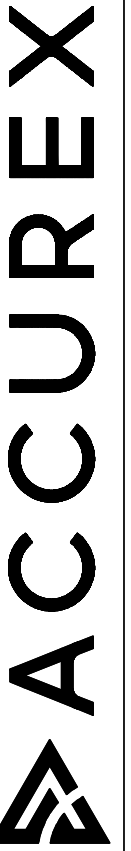
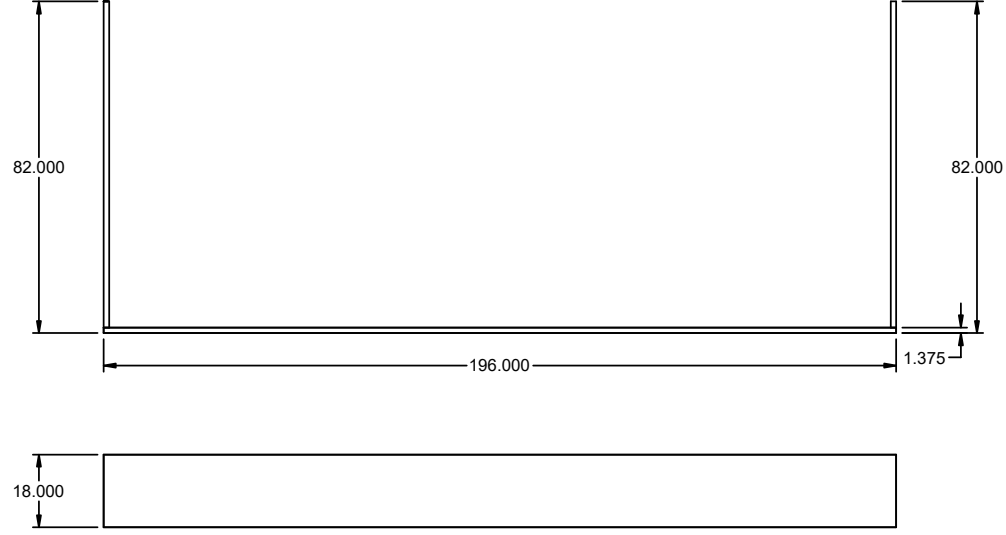
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UL NSF  
 LISTED  
 COMMERCIAL KITCHENS

ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
120 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		196	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



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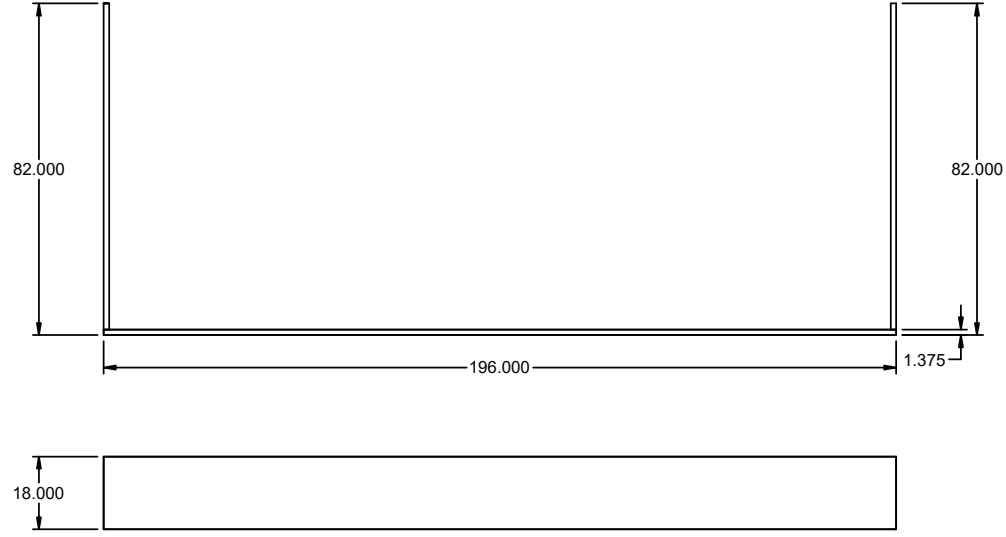
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UL NSF  
 LISTED PRODUCT

ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
140 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		196	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



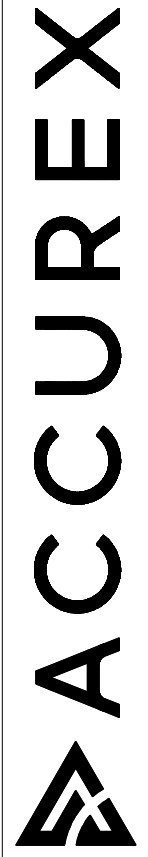
PROJECT  
8/19/2022

MIDLAND CTE R4

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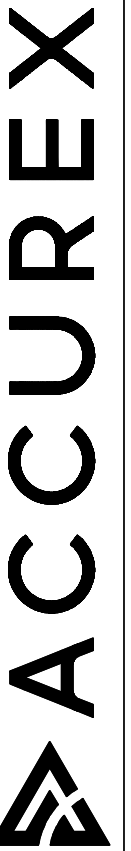
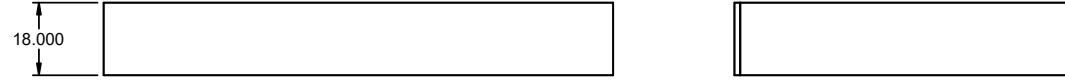
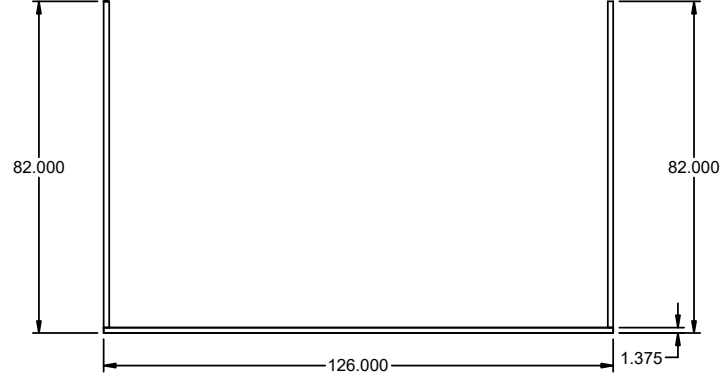
MARK

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ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
125 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		126	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



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125 CEILING ENCLOSURES

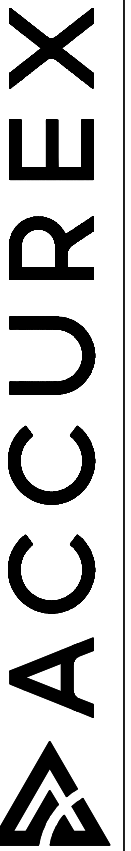
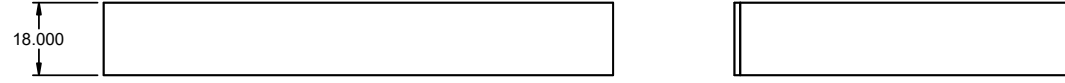
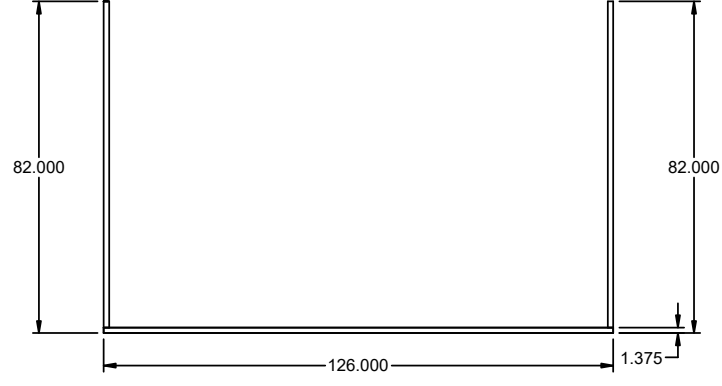
MARK



CONFORMS TO LISTED

ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)		CONSTR.	LOCATION
			LENGTH	HEIGHT		
126 CEILING ENCLOSURES	EP		80.625	18	304 S.S.	LEFT
	EP		126	18	304 S.S.	FRONT
	EP		80.625	18	304 S.S.	RIGHT



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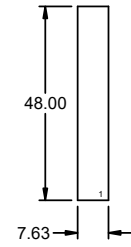
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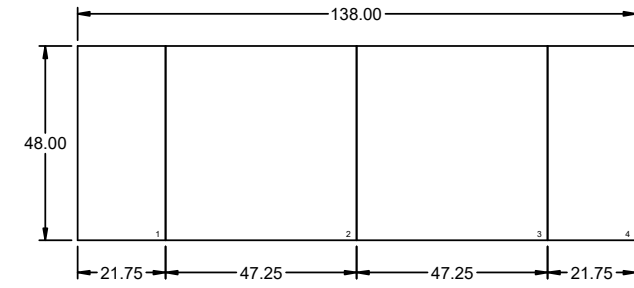
UL NSF  
 LISTED PRODUCT

ACCESSORY INFORMATION

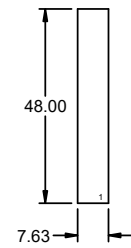
MARK	MODEL	INSULATED	DIMENSIONS (IN.)			CONSTR.	LOCATION
			WIDTH	LENGTH	HEIGHT		
26 BACKSPLASH	SPLASH PANEL	NO	7.63	48		304 S.S.	LEFT
	SPLASH PANEL	NO		138	48	304 S.S.	BACK
	SPLASH PANEL	NO		7.63	48	304 S.S.	RIGHT



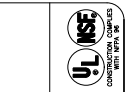
**LEFT SIDE SPLASH**



**BACK SPLASH**



**RIGHT SIDE SPLASH**



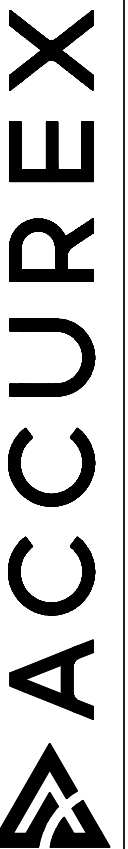
MIDLAND CTE R4

26 BACKSPLASH

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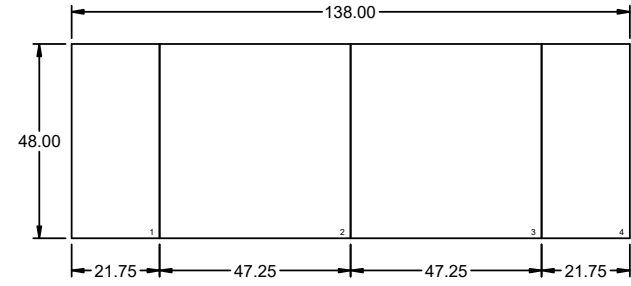
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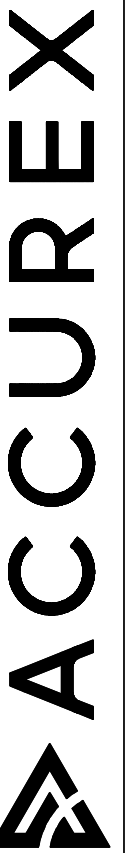


ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)			CONSTR.	LOCATION
			WIDTH	LENGTH	HEIGHT		
27 BACKSPLASH	SPLASH PANEL	NO		138	48	304 S.S.	BACK



**BACK SPLASH**



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27 BACKSPLASH

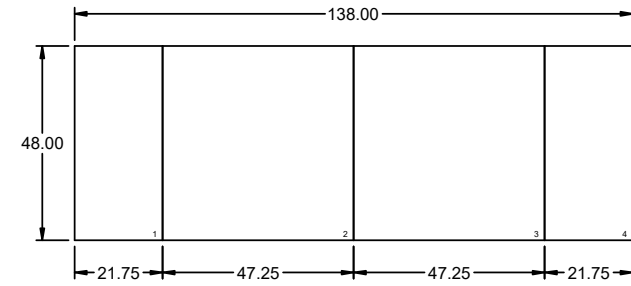


COMPLIANT WITH NSF-175

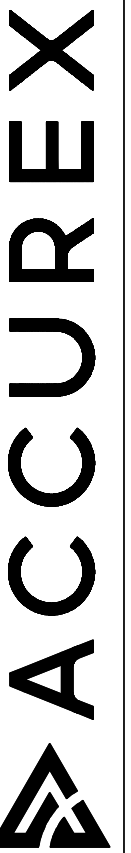


ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)			CONSTR.	LOCATION
			WIDTH	LENGTH	HEIGHT		
28 BACKSPLASH	SPLASH PANEL	NO		138	48	304 S.S.	BACK



**BACK SPLASH**



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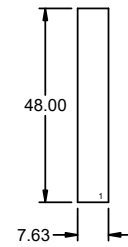
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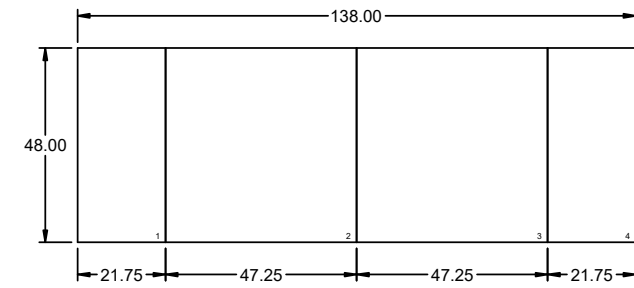
COMPLIANT WITH NSF 175

ACCESSORY INFORMATION

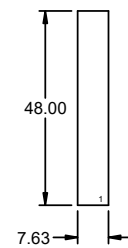
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			WIDTH	LENGTH	HEIGHT		
29 BACKSPLASH	SPLASH PANEL	NO	7.63	48		304 S.S.	LEFT
	SPLASH PANEL	NO	138	48		304 S.S.	BACK
	SPLASH PANEL	NO	7.63	48		304 S.S.	RIGHT



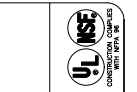
**LEFT SIDE SPLASH**



**BACK SPLASH**



**RIGHT SIDE SPLASH**



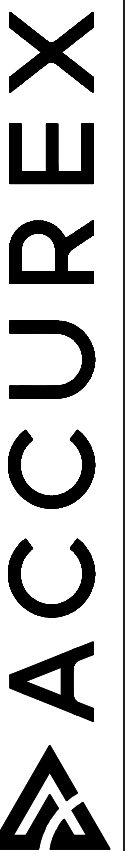
MIDLAND CTE R4

29 BACKSPLASH

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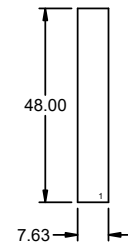
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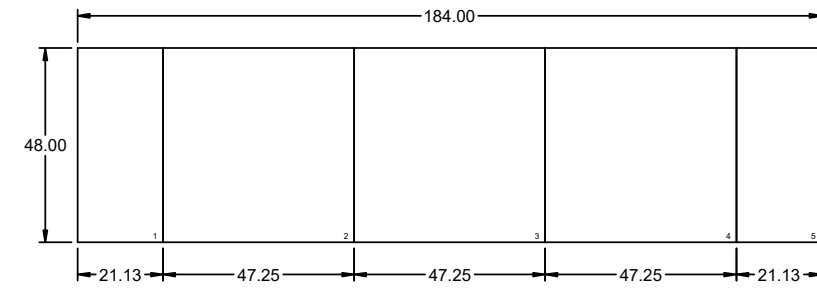


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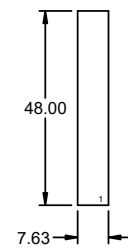
MARK	MODEL	INSULATED	DIMENSIONS (IN.)			CONSTR.	LOCATION
			WIDTH	LENGTH	HEIGHT		
120 BACKSPLASH	SPLASH PANEL	NO	7.63	48	304 S.S.	LEFT	
	SPLASH PANEL	NO	184	48	304 S.S.	BACK	
	SPLASH PANEL	NO	7.63	48	304 S.S.	RIGHT	



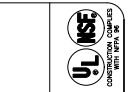
**LEFT SIDE SPLASH**



**BACK SPLASH**



**RIGHT SIDE SPLASH**



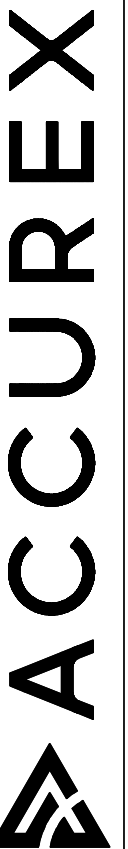
MIDLAND CTE R4

120 BACKSPLASH

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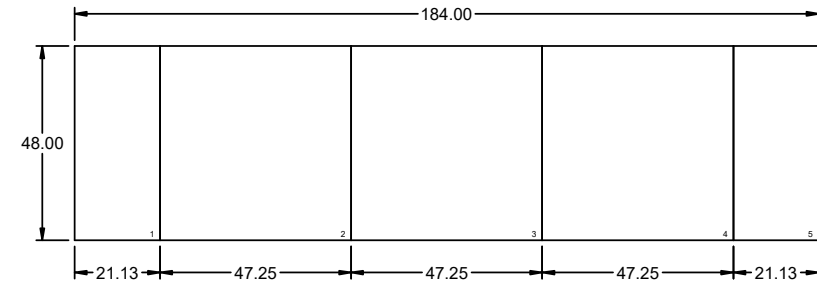
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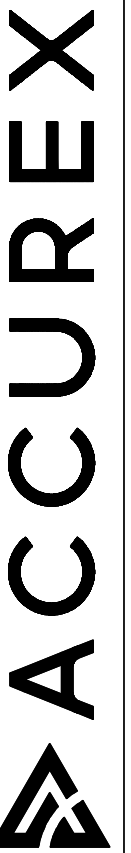


ACCESSORY INFORMATION

MARK	MODEL	INSULATED	DIMENSIONS (IN.)			CONSTR.	LOCATION
			WIDTH	LENGTH	HEIGHT		
140 BACKSPLASH	SPLASH PANEL	NO		184	48	304 S.S.	BACK



**BACK SPLASH**



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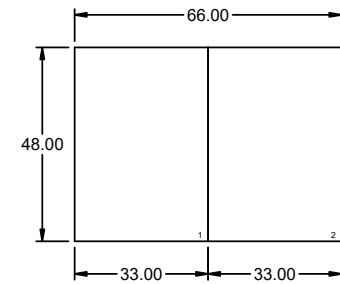
MIDLAND CTE R4

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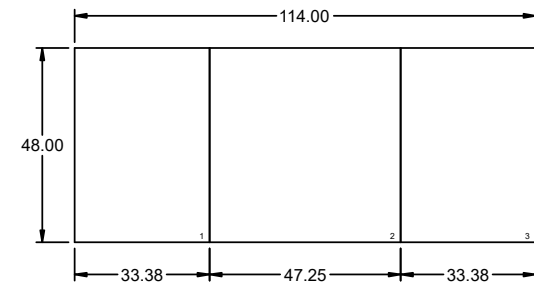


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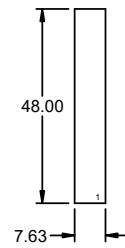
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125 BACKSPLASH	SPLASH PANEL	NO		66	48	304 S.S.	LEFT
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**LEFT SIDE SPLASH**

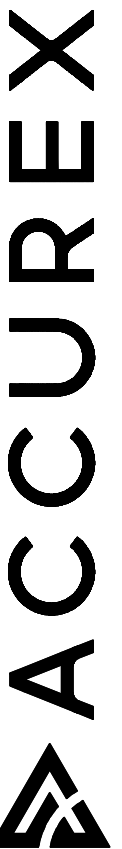


**BACK SPLASH**



**RIGHT SIDE SPLASH**

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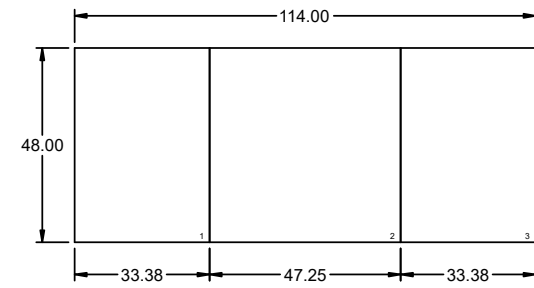
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 125 BACKSPLASH



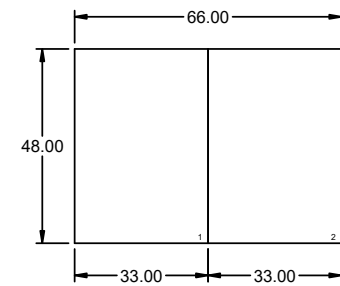
CONFORMS TO NSF 61

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MARK	MODEL	INSULATED	DIMENSIONS (IN.)			CONSTR.	LOCATION
			WIDTH	LENGTH	HEIGHT		
126 BACKSPLASH	SPLASH PANEL	NO		114	48	304 S.S.	BACK
	SPLASH PANEL	NO		66	48	304 S.S.	RIGHT



**BACK SPLASH**



**RIGHT SIDE SPLASH**

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MIDLAND CTE R4

MARK  
 126 BACKSPLASH



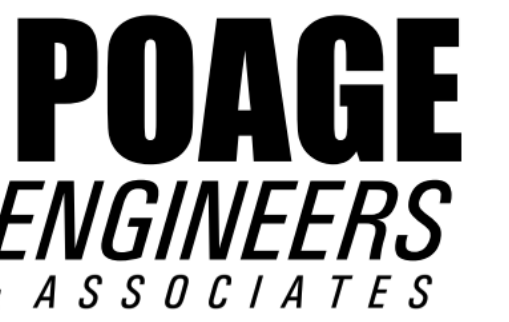
COMMERCIAL GRADE

REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3

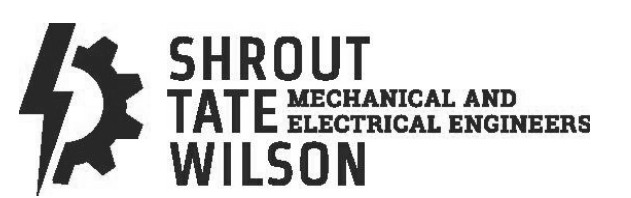


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p. 859-231-7538 | f. 859-255-4380  
[www.eopa.com](http://www.eopa.com)



Poage Engineers & Associates Inc  
Structural Engineers  
880 Sparta Ct. Ste. 200  
Lexington, KY 40504

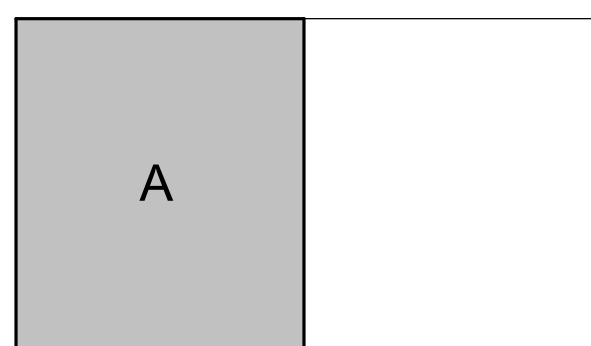


Shrout Tate Wilson Consulting Engineers  
MEP Engineers  
628 Winchester Rd.  
Lexington, KY 40505



Element Design, PLLC.  
366 S. Broadway  
Lexington, KY 40508

**KEYPLAN**

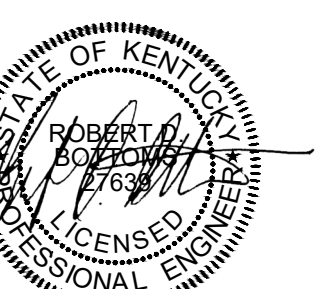


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Job Number 2150  
Drawn By JHS  
Checked By RDB  
Date 09/28/2022



FIRST FLOOR PLAN A -  
LIGHTING

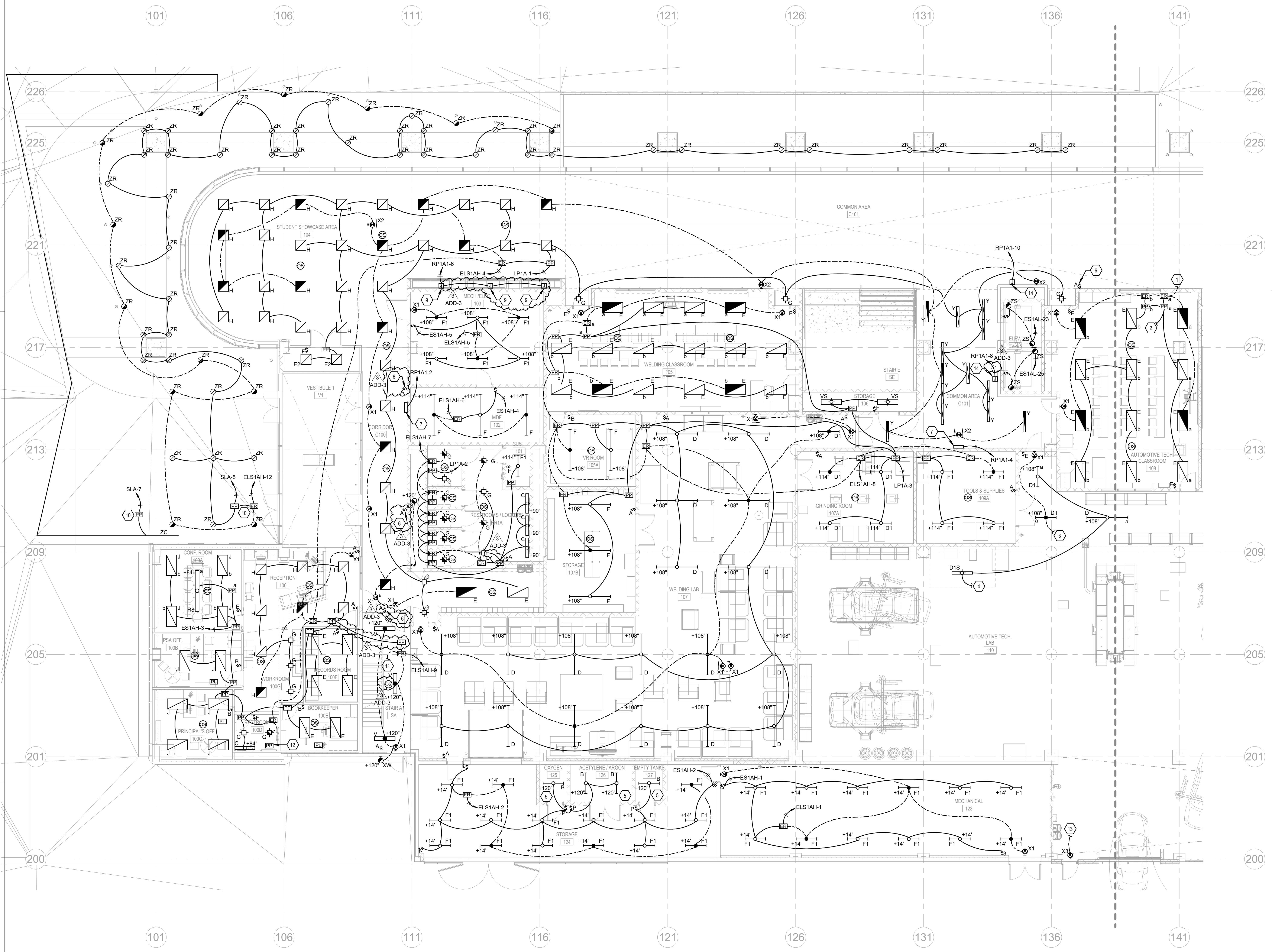
**E101a**

**GENERAL NOTES**

- A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
- B. REFER TO POWER DRAWINGS FOR QUANTITIES OF PLUG LOAD CONTROLLER MODULES WHERE PLUG LOAD CONTROL MODULES ARE INDICATED ON THIS DRAWING.

**SHEET KEYNOTES**

1. CIRCUIT CONTINUES. REFER TO SHEET NOTE #1 ON SHEET E101b.
2. CIRCUIT CONTINUES. REFER TO SHEET NOTE #2 ON SHEET E101b.
3. CIRCUIT CONTINUES. REFER TO SHEET NOTE #3 ON SHEET E101b.
4. CIRCUIT CONTINUES. REFER TO SHEET NOTE #4 ON SHEET E101b.
5. PROVIDE CONDUIT SEALS FOR ALL CONDUITS ENTERING AND EXITING THIS ROOM.
6. SWITCH FOR CONTROL OF PLAN WEST CORRIDOR LIGHTING.
7. WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE DIMMING POWER PACK SHALL BE LOCATED AT NEAREST ACCESSIBLE CONCEALED CEILING. COORDINATE EXACT LOCATION OF HARD WIRING CONNECTION WITH ARCHITECT PRIOR TO INSTALLATION.
8. PROVIDE HARD WIRING CONNECTION FOR INTERNALLY ILLUMINATED DISPLAY CASES FURNISHED BY OTHERS. ROUTE CIRCUIT THROUGH DEDICATED DIMMING POWER PACK. DIMMING POWER PACK SHALL BE LOCATED AT NEAREST ACCESSIBLE CONCEALED CEILING. COORDINATE EXACT LOCATION OF HARD WIRING CONNECTION WITH ARCHITECT PRIOR TO INSTALLATION.
9. ROUTE CIRCUIT THROUGH EXTERIOR LTG CONTROL RELAYS. LOCATE RELAYS ADJACENT TO PANEL SLA. FIELD COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
10. EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER ABOVE.
11. PROVIDE 2#12, 1#2G, 3/4" CONDUIT TO EXHAUST FAN IN THIS ROOM. PROVIDE LIGHTING CONTROL CABLE FROM THIS POWER PACK TO LIGHTING CONTROL DEVICE IN THIS ROOM. REFER TO POWER PLAN FOR EXHAUST FAN LOCATIONS.
12. CONNECT TO EMERGENCY LIGHTING CIRCUIT IN THIS ROOM.
13. PROVIDE HARD WIRING CONNECTION FOR INTERNALLY ILLUMINATED LED SIGNAGE. ROUTE CIRCUIT THROUGH DEDICATED DIMMING POWER PACK. COORDINATE EXACT LOCATION OF LED SIGNAGE WITH ARCHITECT PRIOR TO INSTALLATION. DIMMING POWER PACK SHALL BE LOCATED AT NEAREST ACCESSIBLE CONCEALED CEILING.

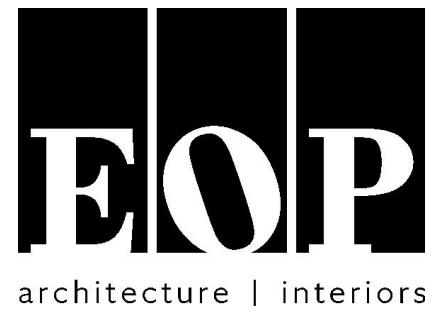


**1 FIRST FLOOR PLAN A - LIGHTING**  
SCALE: 1/8" = 1'-0"



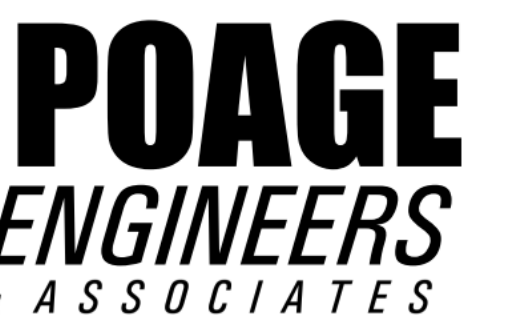
10/20/2022 10:05:51 AM

REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3

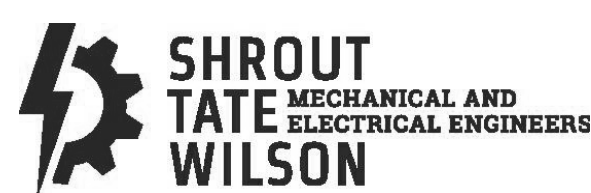


**PROJECT TEAM**

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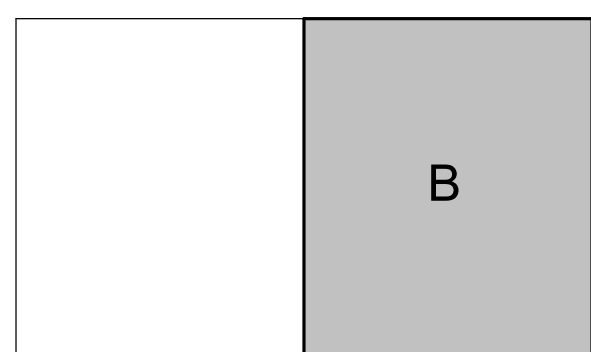


ShROUT Tate Wilson Consulting Engineers  
MEP Engineers  
628 Winchester Rd.  
Lexington, KY 40505



Element Design, PLLC.  
366 S. Broadway  
Lexington, KY 40508

**KEYPLAN**

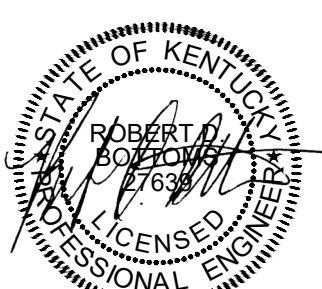


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Job Number 2150  
Drawn By JHS  
Checked By RDB  
Date 09/28/2022



**FIRST FLOOR PLAN B - LIGHTING**

**E101b**

**GENERAL NOTES**

A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES**

- CIRCUIT CONTINUES. REFER TO SHEET NOTE #1 ON SHEET E101a.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #2 ON SHEET E101a.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #3 ON SHEET E101a.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #4 ON SHEET E101a.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #4 ON SHEET E102a.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #5 ON SHEET E102a.
- WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE CONNECTION FROM DRIVER AS REQUIRED. PROVIDE SINGLE POLE SNAP DISCONNECT SWITCH. CIRCUIT AS SHOWN.
- PROVIDE AUXILIARY CONTACT ON DISCONNECT SWITCH SERVING OVERHEAD DOOR AND ROUTE CIRCUIT THROUGH CONTACT FOR DISCONNECTING MEANS. PROVIDE LINE VOLTAGE DOOR POSITION SWITCH FOR CONTROL OF WARNING LIGHTS. LIGHTS SHALL BE CONTROLLED BY NEAREST OVERHEAD DOOR.
- ROUTE CIRCUIT THROUGH EXTERIOR LIGHTING CONTROL RELAYS. LOCATE RELAYS ADJACENT TO PANEL SLB. FIELD COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
- EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER ABOVE.
- PROVIDE #12, 192G, 3/4" CONDUIT TO EXHAUST FAN IN THIS ROOM. PROVIDE LIGHTING CONTROL CABLE FROM THIS POWER PACK TO LIGHTING CONTROL DEVICE IN THIS ROOM. REFER TO POWER PLAN FOR EXHAUST FAN LOCATIONS.



**1 FIRST FLOOR PLAN B - LIGHTING**  
SCALE: 1/8" = 1'-0"

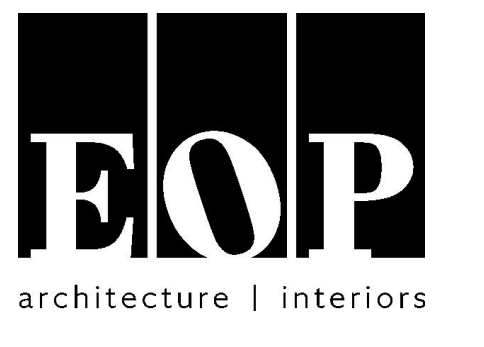


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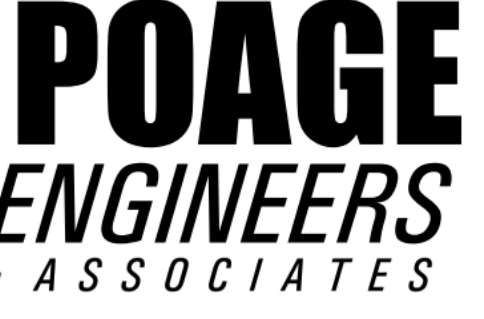


**BID DOCUMENTS**

REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3



**PROJECT TEAM**  
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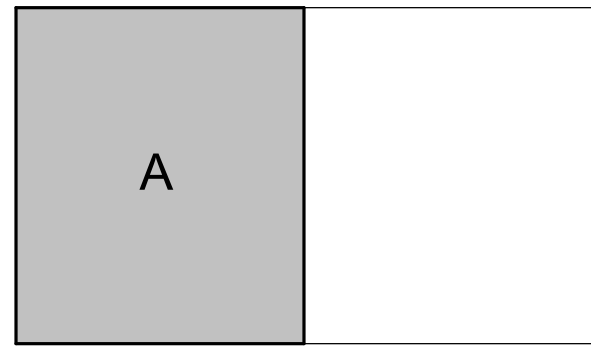


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**KEYPLAN**

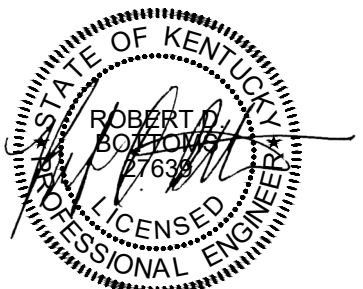
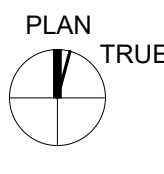


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Job Number 2150  
Drawn By JHS  
Checked By RDB  
Date 09/28/2022



**SECOND FLOOR PLAN  
A - LIGHTING**

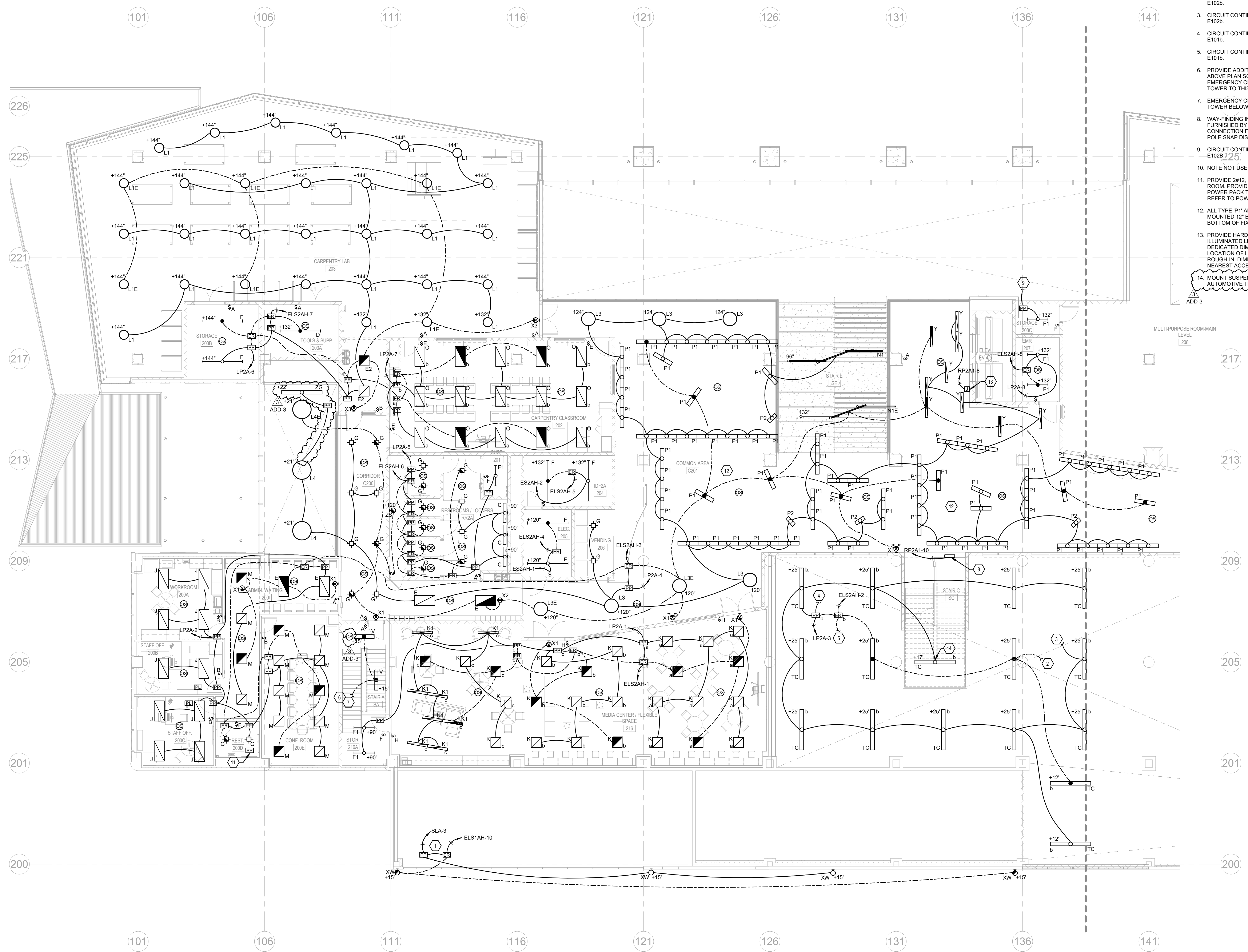
**E102a**

**GENERAL NOTES**

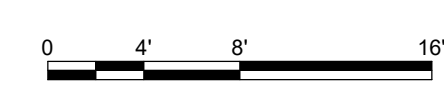
- A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
- B. REFER TO POWER DRAWINGS FOR QUANTITIES OF PLUG LOAD CONTROLLER MODULES WHERE PLUG LOAD CONTROL MODULES ARE INDICATED ON THIS DRAWING.

**SHEET KEYNOTES**

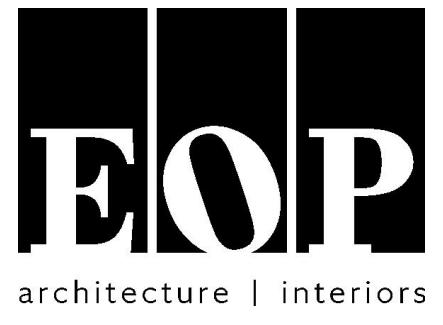
1. ROUTE CIRCUIT THROUGH EXTERIOR LTG CONTROL RELAYS. LOCATE RELAYS ADJACENT TO PANEL SLA. FIELD COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
2. CIRCUIT CONTINUES. REFER TO SHEET NOTE #1 ON SHEET E102b.
3. CIRCUIT CONTINUES. REFER TO SHEET NOTE #2 ON SHEET E102b.
4. CIRCUIT CONTINUES. REFER TO SHEET NOTE #5 ON SHEET E101b.
5. CIRCUIT CONTINUES. REFER TO SHEET NOTE #6 ON SHEET E101b.
6. PROVIDE ADDITIONAL TYPE 'S' FIXTURE SURFACE MOUNTED ABOVE PLAN SOUTH LANDING AT THIS LEVEL. EXTEND EMERGENCY CIRCUIT SERVING OTHER FIXTURES IN STAIR TOWER TO THIS FIXTURE.
7. EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER BELOW.
8. WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE CONNECTION FROM DRIVER AS REQUIRED. PROVIDE SINGLE POLE SNAP DISCONNECT SWITCH. CIRCUIT AS SHOWN.
9. CIRCUIT CONTINUES. REFER TO SHEET NOTE #6 ON SHEET E102b.
10. NOTE NOT USED.
11. PROVIDE #12, 1/2" O.D., 3/4" CONDUIT TO EXHAUST FAN IN THIS ROOM. PROVIDE LIGHTING CONTROL CABLE FROM THIS POWER PACK TO LIGHTING CONTROL DEVICE IN THIS ROOM. REFER TO POWER PLAN FOR EXHAUST FAN LOCATIONS.
12. ALL TYPE 'P1' AND 'P2' FIXTURES IN THIS SPACE ARE TO BE MOUNTED 12" BELOW BOTTOM OF CEILING FEATURE TO BOTTOM OF FIXTURE.
13. PROVIDE HARD WIRED CONNECTION FOR INTERNALLY ILLUMINATED LED SIGNAGE. ROUTE CIRCUIT THROUGH DEDICATED DIMMING POWER PACK. COORDINATE EXACT LOCATION OF LED SIGNAGE WITH ARCHITECT PRIOR TO ROUGH-IN. DIMMING POWER PACK SHALL BE LOCATED AT NEAREST ACCESSIBLE CONCEALED CEILING.
14. MOUNT SUSPENDED FIXTURE UNDER BOTTOM OF STAIR IN AUTOMOTIVE TECH. LAB 110.



**1 SECOND FLOOR PLAN A - LIGHTING**  
SCALE: 1/8" = 1'-0"

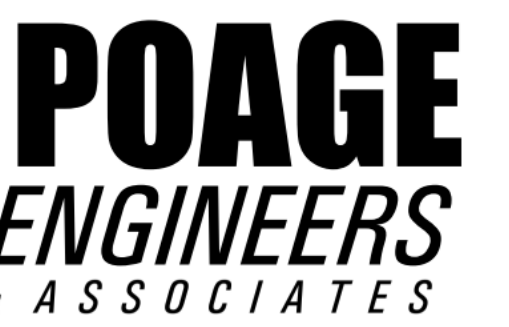


REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3



**PROJECT TEAM**

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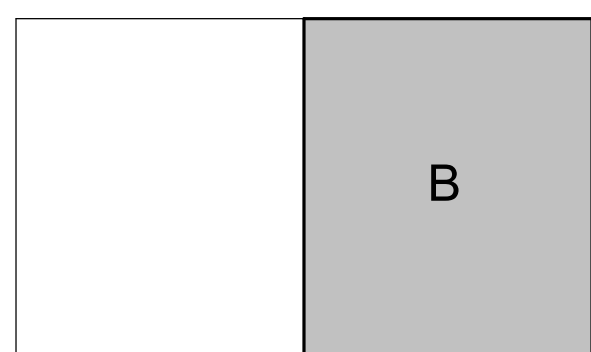


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**KEYPLAN**



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Drawn By JHS  
Checked By RDB  
Date 09/28/2022



**SECOND FLOOR PLAN  
B - LIGHTING**

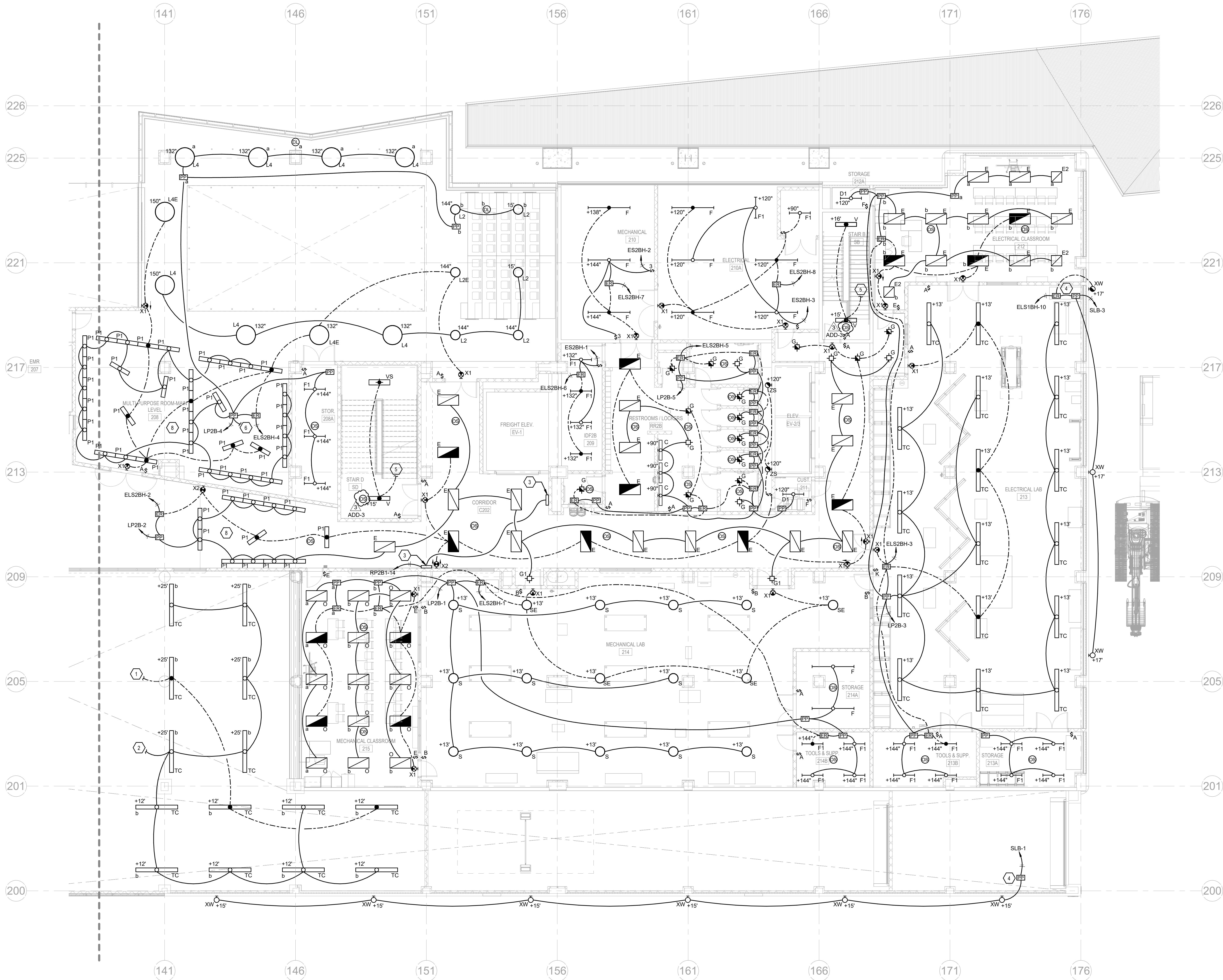
**E102b**

**GENERAL NOTES**

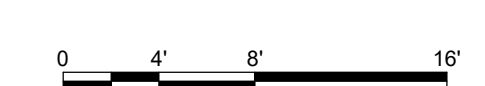
A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES**

- CIRCUIT CONTINUES. REFER TO SHEET NOTE #2 ON SHEET E102a.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #3 ON SHEET E102a.
- WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE CONNECTION FROM DRIVER AS REQUIRED. PROVIDE SINGLE POLE SNAP DISCONNECT SWITCH. CIRCUIT AS SHOWN.
- ROUTE CIRCUIT THROUGH EXTERIOR LIGHTING CONTROL RELAY(S). LOCATE RELAY(S) ADJACENT TO PANEL SLB. FIELD COORDINATE EXACT LOCATION OF RELAY(S) PRIOR TO INSTALLATION.
- EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER BELOW.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #9 ON SHEET E102a.
- NOTE NOT USED.
- ALL TYPE 'P1' AND 'P2' FIXTURES IN THIS SPACE ARE TO BE MOUNTED 12" BELOW BOTTOM OF CEILING FEATURE TO BOTTOM OF FIXTURE.

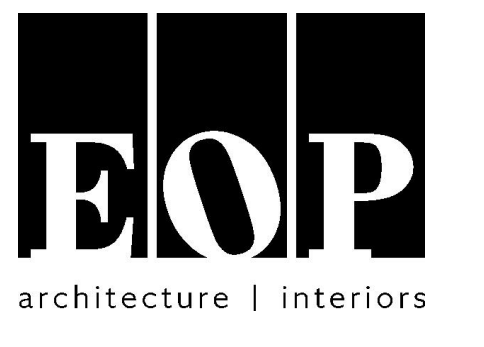


**1 SECOND FLOOR PLAN B - LIGHTING**  
SCALE: 1/8" = 1'-0"



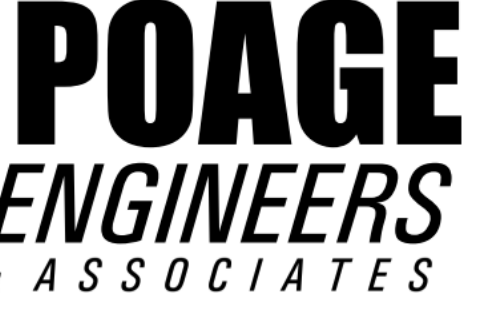
**BID DOCUMENTS**

REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3

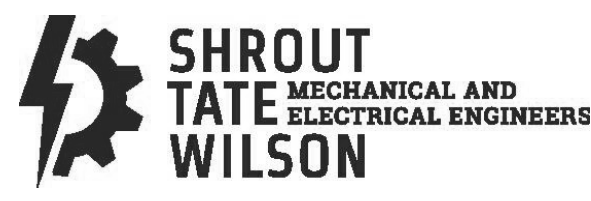


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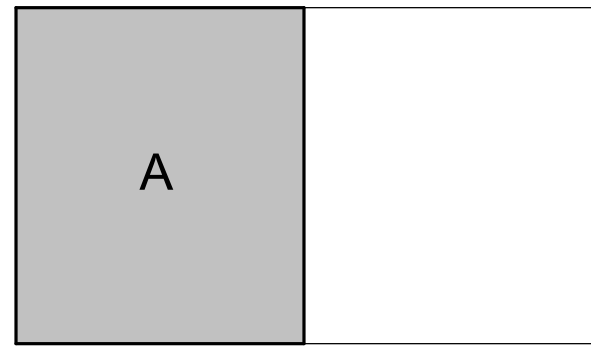


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**KEYPLAN**

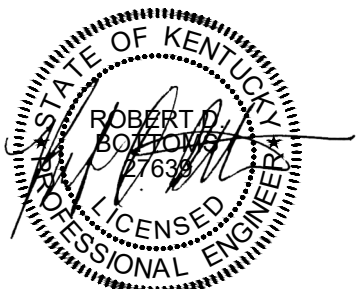


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Date 09/28/2022

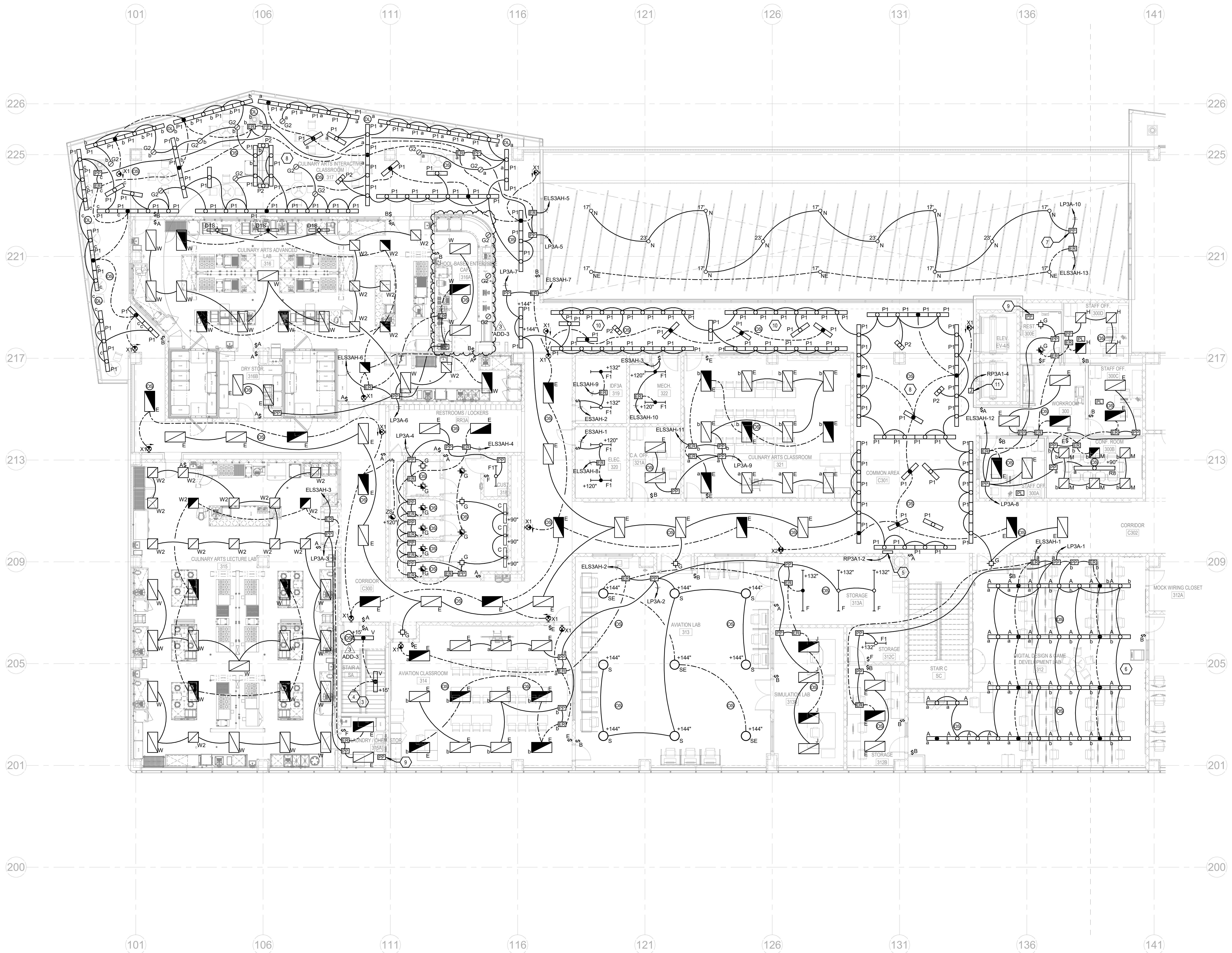


**THIRD FLOOR PLAN A - LIGHTING**

**E103a**

**GENERAL NOTES**

- A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
  - B. REFER TO POWER DRAWINGS FOR QUANTITIES OF PLUG LOAD CONTROLLER MODULES WHERE PLUG LOAD CONTROL MODULES ARE INDICATED ON THIS DRAWING.
- SHEET KEYNOTES**
1. NOTE NOT USED.
  2. NOTE NOT USED.
  3. PROVIDE ADDITIONAL TYPE 'YS' FIXTURE SURFACE MOUNTED ABOVE PLAN SOUTH LANDING AT THIS LEVEL. EXTEND EMERGENCY CIRCUIT SERVING OTHER FIXTURES IN STAIR TOWER TO THIS FIXTURE.
  4. EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER BELOW.
  5. WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE CONNECTION FROM DRIVER AS REQUIRED. PROVIDE SINGLE POLE SNAP DISCONNECT SWITCH. CIRCUIT AS SHOWN.
  6. ALL TYPE 'A' FIXTURES IN THIS ROOM TO BE MOUNTED 14" AFF.
  7. PROVIDE CONTROLLER FOR ALL COLOR CHANGING FIXTURES. ACUITY FRESKO EASYLY PRO DIMM CONTROLLER OR EQUAL. COORDINATE EXACT LOCATION OF SWITCH WITH OWNER PRIOR TO INSTALLATION.
  8. ALL TYPE 'P1' AND 'P2' FIXTURES IN THIS SPACE ARE TO BE MOUNTED 12" BELOW BOTTOM OF CEILING FEATURE TO BOTTOM OF FIXTURE.
  9. PROVIDE #12, 1#2G, 3/4" CONDUIT TO EXHAUST FAN IN THIS ROOM. PROVIDE LIGHTING CONTROL CABLE FROM THIS POWER PACK TO LIGHTING CONTROL DEVICE IN THIS ROOM. REFER TO POWER PLAN FOR EXHAUST FAN LOCATIONS.
  10. ALL TYPE 'P1' AND 'P2' FIXTURES IN THIS SPACE ARE TO BE MOUNTED 6" BELOW BOTTOM OF CEILING FEATURE TO BOTTOM OF FIXTURE.
  11. PROVIDE HARD WIRED CONNECTION FOR INTERNALLY ILLUMINATED LED SIGNAGE. ROUTE CIRCUIT THROUGH DEDICATED DIMMING POWER PACK. COORDINATE EXACT LOCATION OF LED SIGNAGE WITH ARCHITECT PRIOR TO ROUGH-IN. DIMMING POWER PACK SHALL BE LOCATED AT NEAREST ACCESSIBLE CONCEALED CEILING.

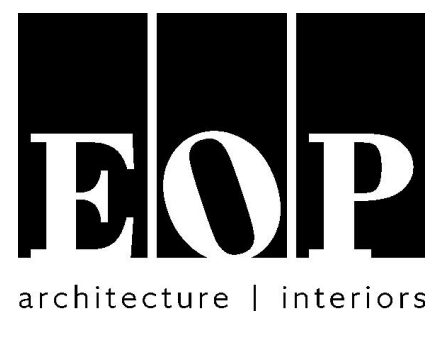


**1 THIRD FLOOR PLAN A - LIGHTING**  
SCALE: 1/8" = 1'-0"



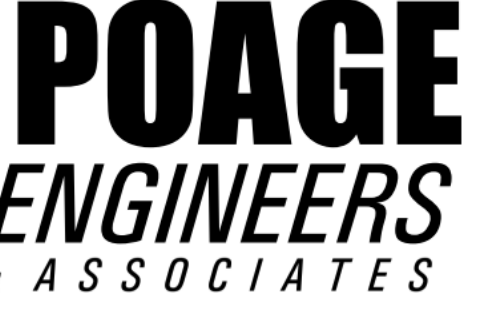
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REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3



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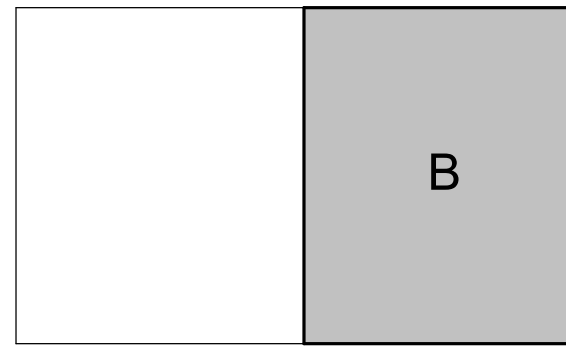


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**KEYPLAN**

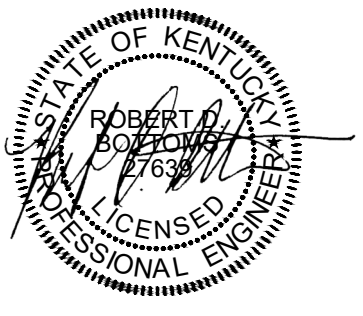
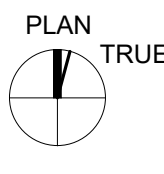


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Date 09/28/2022



**THIRD FLOOR PLAN B - LIGHTING**

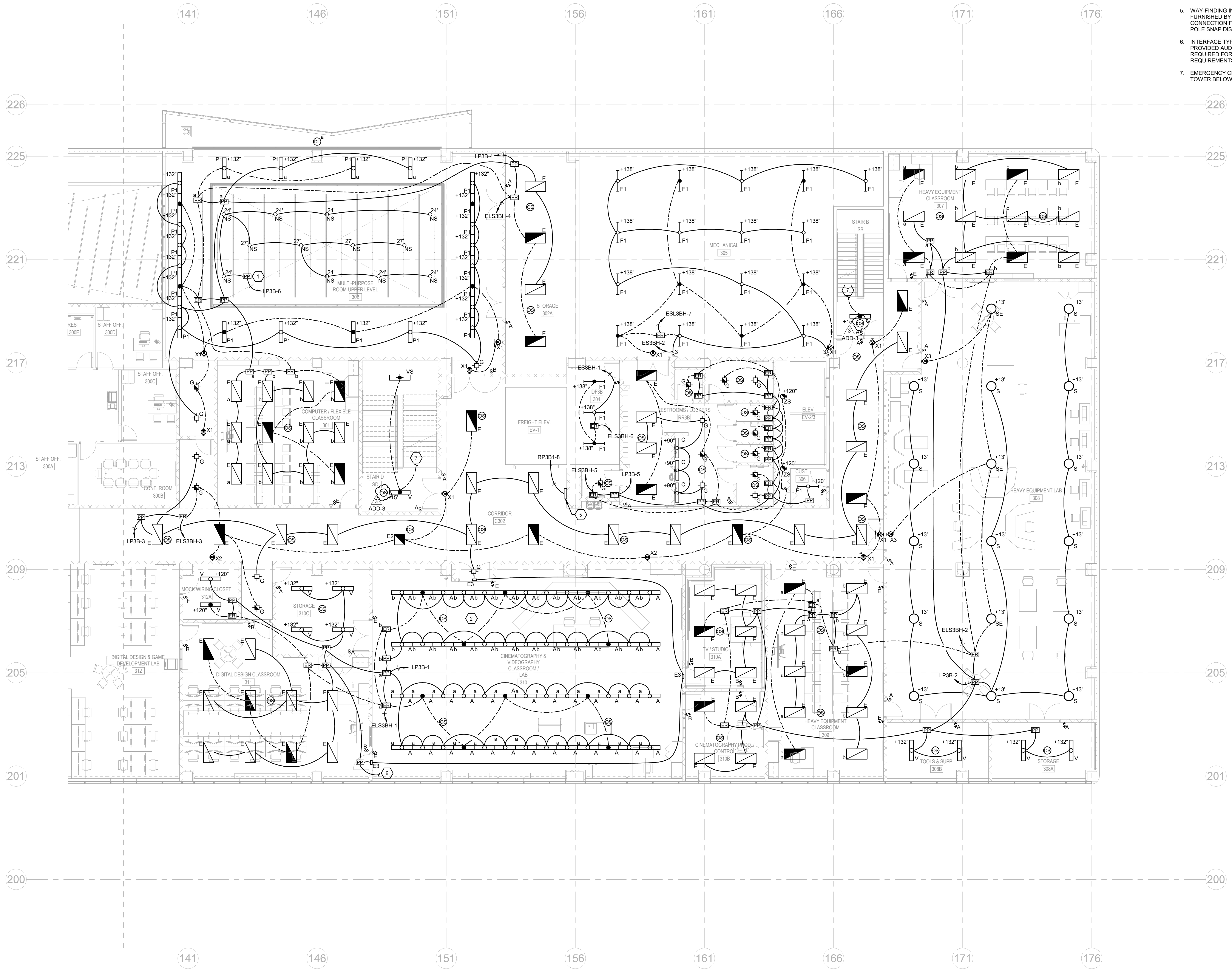
**E103b**

**GENERAL NOTES**

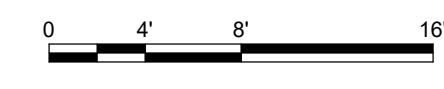
A. REFER TO DRAWING E002 FOR ELECTRICAL GENERAL NOTES.

**SHEET KEYNOTES**

- ALL TYPE 'N' FIXTURES TO BE CONNECTED TO COLOR CHANGING CONTROLLER. REFER TO SHEET NOTE #7 ON SHEET E103a FOR ADDITIONAL INFORMATION.
- ALL TYPE 'A' FIXTURES IN THIS ROOM TO BE MOUNTED 144" AFF.
- NOTE NOT USED.
- NOTE NOT USED.
- WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE CONNECTION FROM DRIVER AS REQUIRED. PROVIDE SINGLE POLE SNAP DISCONNECT SWITCH. CIRCUIT AS SHOWN.
- INTERFACE TYPE 'E3' LIGHT FIXTURE CONTROLS TO OWNER PROVIDED AUDIOVISUAL BROADCAST EQUIPMENT AS REQUIRED FOR OPERATION. FIELD COORDINATE EXACT REQUIREMENTS WITH OWNER.
- EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER BELOW.



**1 THIRD FLOOR PLAN B - LIGHTING**  
SCALE: 1/8" = 1'-0"

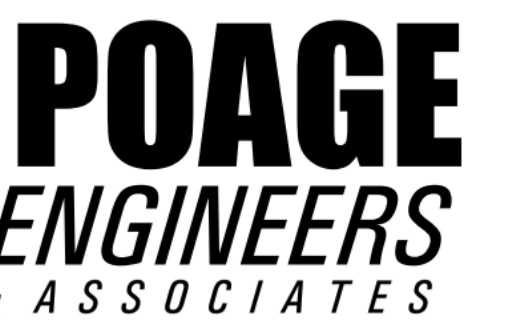


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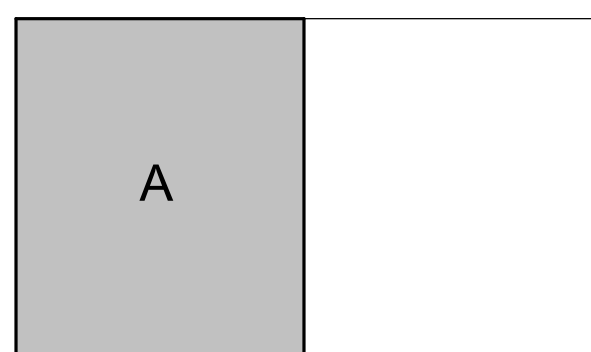


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**KEYPLAN**

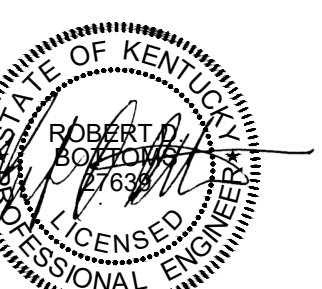


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Job Number 2150  
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**FOURTH FLOOR PLAN  
A - LIGHTING**

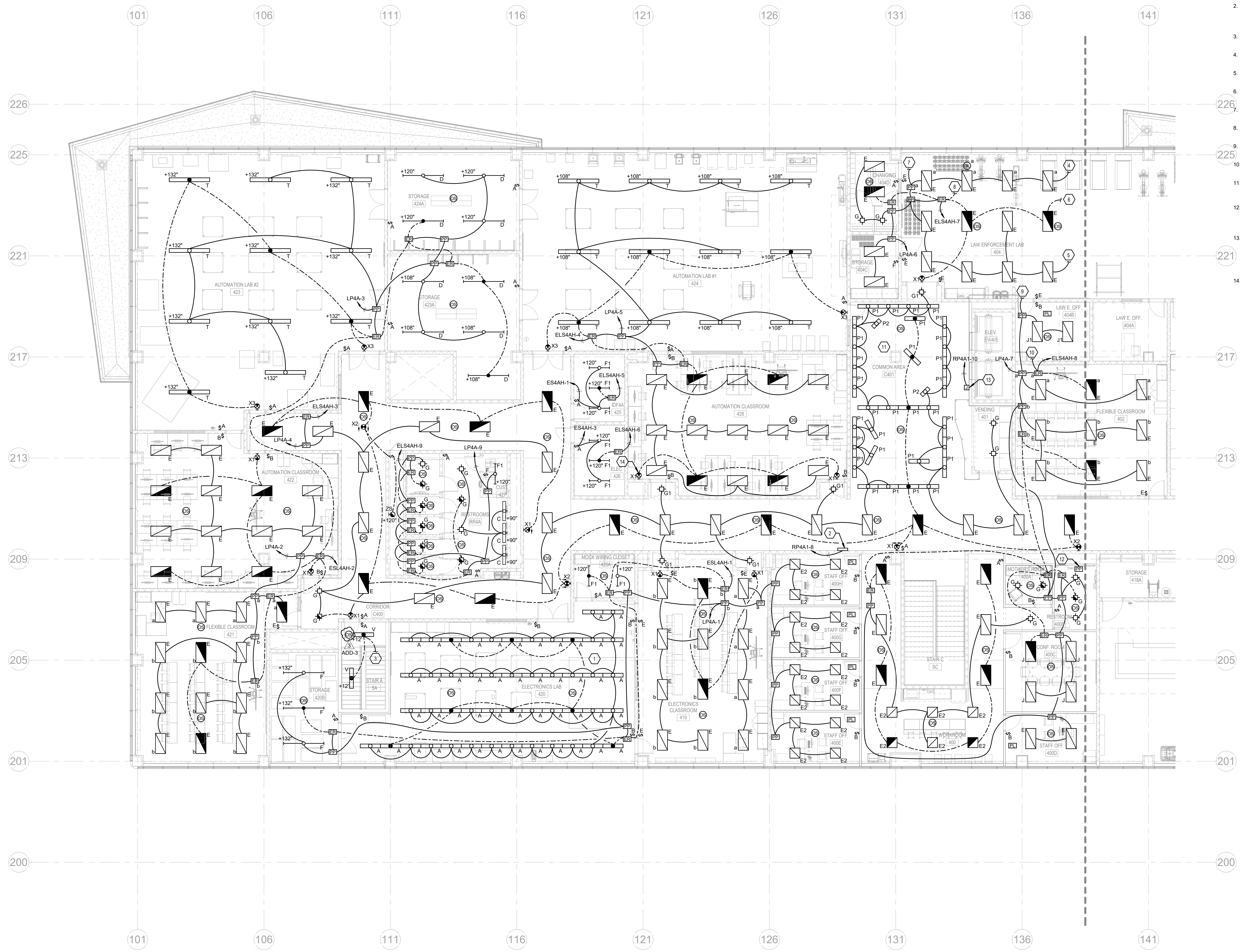
**E104a**

**GENERAL NOTES**

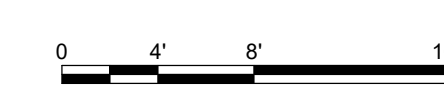
- REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
- REFER TO POWER DRAWINGS FOR QUANTITIES OF PLUG LOAD CONTROLLER MODULES WHERE PLUG LOAD CONTROL MODULES ARE INDICATED ON THIS DRAWING.

**SHEET KEYNOTES**

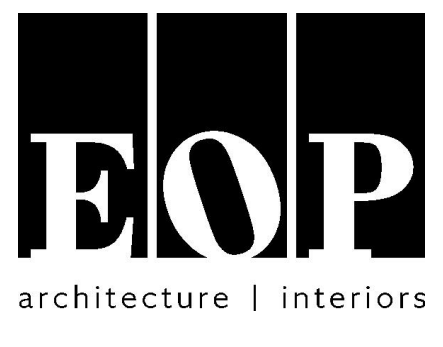
- ALL TYPE 'A' FIXTURES IN THIS ROOM TO BE MOUNTED 126" AFF.
- WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE CONNECTION FROM DRIVER AS REQUIRED. PROVIDE SINGLE POLE SNAP DISCONNECT SWITCH. CIRCUIT AS SHOWN.
- EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER BELOW.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #3 ON SHEET 104b.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #4 ON SHEET 104b.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #5 ON SHEET 104b.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #6 ON SHEET 104b.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #7 ON SHEET 104b.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #8 ON SHEET 104b.
- CIRCUIT CONTINUES. REFER TO SHEET NOTE #9 ON SHEET 104b.
- ALL TYPE 'P1' AND 'P2' FIXTURES IN THIS AREA ARE TO BE MOUNTING 6" BELOW BOTTOM OF CEILING FEATURE TO BOTTOM OF FIXTURE.
- PROVIDE #12, #16, #20, #25, #34 CONDUIT TO EXHAUST FAN IN THIS ROOM. PROVIDE LIGHTING CONTROL CABLE FROM THIS POWER PACK TO LIGHTING CONTROL DEVICE IN THIS ROOM. REFER TO POWER PLAN FOR EXHAUST FAN LOCATIONS.
- PROVIDE HARD WIRED CONNECTION FOR INTERNALLY ILLUMINATED LED SIGNAGE. ROUTE CIRCUIT THROUGH DEDICATED DIMMING POWER PACK. COORDINATE EXACT LOCATION OF LED SIGNAGE WITH ARCHITECT PRIOR TO ROUGH-IN. DIMMING POWER PACK SHALL BE LOCATED AT NEAREST ACCESSIBLE CONCEALED CEILING.
- MOUNT EXIT SIGN CENTERED ABOVE ADJACENT DOOR.



**1 FOURTH FLOOR PLAN A - LIGHTING**  
SCALE: 1/8" = 1'-0"

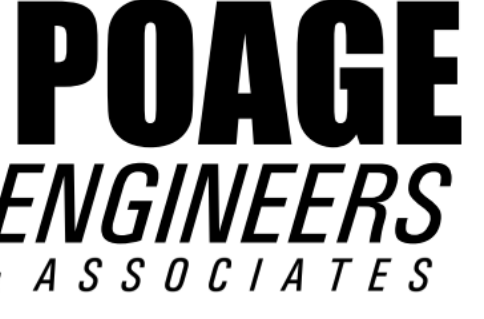


REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3

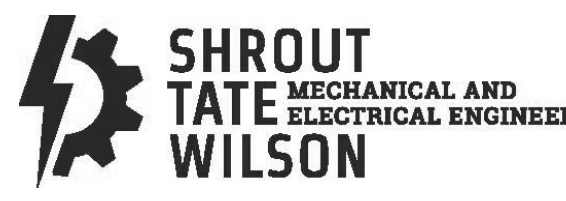


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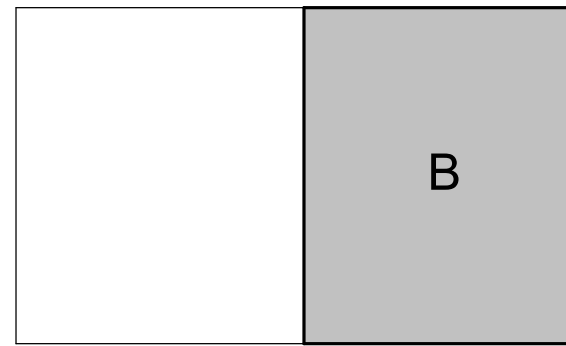


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**KEYPLAN**

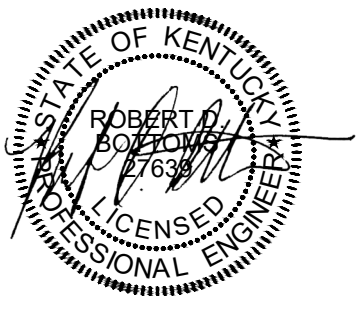
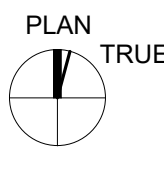


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**FOURTH FLOOR PLAN  
B - LIGHTING**

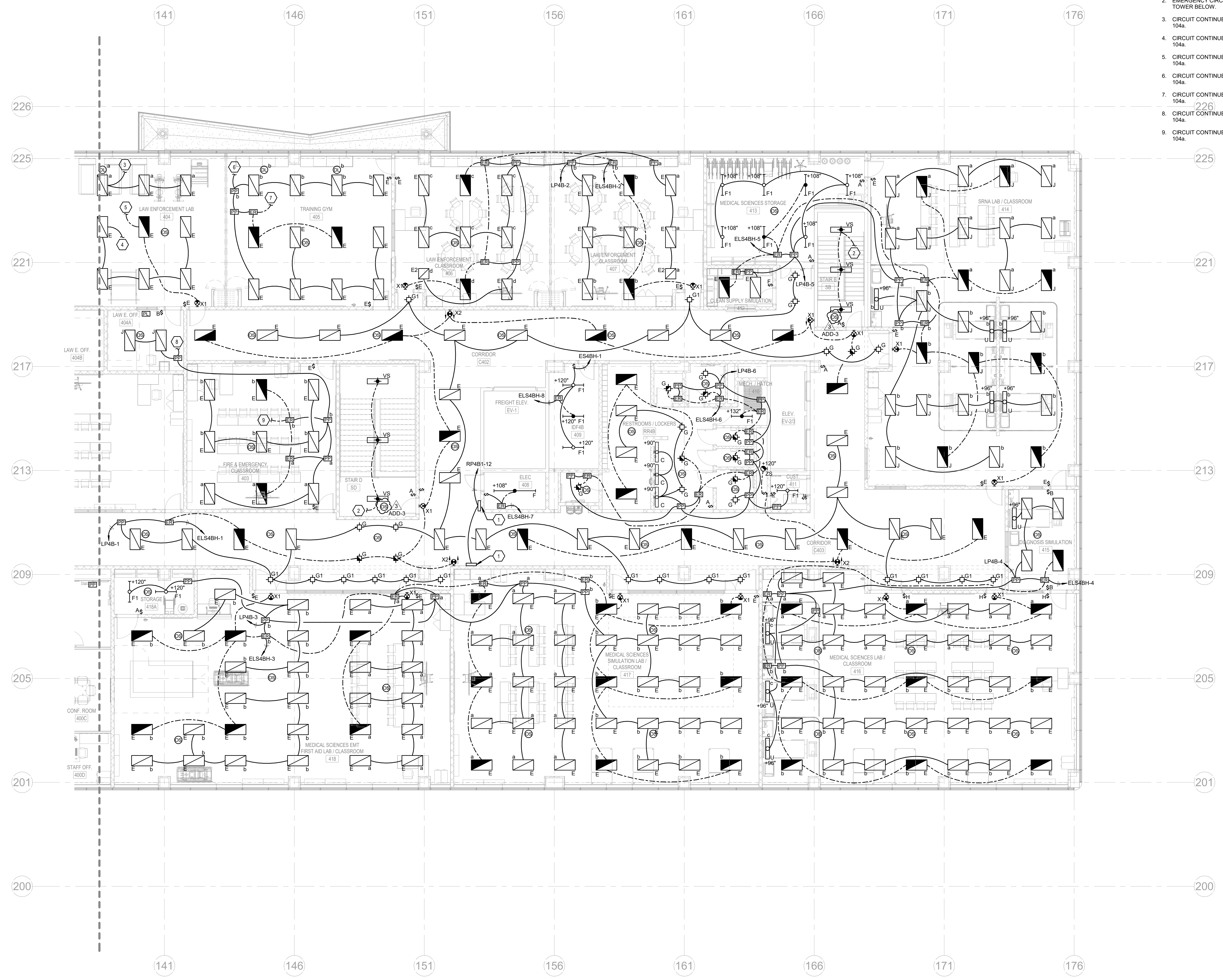
**E104b**

**GENERAL NOTES**

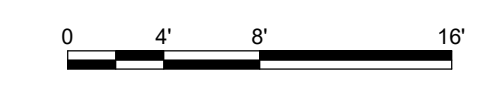
- A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
- B. REFER TO POWER DRAWINGS FOR QUANTITIES OF PLUG LOAD CONTROLLER MODULES WHERE PLUG LOAD CONTROL MODULES ARE INDICATED ON THIS DRAWING.

**SHEET KEYNOTES**

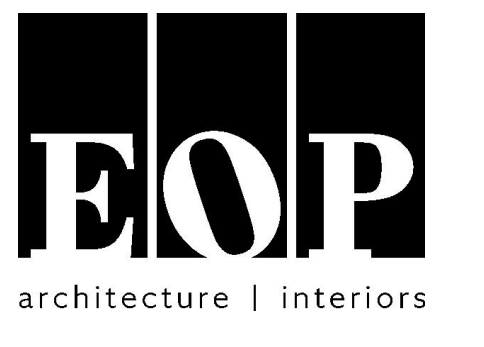
- 1. WAY-FINDING INTERNALLY ILLUMINATED (LED) SIGNAGE FURNISHED BY OTHERS. PROVIDE LOW VOLTAGE CONNECTION FROM DRIVER AS REQUIRED. PROVIDE SINGLE POLE SNAP DISCONNECT SWITCH. CIRCUIT AS SHOWN.
- 2. EMERGENCY CIRCUIT EXTENDS TO FIXTURES IN STAIR TOWER BELOW.
- 3. CIRCUIT CONTINUES. REFER TO SHEET NOTE #4 ON SHEET 104a
- 4. CIRCUIT CONTINUES. REFER TO SHEET NOTE #5 ON SHEET 104a
- 5. CIRCUIT CONTINUES. REFER TO SHEET NOTE #6 ON SHEET 104a
- 6. CIRCUIT CONTINUES. REFER TO SHEET NOTE #7 ON SHEET 104a
- 7. CIRCUIT CONTINUES. REFER TO SHEET NOTE #8 ON SHEET 104a
- 8. CIRCUIT CONTINUES. REFER TO SHEET NOTE #9 ON SHEET 104a
- 9. CIRCUIT CONTINUES. REFER TO SHEET NOTE #10 ON SHEET 104a



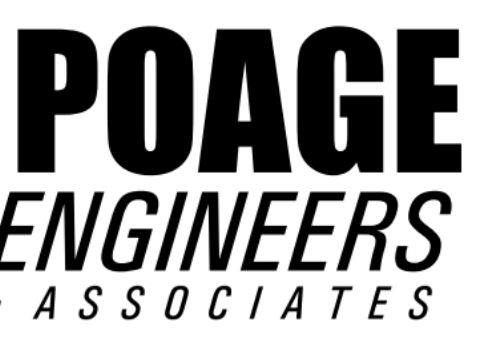
**1 FOURTH FLOOR PLAN B - LIGHTING**  
SCALE: 1/8" = 1'-0"



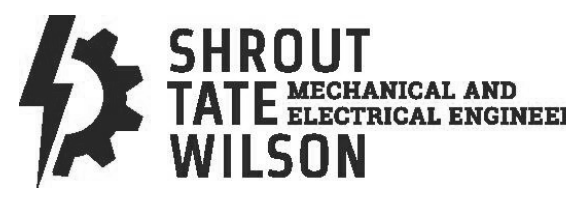
REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
2	10/17/22	ADDENDUM 2
3	10/21/22	ADDENDUM 3



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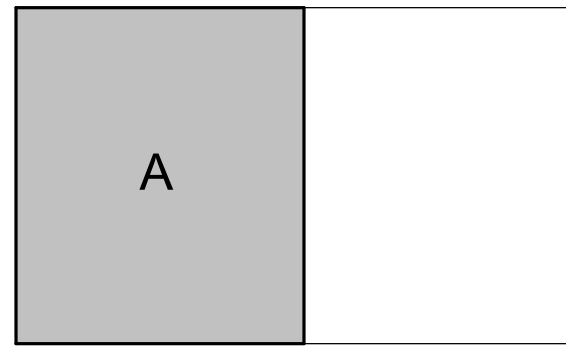


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**KEYPLAN**

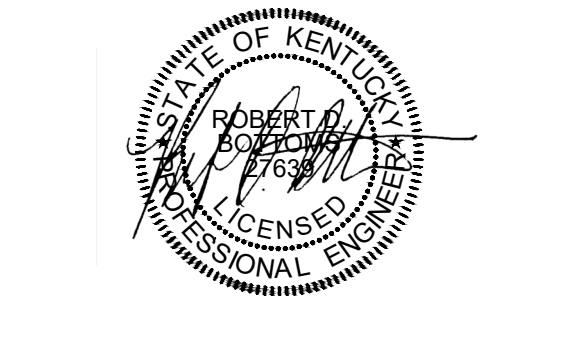


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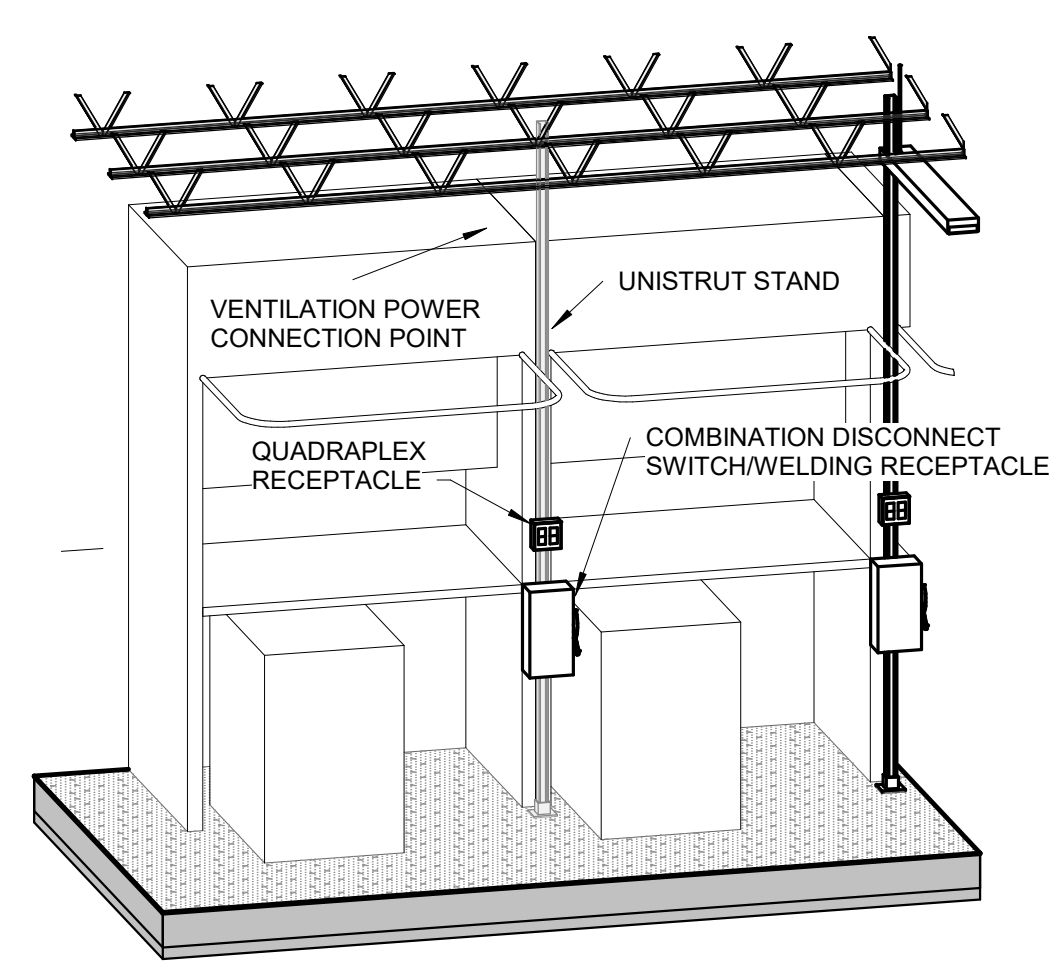
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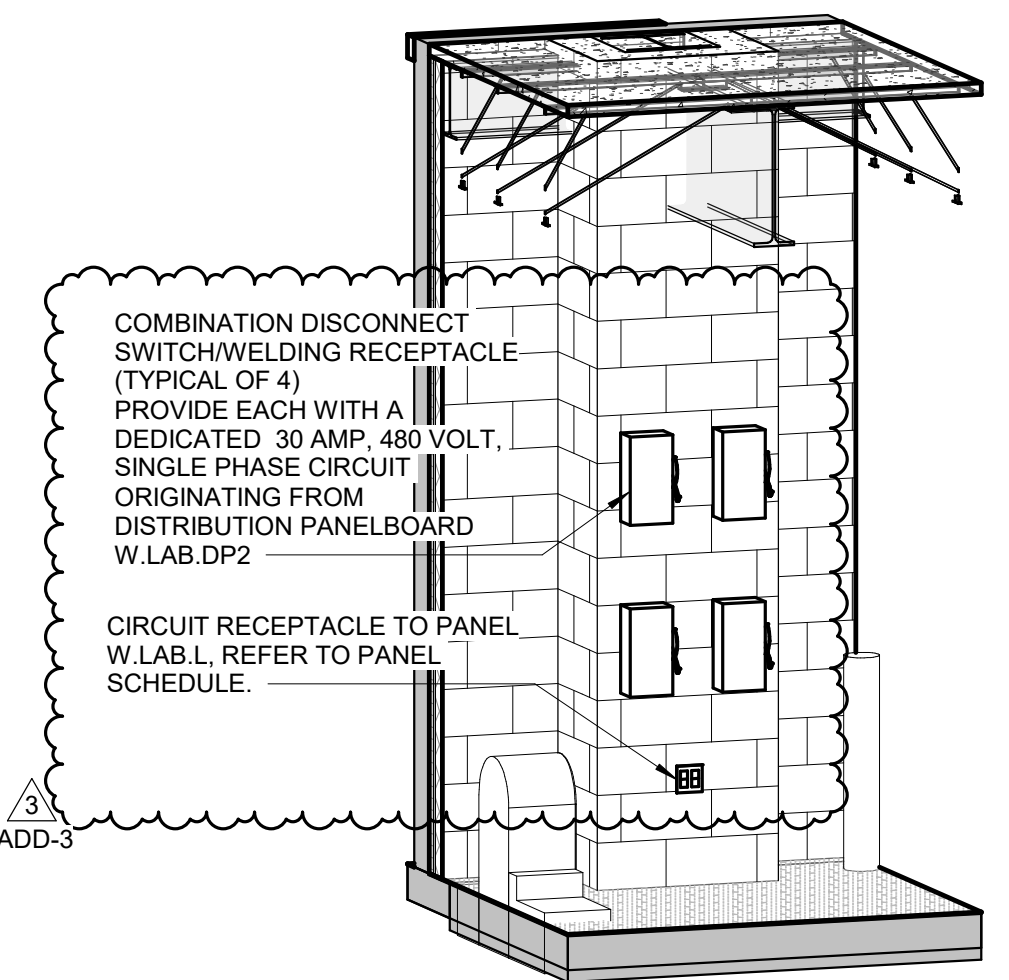


**FIRST FLOOR PLAN A - POWER**

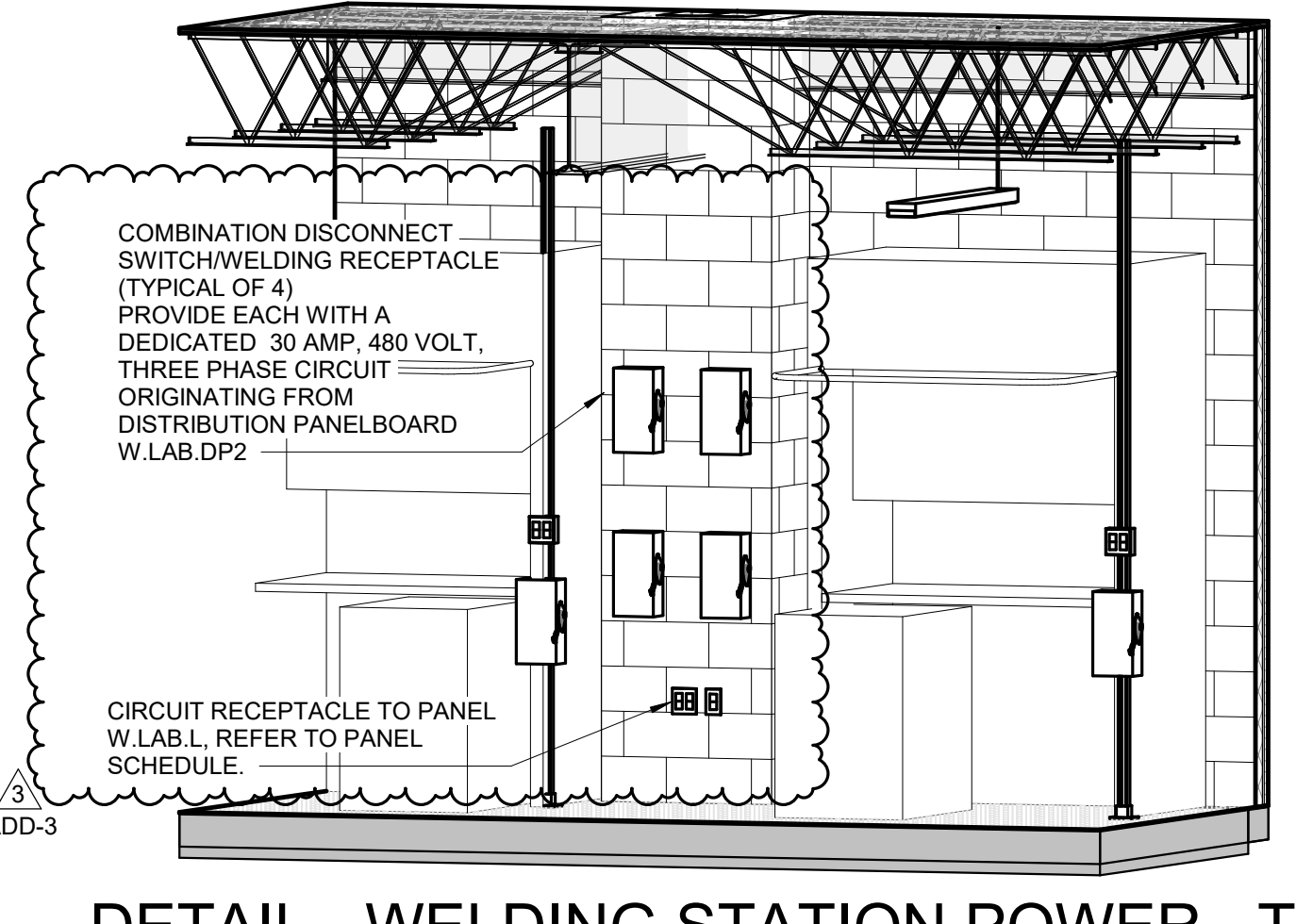
**E201a**



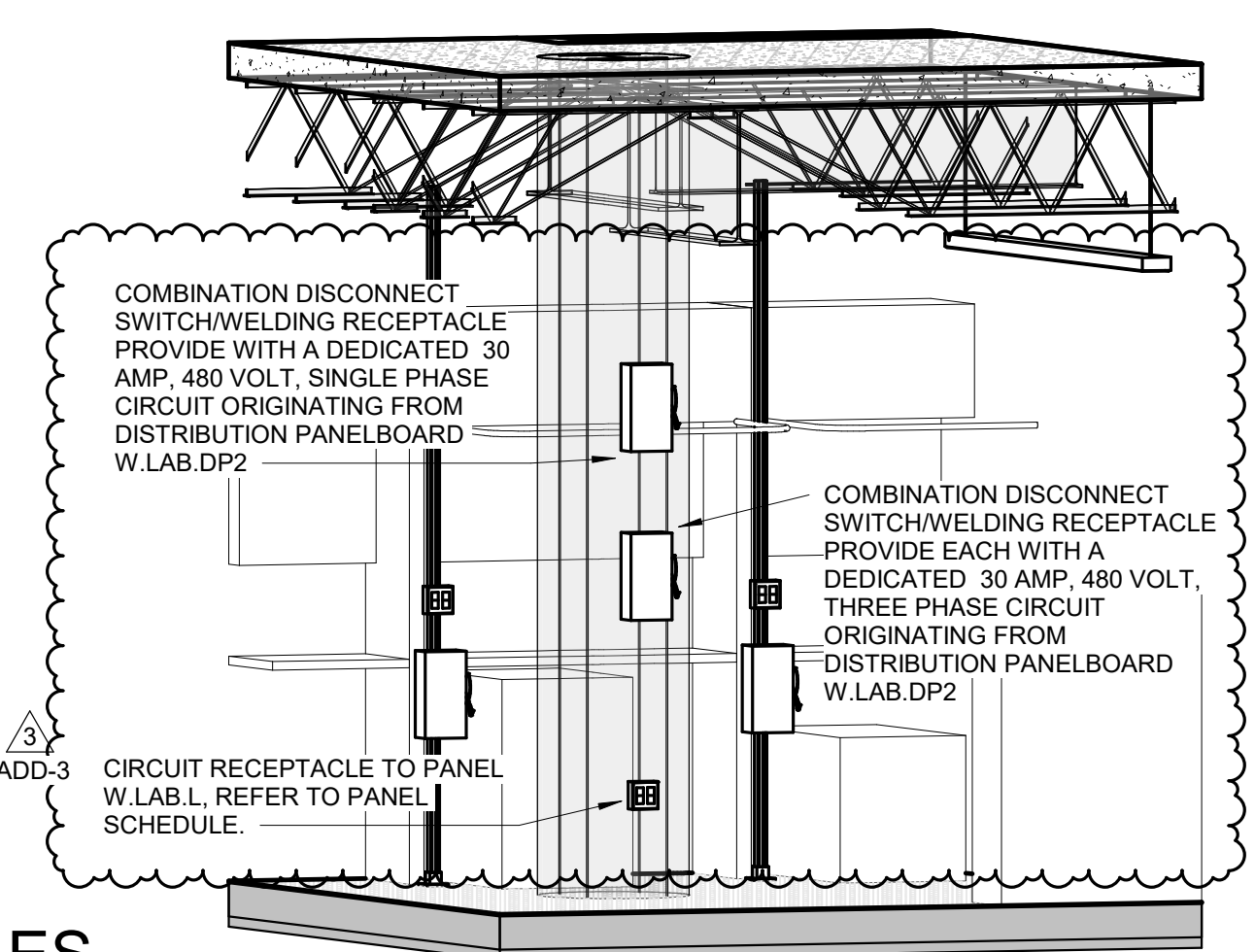
**DETAIL - WELDING STATION POWER - BOOTH (TYPICAL)**  
SCALE: 1/8" = 1'-0"



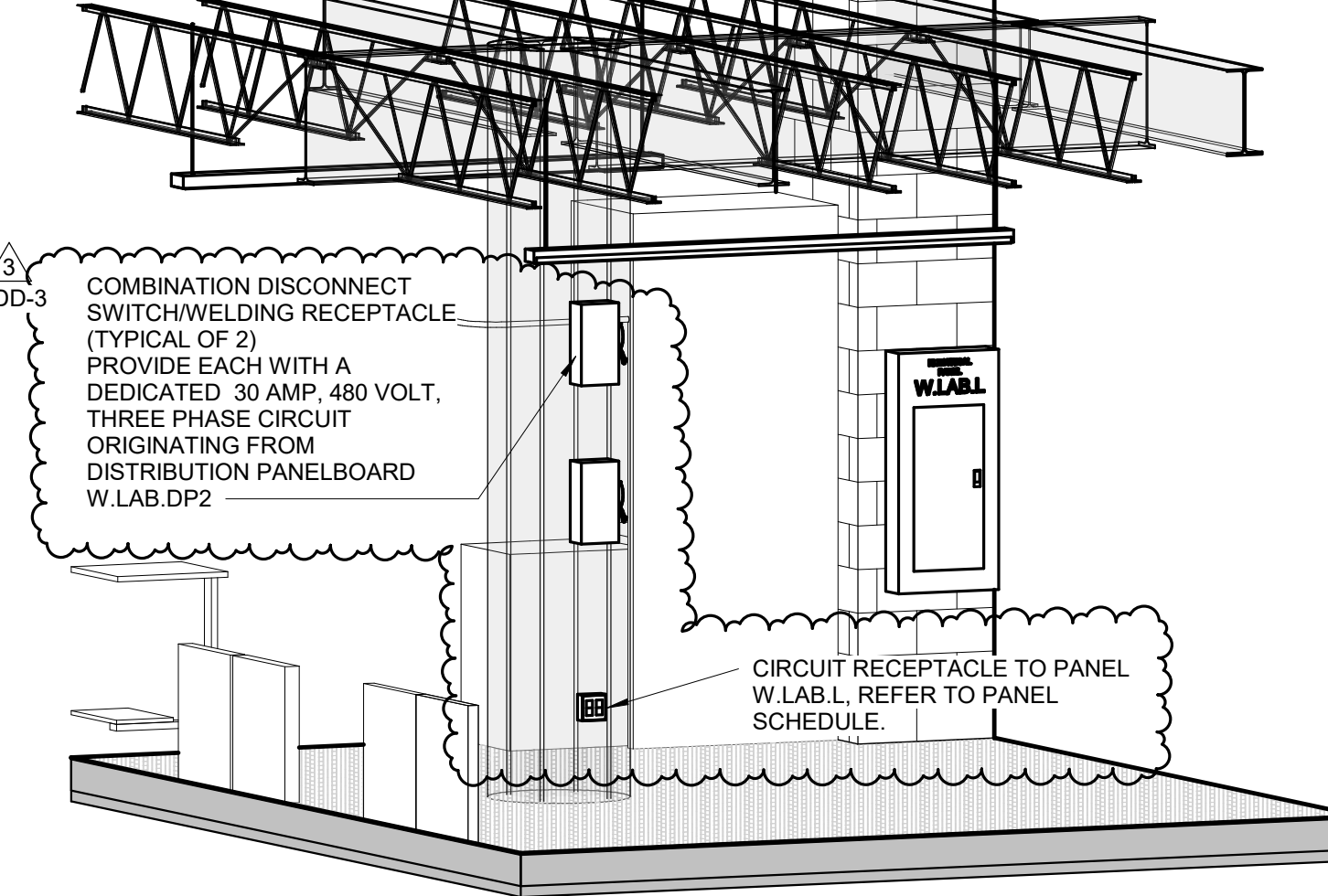
**DETAIL - WELDING STATION POWER - TABLES COLUMN 116-201**  
SCALE: 1/8" = 1'-0"



**DETAIL - WELDING STATION POWER - TABLES COLUMN LINE 121-201**  
SCALE: 1/8" = 1'-0"



**DETAIL - WELDING STATION POWER - TABLES COLUMN 116-205**  
SCALE: 1/8" = 1'-0"



**DETAIL - WELDING STATION POWER - TABLES COLUMN 121-205**  
SCALE: 1/8" = 1'-0"

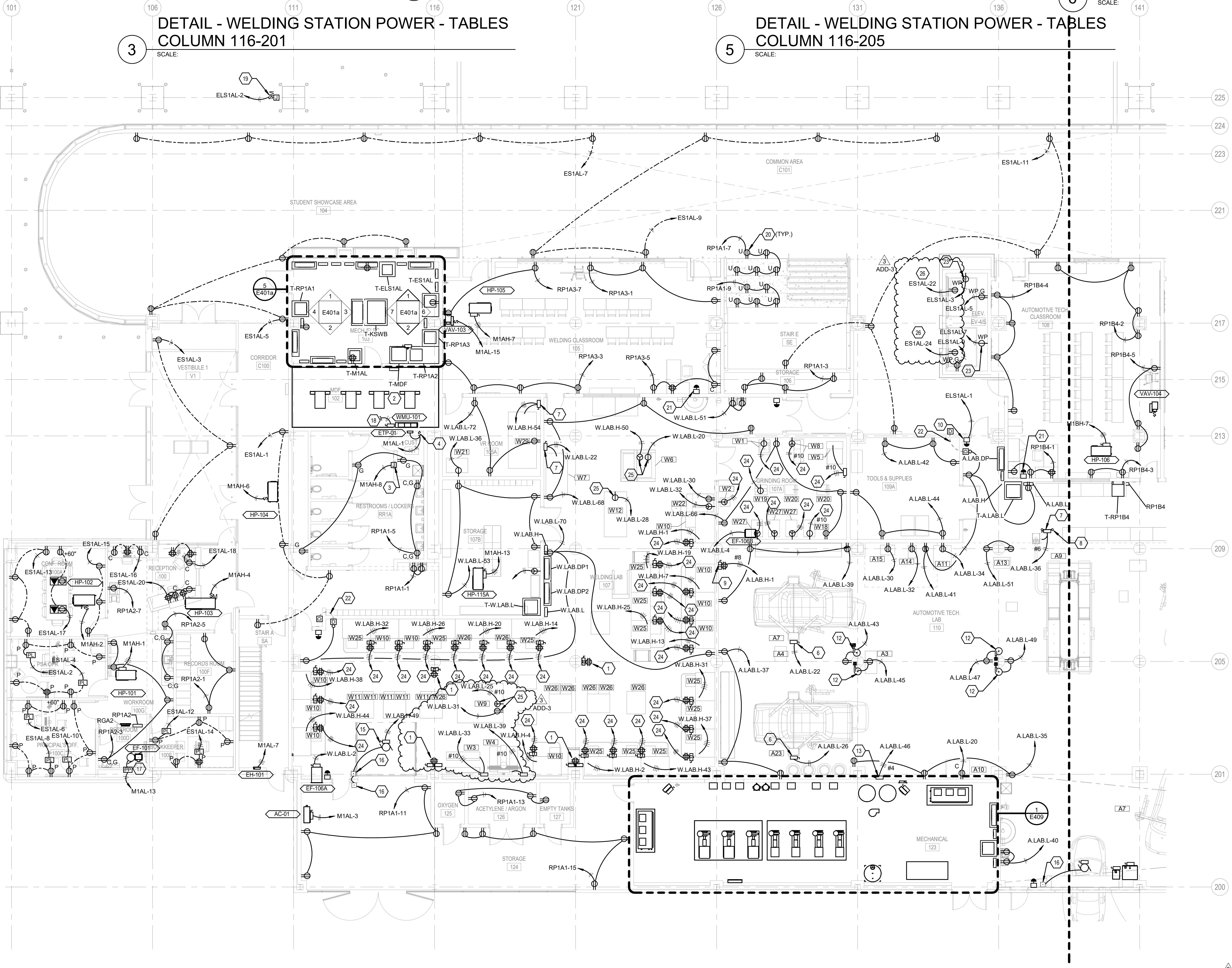
**GENERAL NOTES**

- REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
- REFER TO ARCHITECTURAL DRAWINGS FOR DESCRIPTIONS OF SPECIALTY EQUIPMENTS. WHERE SPECIALTY EQUIPMENT IS TAGGED ALONG WITH A POWER SOURCE (RECEPTACLE / DISCONNECT SWITCH, ETC.), THE ASSOCIATED POWER SOURCE SHALL SERVE THE TAGGED SPECIALTY EQUIPMENT.
- SPECIAL RECEPTACLE NEMA CONFIGURATIONS SHOWN ARE ASSUMED. CONTRACTOR SHALL FIELD COORDINATE AND/OR VERIFY EXACT SPECIAL RECEPTACLE NEMA CONFIGURATION REQUIRED WITH EQUIPMENT SERVED PRIOR TO INSTALLATION.
- WHERE EQUIPMENT IS SERVED VIA A HARDWIRED CONNECTION / DISCONNECT SWITCH, ETC., THE CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO THE EQUIPMENT.
- WHERE CIRCUITS ARE SERVING WELDING STATIONS (COMBINATION DISCONNECT SWITCHWELDING RECEPTACLE AND QUADRUPLEX RECEPTACLE) AT BOOTHS, TABLES, ETC. CIRCUIT CONDUCTORS SHALL BE AS FOLLOWS:
  - AT BOOTH: COMBINATION DISCONNECT SWITCHWELDING RECEPTACLE AND QUADRUPLEX RECEPTACLE SHALL BE MOUNTED TO A SINGLE UNISTRUT STAND EXTENDING FLOOR TO BUILDING STEEL ABOVE (REFER TO DETAIL). MOUNT COMBINATION DISCONNECT SWITCHWELDING RECEPTACLE AT 40" AFF. TO TOP AND QUADRUPLEX RECEPTACLE AT 52" AFF. THE COMBINATION DISCONNECT SWITCHWELDING RECEPTACLE AND THE QUADRUPLEX RECEPTACLE SHALL EACH BE FED FROM A DEDICATED CIRCUIT FROM PANELS SHOWN. CONDUCTORS FOR EACH PER ITEM C BELOW.
  - AT TABLE: COMBINATION DISCONNECT SWITCHWELDING RECEPTACLE AND QUADRUPLEX RECEPTACLE SHALL BE MOUNTED TO A COLUMN OR WALL AS SHOWN. MULTIPLE MOUNTING HEIGHTS MAY BE REQUIRED. REFER TO DETAILS. THE COMBINATION DISCONNECT SWITCHWELDING RECEPTACLE AND THE QUADRUPLEX RECEPTACLE SHALL EACH BE FED FROM A DEDICATED CIRCUIT FROM PANELS SHOWN. CONDUCTORS FOR EACH PER ITEM C BELOW.
- WELDING STATION CONDUCTOR SCHEDULE:
  - ITEM W10: 1#10N, 2#10P
  - ITEM W11: 1#10N, 2#10P
  - ITEM W25: 1#10N, 2#10P
  - ITEM W26: 2#10P
  - QUADRUPLEX RECEPTACLE: 1#10N, 1#10P
  - GROUND CONDUCTOR ALL CASES: 1#10G

**SHEET KEYNOTES**

- REFER TO DETAILS THIS SHEET FOR CIRCUITING REQUIREMENTS OF EQUIPMENT/DEVICES AT THIS COLUMN.
- ALL CIRCUITING REQUIRED WITHIN MDF ROOM AS SHOWN ON ENLARGED SYSTEMS PLANS. REFER TO E300 SERIES DRAWINGS FOR ENLARGED PLANS.
- PROVIDE JUNCTION BOX ROUGH-IN FOR CONNECTION TO WALL MOUNTED HAND DRYER EQUIPMENT. COORDINATE EXACT JUNCTION BOX AND MOUNTING REQUIREMENTS WITH APPROVED SHOP DRAWINGS.
- PROVIDE 120V, 15A, 1P MOTOR RATED TOGGLE SAFETY SWITCH IN NEMA 1 ENCLOSURE.
- PROVIDE POWER CONNECTION TO INTEGRAL DISCONNECT SWITCH.
- PROVIDE 208V, 30A, 2P NON-FUSED SAFETY SWITCH IN A NEMA 1 ENCLOSURE.
- PROVIDE 208V, 30A, 3P NON-FUSED SAFETY SWITCH IN A NEMA 1 ENCLOSURE.
- PROVIDE UNISTRUT STAND ADJACENT TO EQUIPMENT CONNECTION FOR MOUNTING OF EQUIPMENT SAFETY SWITCH.
- PROVIDE 480V, 60A, 3P NON-FUSED SAFETY SWITCH IN A NEMA 1 ENCLOSURE.
- ALL EMERGENCY POWER OFF (EPO) BUTTONS IN THIS ROOM/AREA SHALL CONTROL THE SHUNT TRIP CIRCUIT BREAKER(S) WHICH SERVE ELECTRICAL PANELS SERVING THIS ROOM/AREA. REFER TO ELECTRICAL ONE-LINE DIAGRAM, EPO WIRING DIAGRAM DETAIL, AND PANEL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
- PROVIDE 3#6, 1#10G, IN 1-1/4" CONDUIT.
- PROVIDE WALL MOUNTED EXTENSION CORD REEL. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE 208V, 100A, 3P NON-FUSED SAFETY SWITCH IN NEMA 1 ENCLOSURE FOR CONNECTION TO "HOT TANK PARTS WASHER".
- PROVIDE 3#3, 1#8G, IN 1-1/4" CONDUIT.
- PROVIDE POWER CONNECTION TO OVERHEAD DOOR.
- PROVIDE CONNECTION TO OVERHEAD DOOR CONTROLS PER MANUFACTURER'S REQUIREMENTS.
- EXHAUST FAN TO OPERATE WITH LIGHTING IN THIS ROOM.
- EXTEND CIRCUIT TO ASSOCIATED AC UNIT ON ROOF. COORDINATE EXACT UNIT WITH MECHANICAL DRAWING.
- PROVIDE WEATHERPROOF POWER CONNECTION TO FIRE PROTECTION HEAT TRACE. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
- PROVIDE PHONE CHARGING OUTLETS IN COMMUNITY STAIR RISERS. REFER ARCHITECTURAL DRAWINGS, DETAIL E3600B FOR ADDITIONAL INFORMATION.
- PROVIDE EMERGENCY POWER OFF (EPO) SWITCH AT TEACHER'S DESK. EPO SWITCH SHALL BE INTEGRATED WITH ADDITIONAL EPO'S IN RELATED, ADJACENT LAB. REFER TO EPO SWITCH DETAIL FOR MORE INFORMATION.
- PROVIDE LOW-VOLTAGE CONNECTION FOR CLASSROOM DOORBELL.
- PROVIDED DEDICATED 120V, 20 AMP, SIMPLEX RECEPTACLE FOR PIT SUMP PUMP.
- REFER TO PANEL SCHEDULES FOR CIRCUIT ORIGIN AND NUMBER.
- EQUIPMENT TO BE FED FROM CEILING. REFER TO POWER CORD DROP AT SPECIALTY EQUIPMENT DETAIL.
- PROVIDE RECEPTACLE ON TOP OF ELEVATOR CAB.

**1 FIRST FLOOR PLAN A - POWER**  
SCALE: 1/8" = 1'-0"



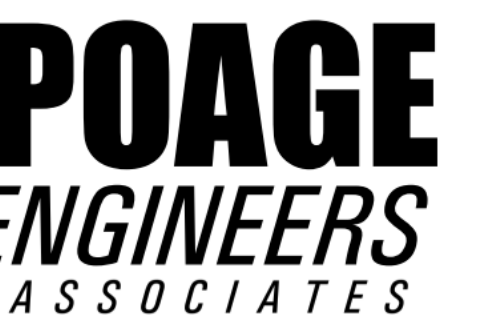
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REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3

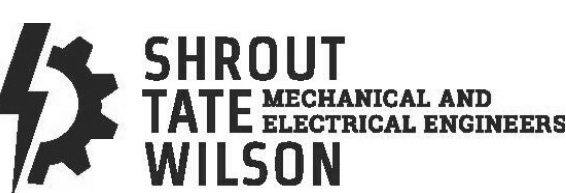


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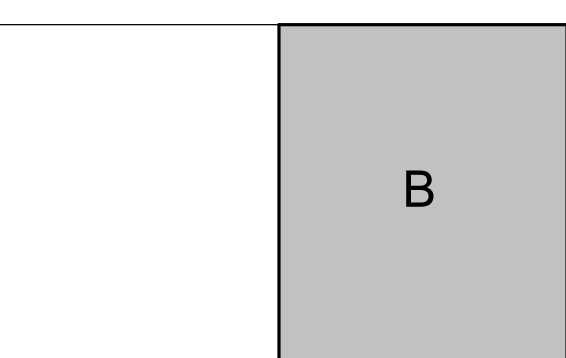


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**KEYPLAN**

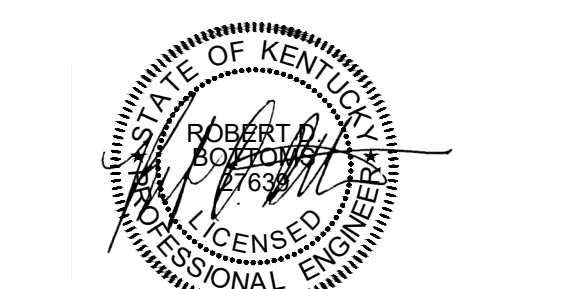


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**FIRST FLOOR PLAN B - POWER**

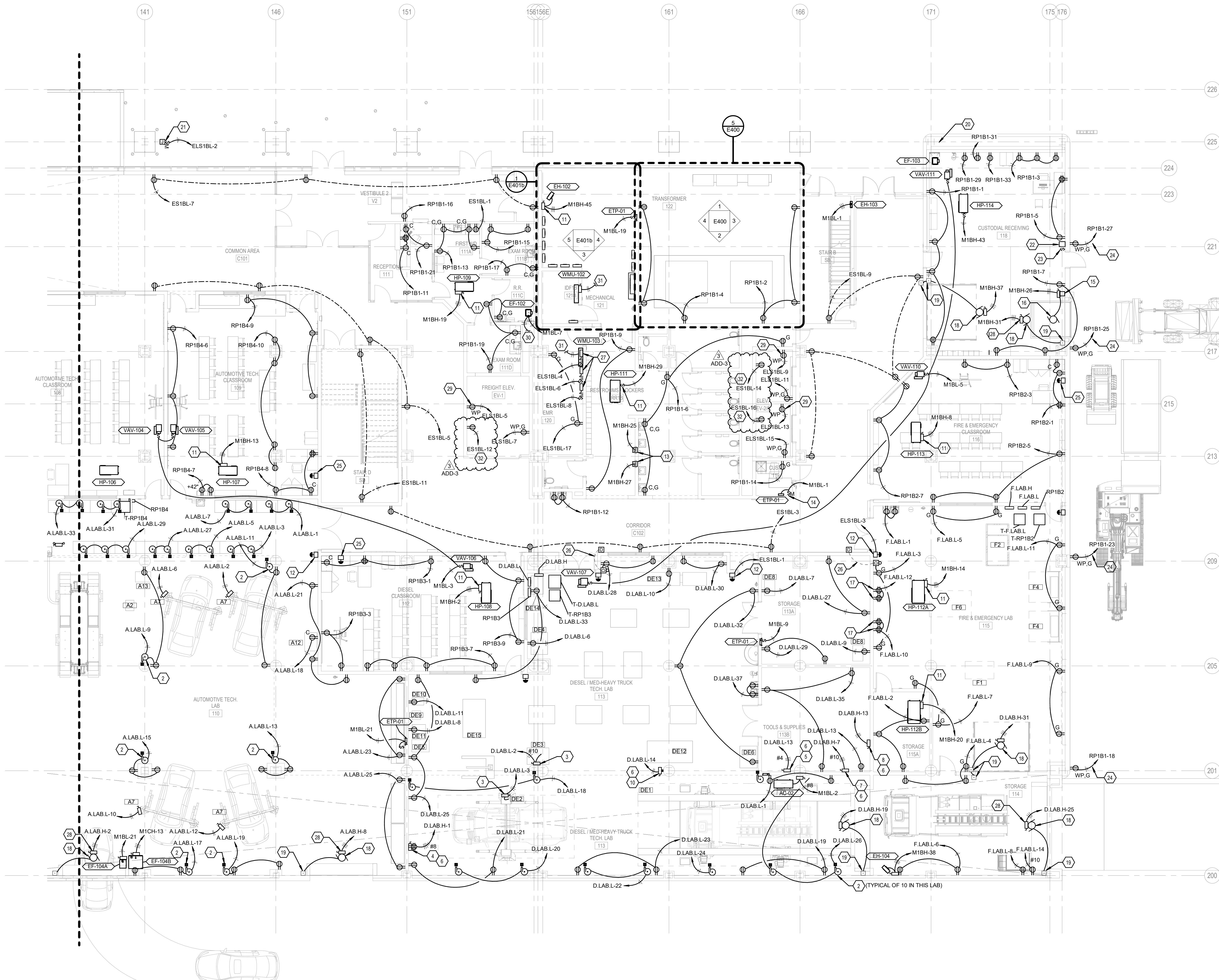
**E201b**

**GENERAL NOTES**

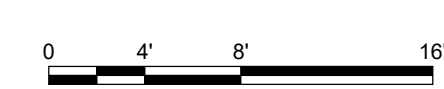
- REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.
- REFER TO ARCHITECTURAL DRAWINGS FOR DESCRIPTIONS OF SPECIALTY EQUIPMENTS. WHERE SPECIALTY EQUIPMENT IS TAGGED ALONG WITH A POWER SOURCE (RECEPTACLE / DISCONNECT SWITCH, ETC.), THE ASSOCIATED POWER SOURCE SHALL SERVE THE TAGGED SPECIALTY EQUIPMENT.
- SPECIAL RECEPTACLE NEMA CONFIGURATIONS SHOWN ARE ASSUMED. CONTRACTOR SHALL FIELD COORDINATE AND/OR VERIFY EXACT SPECIAL RECEPTACLE NEMA CONFIGURATION REQUIRED WITH EQUIPMENT SERVED PRIOR TO INSTALLATION.
- WHERE EQUIPMENT IS SERVED VIA A HARDWIRED CONNECTION / DISCONNECT SWITCH, ETC., THE CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO THE EQUIPMENT.

**SHEET KEYNOTES**

- PROVIDE POWER CONNECTION TO METAL DETECTORS. REFER TO SHOP DRAWINGS FOR EXACT POWER REQUIREMENTS. COORDINATE WITH ALL OTHER TRADES.
- PROVIDE WALL MOUNTED EXTENSION CORD REEL. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE 208V, 30A, 2P, NON-FUSIBLE SAFETY SWITCH IN A NEMA 1 ENCLOSURE.
- FIELD COORDINATE EXACT COMBO DISCONNECT SIZE AND NEMA CONFIGURATION WITH OWNER PROVIDED EQUIPMENT PRIOR TO INSTALLATION.
- PROVIDE 208V, 100A, 3P, NON-FUSIBLE SAFETY SWITCH IN A NEMA 1 ENCLOSURE FOR CONNECTION TO HOT TANK PARTS WASHER.
- FIELD COORDINATE EXACT LOCATION OF OWNER PROVIDED EQUIPMENT PRIOR TO INSTALLATION. SAFETY SWITCH TO BE LOCATED ADJACENT TO EQUIPMENT. PROVIDE POWER CONNECTION TO EQUIPMENT.
- PROVIDE 480V, 30A, 3P, NON-FUSIBLE SAFETY SWITCH IN A NEMA 1 ENCLOSURE FOR CONNECTION TO CHAMPION AIR COMPRESSOR.
- PROVIDE 480V, 30A, 3P, NON-FUSIBLE SAFETY SWITCH IN A NEMA 1 ENCLOSURE FOR CONNECTION TO CHAMPION AIR DRYER.
- PROVIDE 208V, 20A, 2P, NON-FUSIBLE SAFETY SWITCH IN A NEMA 1 ENCLOSURE FOR CONNECTION TO 2 POST 16K LIFT.
- PROVIDE SINGLE STRUT STAND SUPPORTED BY FLOOR AND STEEL STRUCTURE ABOVE. PROVIDE 208V, 30A, 2P, NON-FUSIBLE SAFETY SWITCH IN A NEMA 1 ENCLOSURE FOR CONNECTION TO 2 POST 16K LIFT. PROVIDE POWER CONNECTION TO EQUIPMENT.
- PROVIDE POWER CONNECTION TO FACTORY PROVIDED, UNIT MOUNTED SAFETY SWITCH.
- ALL EMERGENCY POWER OFF (EPO) BUTTONS IN THIS ROOM/AREA SHALL CONTROL THE SHUNT TRIP CIRCUIT BREAKER(S) WHICH SERVE ELECTRICAL PANELS SERVING THIS ROOM/AREA. REFER TO ELECTRICAL ONE-LINE DIAGRAM, EPO WIRING DIAGRAM DETAIL, AND PANEL SCHEDULES FOR ADDITIONAL REQUIREMENTS.
- PROVIDE JUNCTION BOX ROUGH-IN FOR CONNECTION TO WALL MOUNTED HAND DRYER EQUIPMENT. COORDINATE EXACT JUNCTION BOX AND MOUNTING REQUIREMENTS WITH APPROVED SHOP DRAWINGS.
- PROVIDE 120V, 15A, 1P TOGGLE SAFETY SWITCH IN NEMA 1 ENCLOSURE.
- DOCK LEVELER CONTROL PANEL. FIELD COORDINATE EXACT LOCATION.
- PROVIDE CONNECTION TO DOCK LEVELER.
- PROVIDE RECEPTACLES FOR EQUIPMENT CHARGING STATIONS. COORDINATE FINAL LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.
- PROVIDE POWER CONNECTION TO OVERHEAD DOOR.
- PROVIDE CONNECTION TO OVERHEAD DOOR CONTROLS PER MANUFACTURER'S REQUIREMENTS.
- ROUTE CONDUITS TO / FROM THE EMERGENCY GENERATOR THROUGH THIS CHASE AS NECESSARY. EXTEND CONDUITS FROM UNDERGROUND UP TO ABOVE ACCESSIBLE CEILING OF 2ND FLOOR ABOVE AND ACROSS GANTLET/REAR SOFFIT TO MECHANICAL AND ELECTRICAL ROOMS 210A AND/OR 210B AS NECESSARY. UTILIZE EXISTING EXTERIOR STAIRWALK WAY THAT IS BELOW FINISHED FLOOR LEVEL. CUT/TRENCH TO EXTERIOR AS NECESSARY TO COMPLETE ROUTE TO UNDERGROUND.
- PROVIDE WEATHERPROOF POWER CONNECTION TO FIRE PROTECTION HEAT TRACE. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
- PROVIDE CONTACTOR RC1, 30 AMP, 4P, MECHANICALLY HELD CONTACTOR IN A NEMA 1 ENCLOSURE.
- PROVIDE SWITCH FOR CONTROL OF CONTACTOR RC1.
- EXTEND CIRCUIT THROUGH CONNECTOR RC1 FOR CONTROL.
- PROVIDE EMERGENCY POWER OFF (EPO) SWITCH AT TEACHER'S DESK. EPO SWITCH SHALL BE INTEGRATED WITH ADDITIONAL EPO'S IN RELATED ADJACENT LAB. REFER TO EPO SWITCH DETAIL FOR MORE INFORMATION.
- PROVIDE LOW-VOLTAGE CONNECTION FOR CLASSROOM DOORBELL.
- PROVIDE DISCONNECT SWITCH AND CONNECTION TO ELEVATOR CONTROLLER EACH FOR ELEVATORS 1, 2, AND 3. FUSE PER UNIT NAMEPLATE. PROVIDE DISCONNECT SWITCHES WITH AUXILIARY CONTACTS INDICATING SWITCH POSITION AND WIRING FROM CONTACTS TO CONTROLLER. TERMINATE AS DIRECTED BY ELEVATOR INSTALLER FOR BATTERY LOWERING SYSTEM. REFER TO RISER DIAGRAM FOR MORE INFORMATION.
- PROVIDE AUXILIARY CONTACT ON DISCONNECT SERVING OVERHEAD DOOR FOR CONTROL OF LIGHT FIXTURES. REFER TO LIGHTING PLANS FOR ADDITIONAL INFORMATION.
- PROVIDED DEDICATED 120V, 20 AMP, SIMPLEX RECEPTACLE FOR PIT SUMP PUMP.
- EXTEND CIRCUIT THROUGH DEDICATED LIGHTING POWER PACK FOR CONTROL.
- EXTEND CIRCUIT TO ASSOCIATED AC UNIT ON ROOF. COORDINATE EXACT UNIT WITH MECHANICAL DRAWING.
- PROVIDE RECEPTACLE ON TOP OF ELEVATOR GAB.



**1 FIRST FLOOR PLAN B - POWER**  
SCALE: 1/8" = 1'-0"





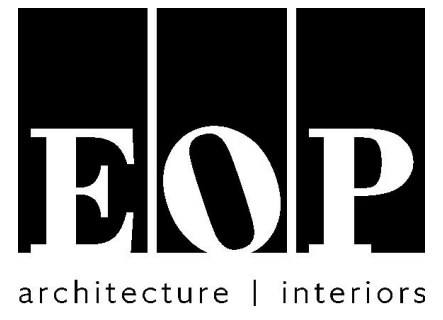
**NEW  
COMBINED CTE  
SCHOOL**

BG# 22-167

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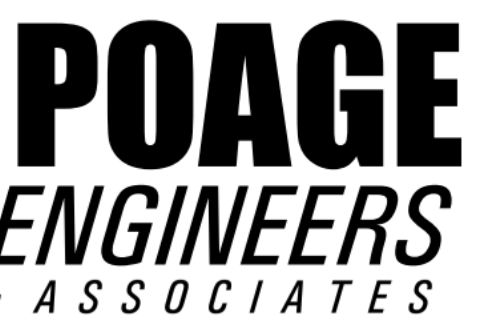
**BID DOCUMENTS**

REVISIONS		
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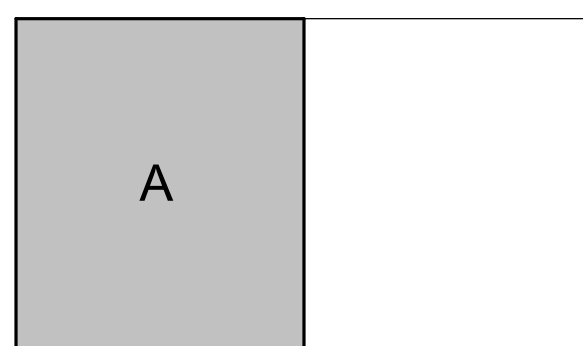


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**KEYPLAN**



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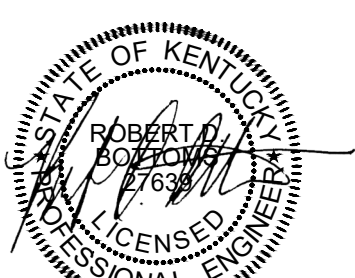
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Job Number 2150  
Drawn By JHS  
Checked By RDB  
Date 09/28/2022

PLAN

TRUE



**FIRST FLOOR PLAN A - SYSTEMS**

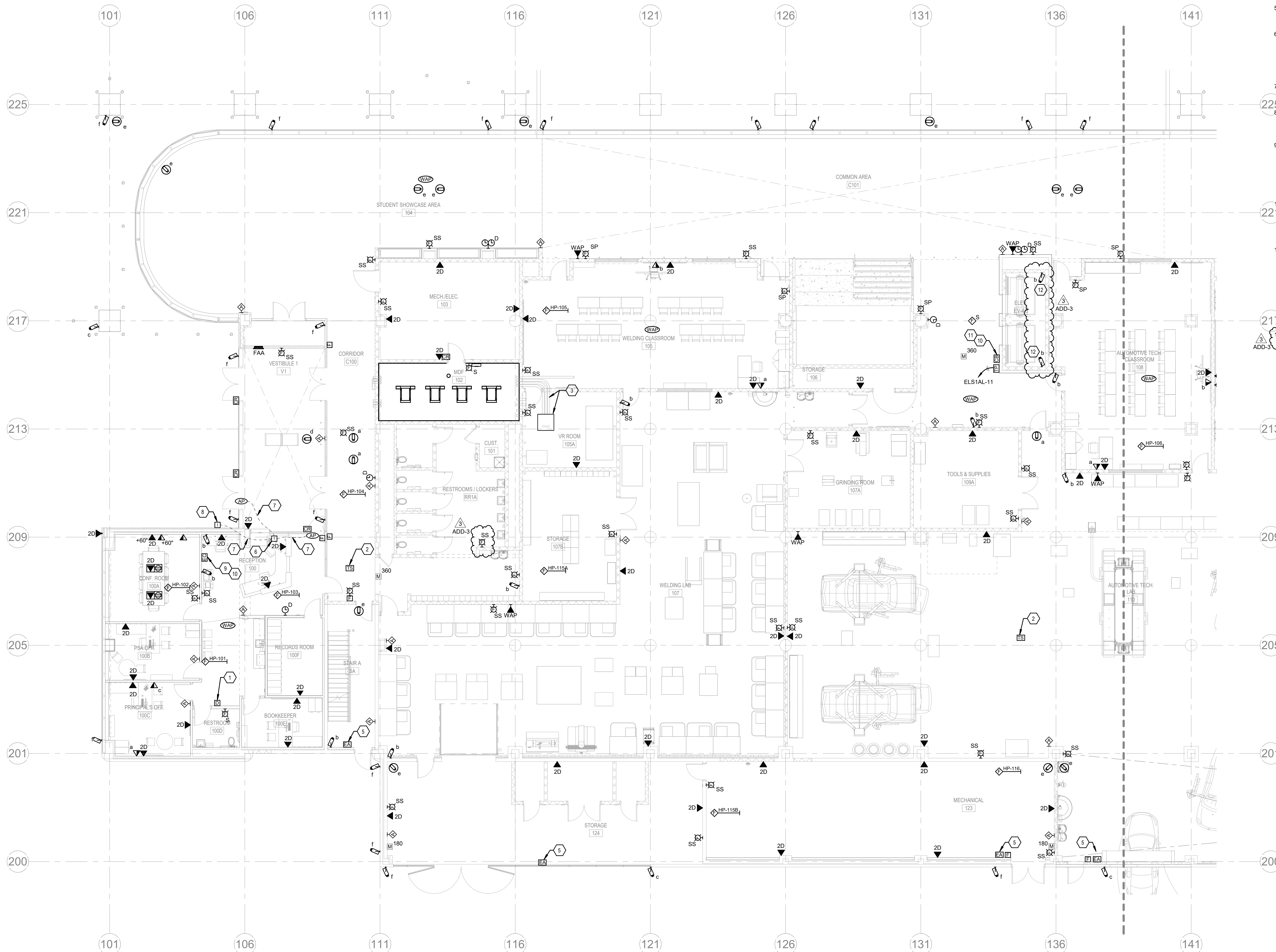
**E301a**

**GENERAL NOTES**

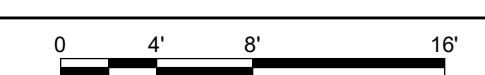
A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES**

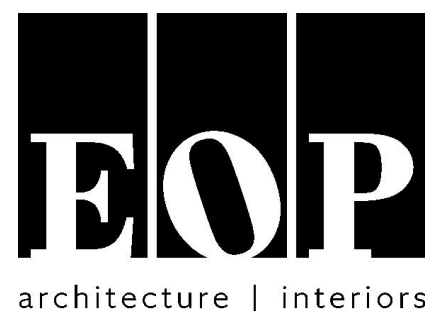
- PROVIDE PANIC BUTTON.
- PROVIDE FIRE ALARM CONNECTION TO TAMPER SWITCH. COORDINATE QUANTITY AND LOCATION WITH FIRE PROTECTION CONTRACTOR.
- COMMUNICATION RACEWAY. REFER TO DETAIL.
- PROVIDE RECESSED, CEILING MOUNTED HDBASET DOCUMENT CAMERA. REFER TO DETAIL AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE EXIT ALARM. INTEGRATE WITH DOOR POSITION SWITCHES). REFER TO DOOR RISER DIAGRAMS ON E54 FOR MORE INFORMATION.
- PROVIDE SECURE ENTRY SYSTEM MASTER STATION WITH TWO-WAY COMMUNICATION AND THREE(3) DOOR RELEASE BUTTONS. CONNECT TO DOOR POWER SUPPLIES AS REQUIRED TO PROVIDE REMOTE RELEASE OF EXTERIOR AND INTERIOR DOORS AS SHOWN. REFER TO SECURE DOOR ENTRY AND DOOR HARDWARE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE CONDUIT AND CONNECTION BETWEEN REMOTE DOOR RELEASE PUSH BUTTON AND DOOR POWER SUPPLY. PROVIDE CABLING PER MANUFACTURERS INSTRUCTIONS.
- PROVIDE SECURE ENTRY SYSTEM WEATHERPROOF AND VANDAL RESISTANT CALL BUTTON. REFER TO SECURE DOOR ENTRY AND DOOR HARDWARE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE A MASTER CALL CENTER WITH PHONE DIALER, HANDSET, AUDIBLE AND VISUAL NOTIFIERS, ALPHA REFUGE OR EQUAL. MASTER CALL CENTER SHALL BE INSTALLED IN A RECESSED MOUNT WITH LOCKABLE COVER. MASTER CALL CENTER CABINET SHALL BE COMPATIBLE WITH FIREMAN'S LOCK. COORDINATE FINAL LOCATION WITH THE LOCAL FIRE DEPARTMENT. PROVIDE CATRA CABLING FOR VOICE CONNECTIONS FROM THE MOP.
- PROVIDE SYSTEM WITH A TIMED AUTOMATIC CAPABILITY TO A MONITORING LOCATION OR TO DIAL OUT TO 9-1-1 AS WELL AS FOUR ADDITIONAL REMOTE PHONE NUMBERS. SYSTEM SHALL BE PROVIDED WITH VOIP CAPABILITY OPTIONS. ALL LOW-VOLTAGE CABLING SHALL BE INSTALLED IN CONDUIT. INSTALL PER ALL RELATED CODES AND STANDARDS.
- PROVIDE A TWO-WAY COMMUNICATION CALL BOX. ALPHA REFUGE OR EQUAL. CALL BOX SHALL INCLUDE VISUAL CALL NOTIFICATION, INTEGRAL BATTERY BACKUP, AND A RECESSED BOX WITH STAINLESS STEEL COVER. PROVIDE WIRING BETWEEN CALL BOXES, TO THE POWER SUPPLY, AND TO THE MASTER CALL STATION PER MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS. ADJACENT TO CALL BUTTON, PROVIDE INSTRUCTIONS AND LOCATION SIGNAGES WITH BLACK LETTERING AS WELL AS BRAILLE. CONTRACTOR SHALL COORDINATE FINAL LOCATION WITH LOCAL FIRE DEPARTMENT, OWNER/ENGINEER, AND ALL TRADES PRIOR TO INSTALLATION.
- PROVIDE CAMERA IN ELEVATOR CAB WITH TRAVELLING CABLE.



**1 FIRST FLOOR PLAN A - SYSTEMS**  
SCALE: 1/8" = 1'-0"

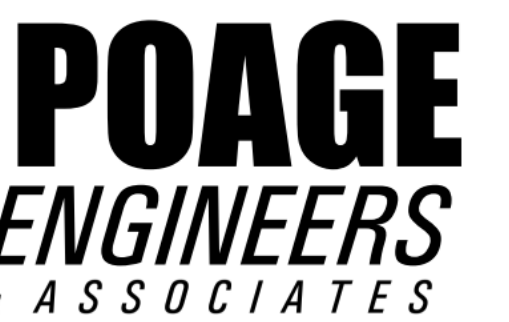


REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3



**PROJECT TEAM**

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Structural Engineers  
880 Sparta Ct. Ste. 200  
Lexington, KY 40504

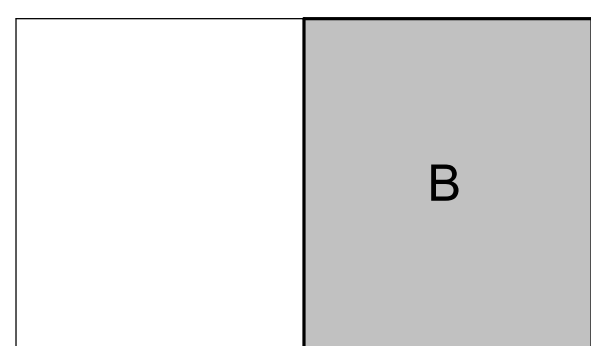


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MEP Engineers  
628 Winchester Rd.  
Lexington, KY 40505



Element Design, PLLC.  
366 S. Broadway  
Lexington, KY 40508

**KEYPLAN**

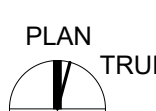


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Drawn By JHS  
Checked By RDB  
Date 09/28/2022



**FIRST FLOOR PLAN B - SYSTEMS**

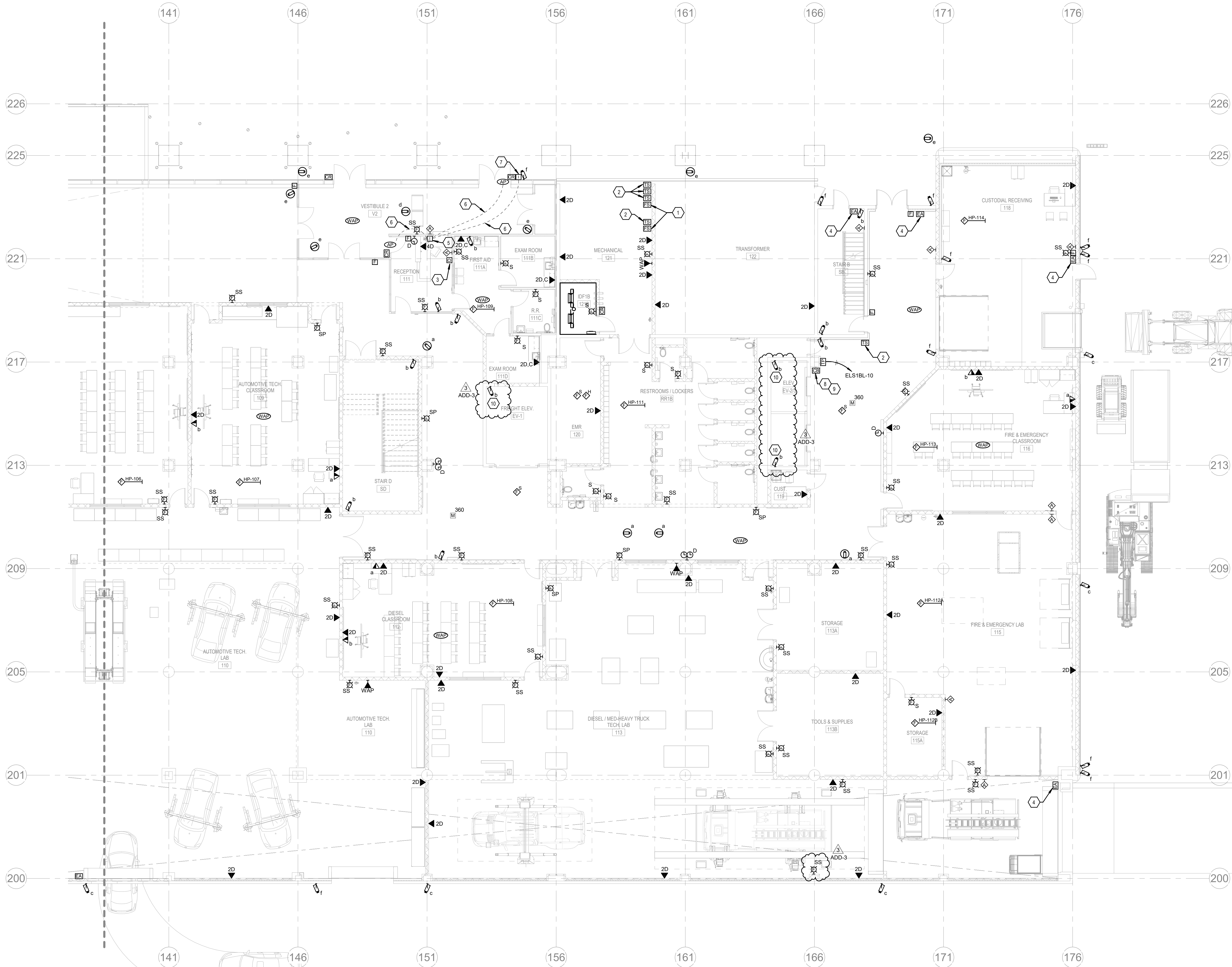
**E301b**

**GENERAL NOTES**

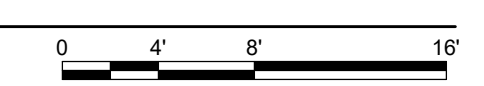
A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES**

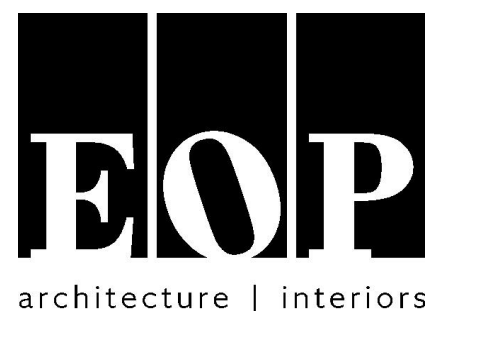
1. PROVIDE FIRE ALARM CONNECTION TO FLOW SWITCH. COORDINATE QUANTITY AND LOCATION WITH FIRE PROTECTION CONTRACTOR.
2. PROVIDE FIRE ALARM CONNECTION TO TAMPER SWITCH. COORDINATE QUANTITY AND LOCATION WITH FIRE PROTECTION CONTRACTOR.
3. PROVIDE PANIC BUTTON.
4. PROVIDE EXIT ALARM. INTEGRATE WITH DOOR POSITION SWITCH(ES). REFER TO DOOR RISER DIAGRAMS ON E504 FOR MORE INFORMATION.
5. PROVIDE SECURE ENTRY SYSTEM MASTER STATION WITH TWO-WAY COMMUNICATION AND THREE(3) DOOR RELEASE BUTTONS. CONNECT TO DOOR POWER SUPPLIES AS REQUIRED TO PROVIDE REMOTE RELEASE OF EXTERIOR AND INTERIOR DOORS AS SHOWN. REFER TO SECURE DOOR ENTRY AND DOOR HARDWARE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
6. PROVIDE CONDUIT AND CONNECTION BETWEEN REMOTE DOOR RELEASE PUSH BUTTON AND DOOR POWER SUPPLY. PROVIDE CABLING PER MANUFACTURER'S INSTRUCTIONS.
7. PROVIDE SECURE ENTRY SYSTEM WEATHERPROOF AND VANDAL RESISTANT CALL BUTTON. REFER TO SECURE DOOR ENTRY AND DOOR HARDWARE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8. PROVIDE A TWO-WAY COMMUNICATION CALL BOX. ALPHA REFUGE OR EQUAL. CALL BOX SHALL INCLUDE VISUAL CALL NOTIFICATION, INTEGRAL BATTERY BACKUP, AND A RECESSED BOX WITH STAINLESS STEEL COVER. PROVIDE WIRING BETWEEN CALL BOXES, TO THE POWER SUPPLY, AND TO THE MASTER CALL STATION PER MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS. ADJACENT TO CALL BUTTON, PROVIDE INSTRUCTIONS AND LOCATION SIGNAGES WITH BLACK LETTERING AS WELL AS BRAILLE. CONTRACTOR SHALL COORDINATE FINAL LOCATION WITH LOCAL FIRE DEPARTMENT, OWNER/ENGINEER, AND ALL TRADES PRIOR TO INSTALLATION.
9. PROVIDE SYSTEM WITH A TIMED AUTOMATIC CAPABILITY TO A MONITORING LOCATION OR TO DIAL OUT TO 9-1-1 AS WELL AS FOUR ADDITIONAL REMOTE PHONE NUMBERS. SYSTEM SHALL BE PROVIDED WITH VOIP CAPABILITY OPTIONS. ALL LOW-VOLTAGE CABLING SHALL BE INSTALLED IN CONDUIT. INSTALL PER ALL RELATED CODES AND STANDARDS.
10. PROVIDE CAMERA IN ELEVATOR CAB WITH TRAVELLING CABLE.



**1 FIRST FLOOR PLAN B - SYSTEMS**  
SCALE: 1/8" = 1'-0"

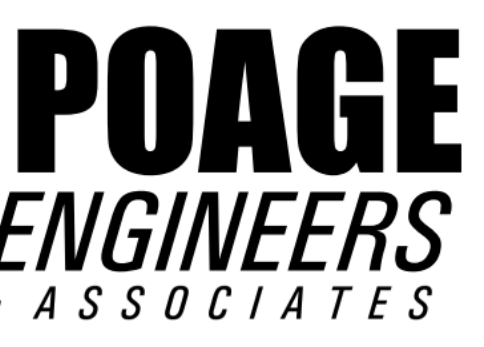


REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3

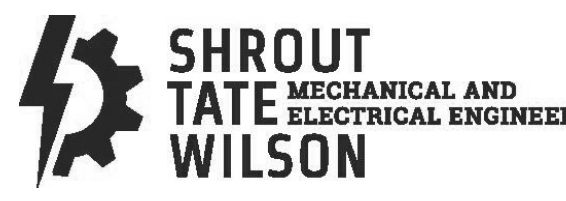


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Lexington, KY 40508

**KEYPLAN**

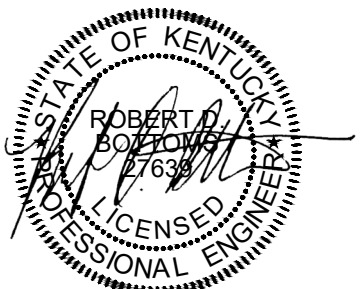
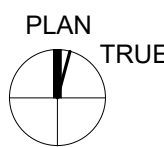


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Drawn By JHS  
Checked By RDB  
Date 09/28/2022



**THIRD FLOOR PLAN A - SYSTEMS**

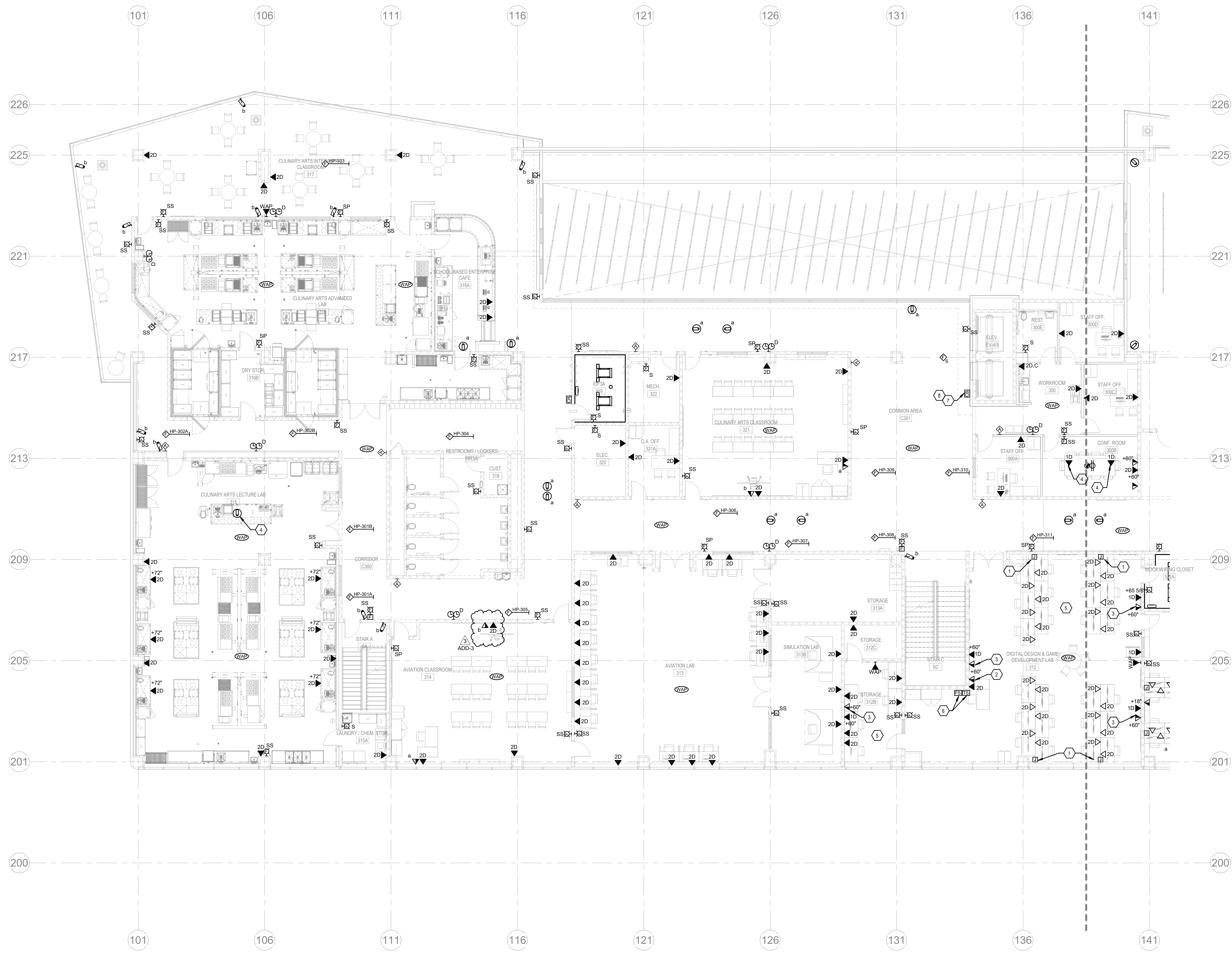
**E303a**

**GENERAL NOTES**

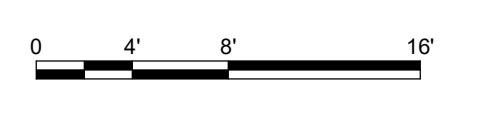
A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES**

1. PROVIDE 4"x4"x4" JUNCTION BOX FOR ROUTING OF CATEGORY CABLING THROUGH FURNITURE.
2. PROVIDE HDMI 1X4 ENCODER FOR TEACHER DISPLAY REPLICATION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. PROVIDE HDMI DECODER MOUNTED BEHIND DISPLAY. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION IN THE FIELD.
4. ROUTE CATEGORY CABLING THROUGH FLOOR BOX. THIS ROOM. COORDINATE MOUNTING AND ROUTING REQUIREMENTS WITH CASEWORK.
5. ALL DATA PORTS WITHIN ROOMS 312 AND 312B SHALL BE SERVED FROM THE DATA FRAME DF3C-A, LOCATED IN ROOM 312A VIA CATEGORY 6A CABLING.
6. PROVIDE FIRE ALARM CONNECTION TO FLOW AND TAMPER SWITCH(ES). COORDINATE QUANTITY AND LOCATION WITH FIRE PROTECTION CONTRACTOR.
7. PROVIDE A TWO-WAY COMMUNICATION CALL BOX. ALPHA REFUGE OR EQUAL. CALL BOX SHALL INCLUDE VISUAL CALL NOTIFICATION, INTEGRAL BATTERY BACKUP, AND A RECESSED BOX WITH STAINLESS STEEL COVER. PROVIDE WIRING BETWEEN CALL BOXES, TO THE POWER SUPPLY, AND TO THE MASTER CALL STATION PER MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS. ADJACENT TO CALL BUTTON, PROVIDE INSTRUCTIONS AND LOCATION SIGNAGES WITH BLACK LETTERING AS WELL AS BRAILLE. CONTRACTOR SHALL COORDINATE FINAL LOCATION WITH LOCAL FIRE DEPARTMENT, OWNER/ENGINEER, AND ALL TRADES PRIOR TO INSTALLATION.
8. PROVIDE SYSTEM WITH A TIMED AUTOMATIC CAPABILITY TO A MONITORING LOCATION OR TO DIAL OUT TO 9-1-1 AS WELL AS FOUR ADDITIONAL REMOTE PHONE NUMBERS. SYSTEM SHALL BE PROVIDED WITH VOIP CAPABILITY OPTIONS. ALL LOW-VOLTAGE CABLING SHALL BE INSTALLED IN CONDUIT. INSTALL PER ALL RELATED CODES AND STANDARDS.

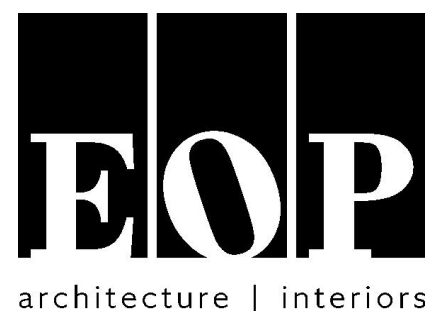


**1 THIRD FLOOR PLAN A - SYSTEMS**  
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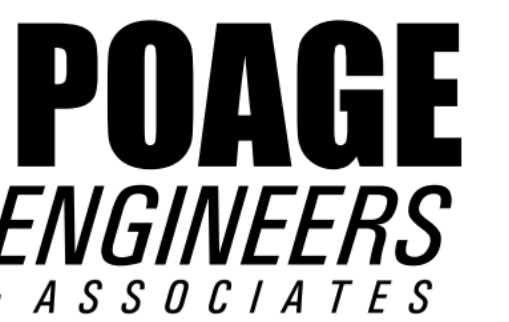
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REVISIONS		
#	DATE	DESCRIPTION
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3	10/21/22	ADDENDUM 3

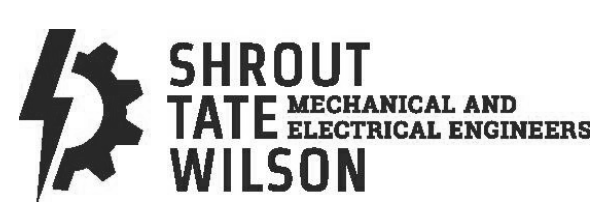


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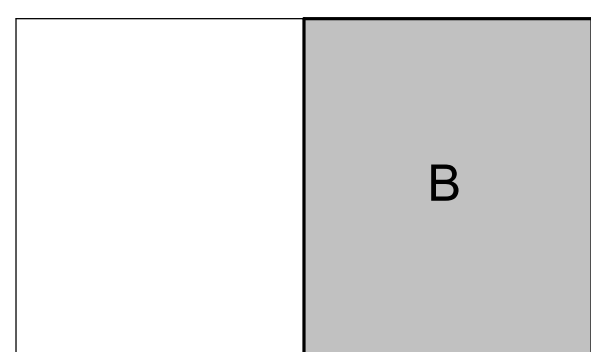


ShROUT TATE WILSON Consulting Engineers  
MEP Engineers  
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Lexington, KY 40505



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366 S. Broadway  
Lexington, KY 40508

**KEYPLAN**

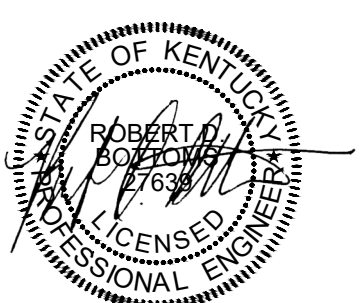
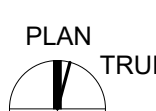


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Drawn By JHS  
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Date 09/28/2022



**THIRD FLOOR PLAN B -  
SYSTEMS**

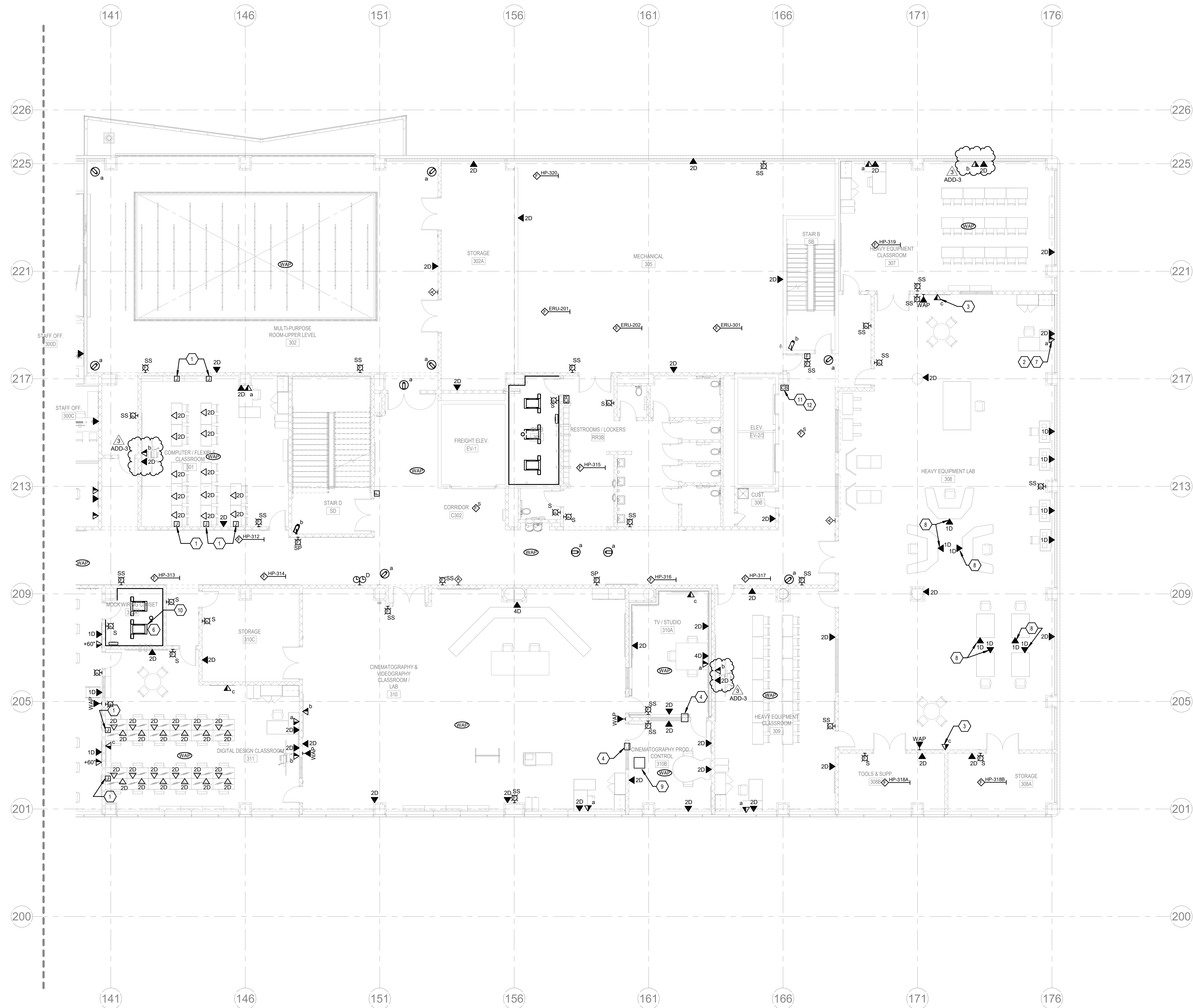
**E303b**

**GENERAL NOTES**

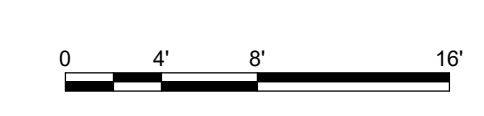
A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES**

- PROVIDE 4 1 1/16" OUTLET BOX WITH (2) 1 1/4" CONDUITS TO ABOVE ACCESSIBLE CEILING. ROUTE DATA CABLING AS REQUIRED TO SERVE FURNITURE EQUIPMENT AND COORDINATE WITH REVIEWED SHOP DRAWINGS.
- PROVIDE HDMI 1X4 ENCODER FOR TEACHER DISPLAY REPLICATION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE HDMI DECODER MOUNTED BEHIND DISPLAY. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION IN THE FIELD.
- PROVIDE 24"x24" OPENING IN WALL, ABOVE CEILING FOR CABLE PASS-THROUGH.
- ALL MULTIMEDIA DEVICE CONNECTIONS SERVING THE WALL MOUNTED AND MOBILE MONITORS IN ROOM 311 SHALL BE CONNECTED BACK TO THE MULTIMEDIA RECEPTACLE LOCATED AT THE TEACHER'S DESK.
- ROOM 312A, MOCK I.T. WIRING CLOSET, ALSO IDE3C, SHALL ONLY SERVE DATA PORTS WITHIN ROOMS 312 AND 312B. ALL CONNECTIONS, PATCH PANELS, AND CABLES SERVED FROM THIS ROOM SHALL BE CATEGORY 6A.
- BOTH MULTIMEDIA DEVICE CONNECTIONS SERVING THE WALL MOUNTED MONITORS IN ROOM 308 SHALL BE CONNECTED BACK TO THE MULTIMEDIA RECEPTACLE LOCATED AT THE TEACHER'S DESK.
- DATA DROPS TO BE INSTALLED FROM CEILING DOWN TO EQUIPMENT. REFER TO DETAIL ON DRAWING E5.1 FOR MORE INFORMATION.
- PROVIDE 24"x24"x8" PULL-BOX ABOVE CEILING. (1) EACH 4" CONDUIT SHALL BE INSTALLED FROM THIS PULL-BOX TO MOCK WIRING CLOSET 312A AND TO 2ND FLOOR MULTIPURPOSE ROOM 208 PULL-BOX.
- PROVIDE LOCKABLE VENTILATED ENCLOSURE FOR SECURITY.
- PROVIDE A TWO-WAY COMMUNICATION CALL BOX. ALPHA REFUGE OR EQUAL. CALL BOX SHALL INCLUDE VISUAL CALL NOTIFICATION, INTEGRAL BATTERY BACKUP, AND A RECESSED BOX WITH STAINLESS STEEL COVER. PROVIDE WIRING BETWEEN CALL BOXES, TO THE POWER SUPPLY, AND TO THE MASTER CALL STATION PER MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS. ADJACENT TO CALL BUTTON, PROVIDE INSTRUCTIONS AND LOCATION SIGNAGES WITH BLACK LETTERING AS WELL AS BRAILLE. CONTRACTOR SHALL COORDINATE FINAL LOCATION WITH LOCAL FIRE DEPARTMENT, OWNER/ENGINEER, AND ALL TRADES PRIOR TO INSTALLATION.
- PROVIDE SYSTEM WITH A TIMED AUTOMATIC CAPABILITY TO A MONITORING LOCATION OR TO DIAL OUT TO 9-1-1 AS WELL AS FOUR ADDITIONAL REMOTE PHONE NUMBERS. SYSTEM SHALL BE PROVIDED WITH VOIP CAPABILITY OPTIONS. ALL LOW-VOLTAGE CABLING SHALL BE INSTALLED IN CONDUIT. INSTALL PER ALL RELATED CODES AND STANDARDS.



**1 THIRD FLOOR PLAN B - SYSTEMS**  
SCALE: 1/8" = 1'-0"

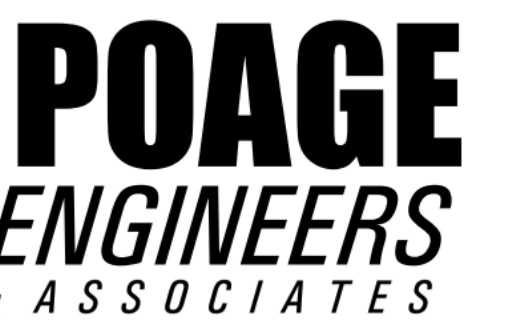


REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3



**PROJECT TEAM**

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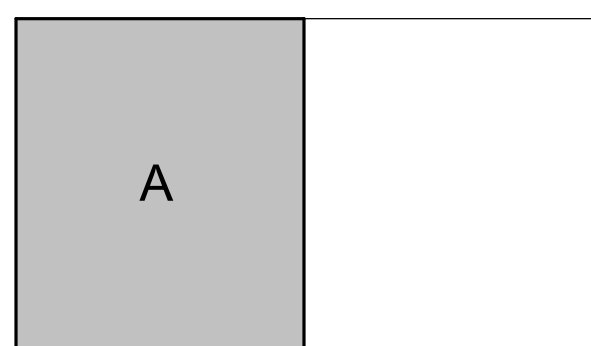


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MEP Engineers  
628 Winchester Rd.  
Lexington, KY 40505



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366 S. Broadway  
Lexington, KY 40508

**KEYPLAN**

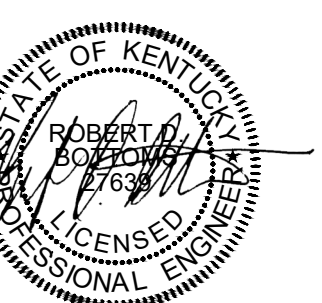
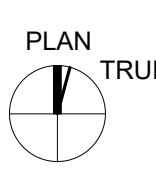


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Job Number 2150  
Drawn By JHS  
Checked By RDB  
Date 09/28/2022



**FOURTH FLOOR PLAN  
A - SYSTEMS**

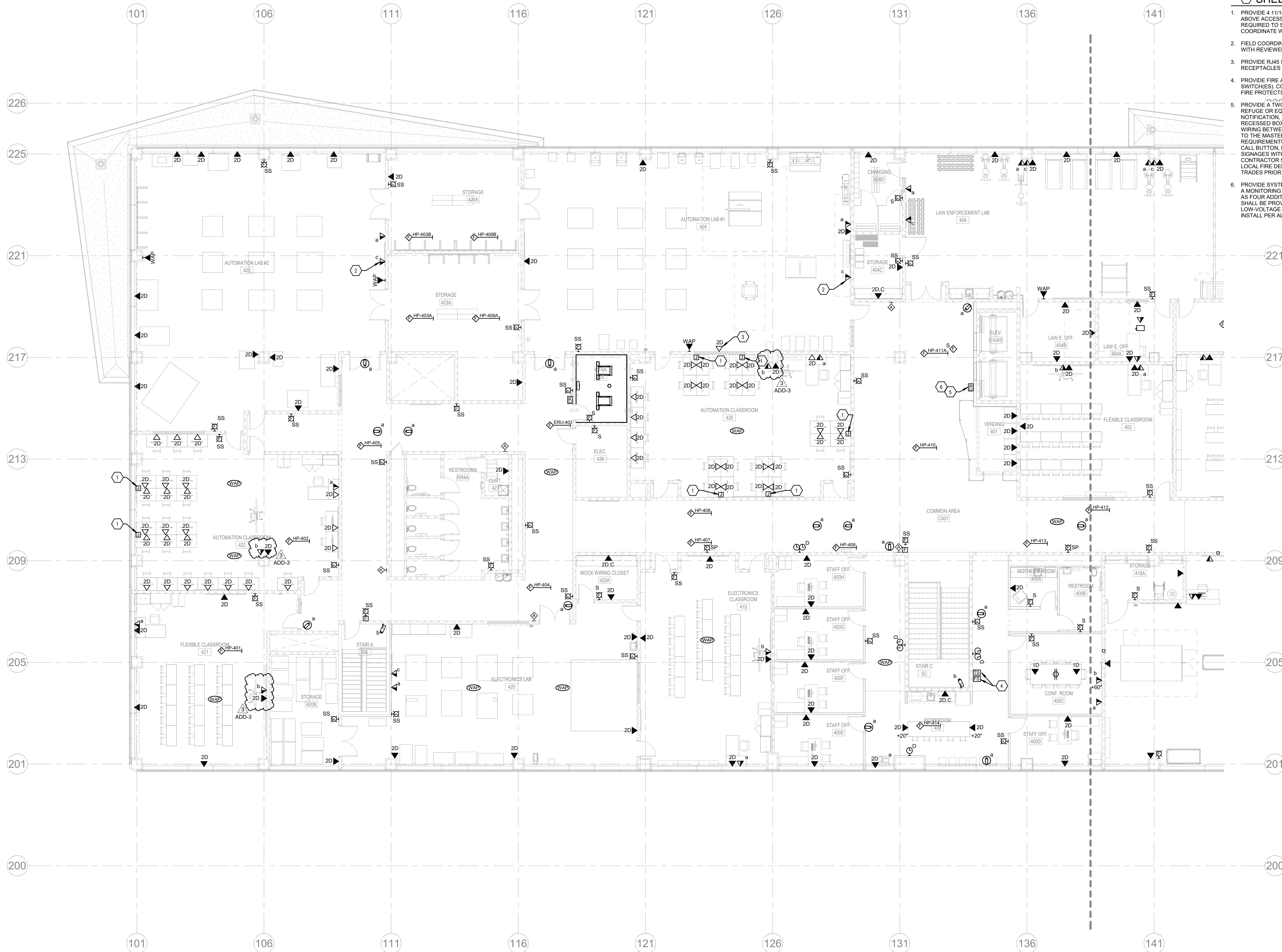
**E304a**

**GENERAL NOTES**

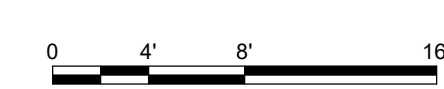
A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES**

- PROVIDE 4 1 1/16" OUTLET BOX WITH (2) 1 1/4" CONDUITS TO ABOVE ACCESSIBLE CEILING. ROUTE DATA CABLING AS REQUIRED TO SERVE FURNITURE EQUIPMENT AND COORDINATE WITH REVIEWED SHOP DRAWINGS.
- FIELD COORDINATE POWER AND DATA MOUNTING HEIGHT WITH REVIEWED SHOP DRAWINGS.
- PROVIDE R45 SHUTTERED TG JACK MODULE AT ALL DATA RECEPTACLES WITHIN THIS ROOM.
- PROVIDE FIRE ALARM CONNECTION TO FLOW AND TAMPER SWITCH(ES). COORDINATE QUANTITY AND LOCATION WITH FIRE PROTECTION CONTRACTOR.
- PROVIDE A TWO-WAY COMMUNICATION CALL BOX, ALPHA REFUGE OR EQUAL. CALL BOX SHALL INCLUDE VISUAL CALL NOTIFICATION, INTEGRAL BATTERY BACKUP, AND A RECESSED BOX WITH STAINLESS STEEL COVER. PROVIDE WIRING BETWEEN CALL BOXES, TO THE POWER SUPPLY, AND TO THE MASTER CALL STATION PER MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS. ADJACENT TO CALL BUTTON, PROVIDE INSTRUCTIONS AND LOCATION SIGNAGES WITH BLACK LETTERING AS WELL AS BRAILLE. CONTRACTOR SHALL COORDINATE FINAL LOCATION WITH LOCAL FIRE DEPARTMENT, OWNER/ENGINEER, AND ALL TRADES PRIOR TO INSTALLATION.
- PROVIDE SYSTEM WITH A TIMED AUTOMATIC CAPABILITY TO A MONITORING LOCATION OR TO DIAL OUT TO 9-1-1 AS WELL AS FOUR ADDITIONAL REMOTE PHONE NUMBERS. SYSTEM SHALL BE PROVIDED WITH VOIP CAPABILITY OPTIONS. ALL LOW-VOLTAGE CABLING SHALL BE INSTALLED IN CONDUIT. INSTALL PER ALL RELATED CODES AND STANDARDS.



**1 FOURTH FLOOR PLAN A - SYSTEMS**  
SCALE: 1/8" = 1'-0"



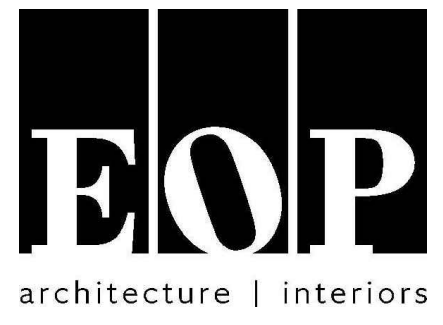
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COMBINED CTE  
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**BID DOCUMENTS**

REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3



**PROJECT TEAM**

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Reitano Design Group  
302 N. East Street, Studio One  
Indianapolis, IN 46202



Calvert - Independent Hardware  
Specifications, LLC.  
307 Oakwood Circle  
Vine Grove, KY 40175

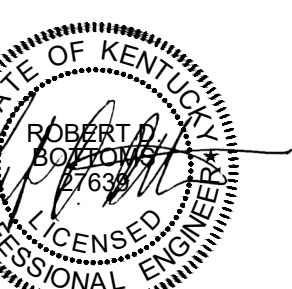
**KEYPLAN**

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Job Number 2150  
Drawn By JHS  
Checked By RDB  
Date 09/28/2022

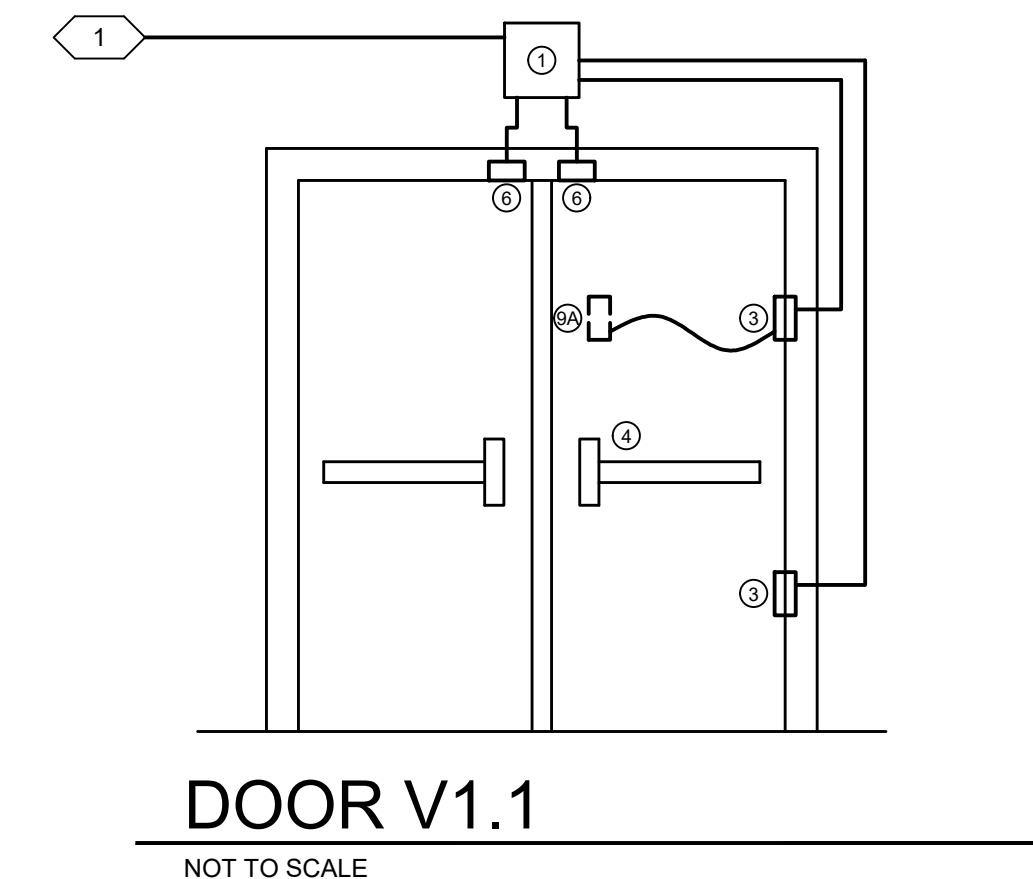
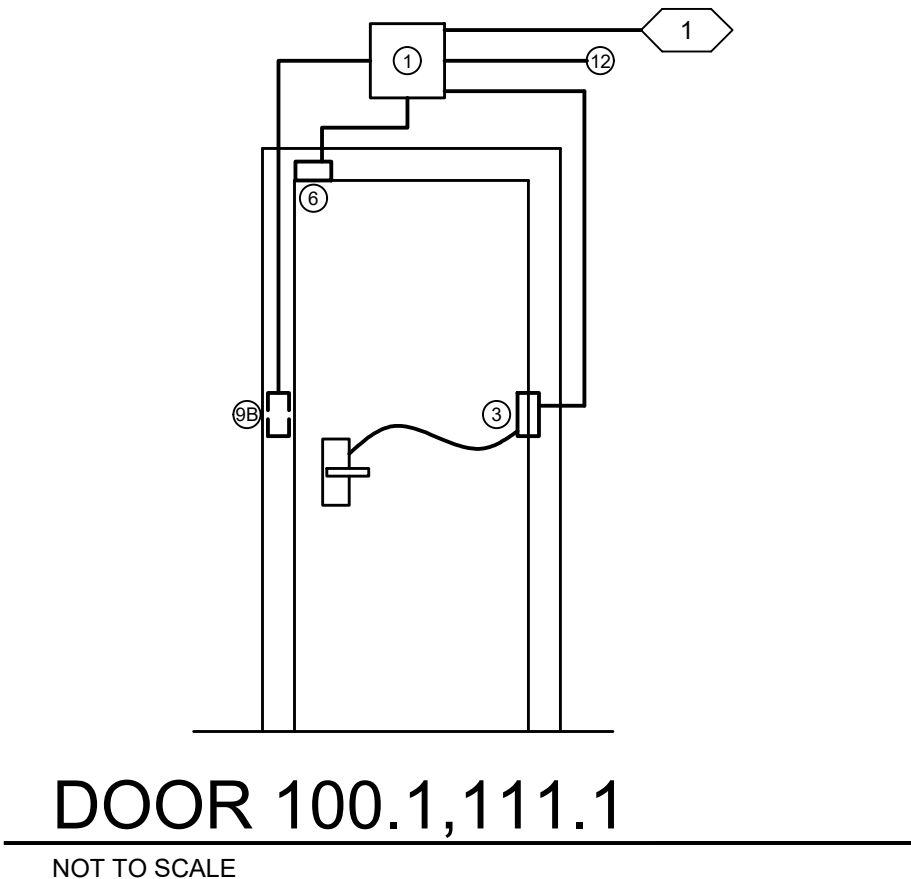
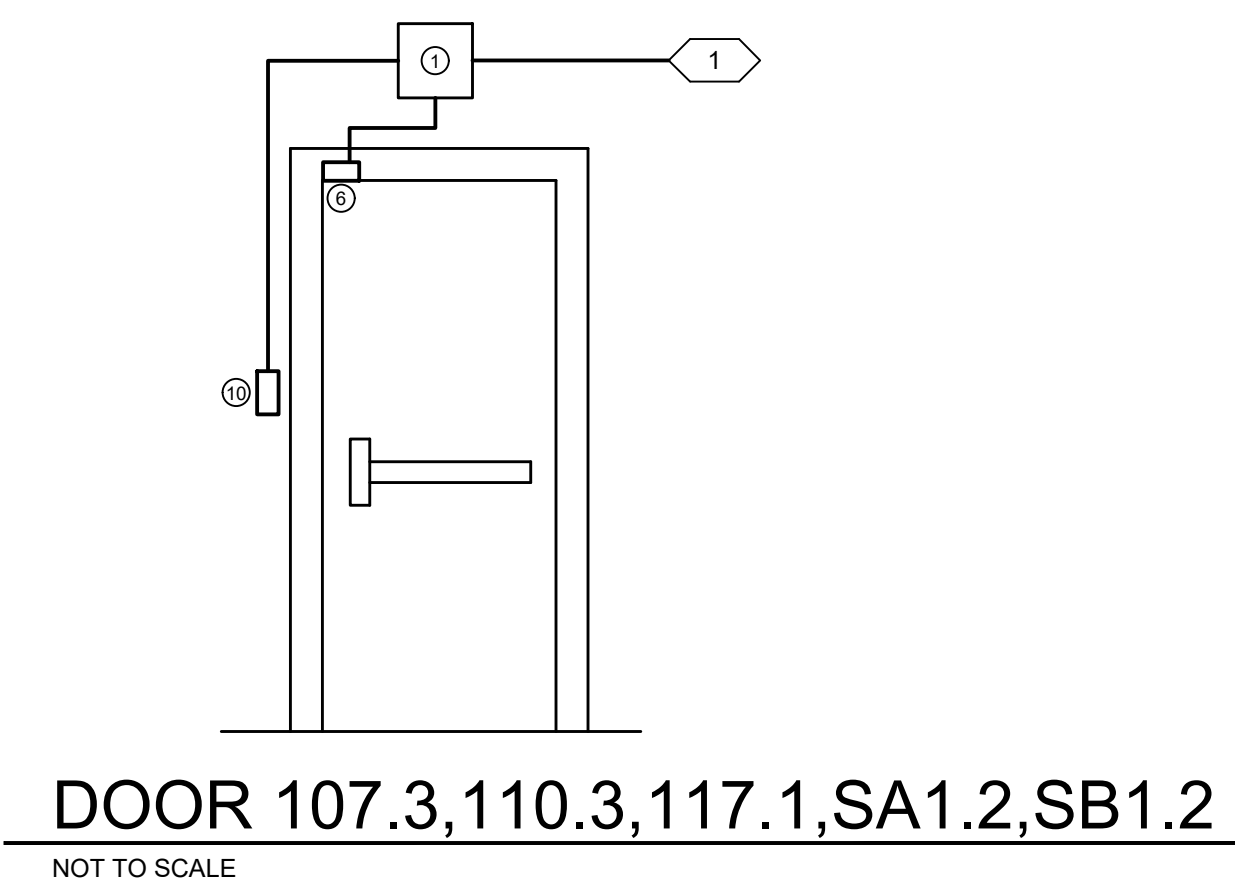


**ELECTRICAL  
DETAILS**

**E505**

CAMERA SCHEDULE		
TYPE	DESCRIPTION	MODEL NUMBER
a	INTERIOR CEILING MOUNTED CAMERA	VX-5M28-MD-IAW-A-C_SpecSheetandSummary_11162021 - Type 2
b	INTERIOR WALL MOUNTED CAMERA	VX-5M28-MD-IAW-A-C_SpecSheetandSummary_11162021 - Type 2
c	EXTERIOR WALL OR POLE MOUNT CAMERA. REFER TO DRAWINGS FOR MOUNTING.	VX-6M-180-IAW Spec Sheet and Summary_08262020 - Type 4
d	360° CEILING MOUNT CAMERA	VX-6M-360-IAW-A-C_SpecSheetandSummary_11162021 - Type 5
e	INTERIOR/EXTERIOR CEILING MOUNTED CAMERA	VX-5M-OD-RIAW-A-C Spec Sheet and Summary_11162021 - Type 1 & 3
f	INTERIOR/EXTERIOR WALL OR POLE MOUNT CAMERA. REFER TO DRAWINGS FOR MOUNTING.	VX-5M-OD-RIAW-A-C Spec Sheet and Summary_11162021 - Type 1 & 3

NOTES:  
VERIFY ALL FLOOR BOX LOCATIONS PRIOR TO ROUGH-IN.  
PROVIDE ALL COMPONENTS FOR A COMPLETE INSTALLATION.  
COORDINATE COVER COLOR WITH ARCHITECT.



**GENERAL NOTES:**

- REFER TO SHEETS E002 FOR ADDITIONAL GENERAL NOTES.
- PROVIDE POWER CONNECTION TO NEAREST EMERGENCY LIFE SAFETY 120/208V PANEL AS REQUIRED FOR EACH DOOR INDICATED. PROVIDE 120VAC CONNECTION. PROVIDE SNAP SWITCH AT POWER SUPPLIES FOR LOCAL DISCONNECT MEANS. DOOR CIRCUITS MAY BE COMBINED FOR A MAXIMUM OF 10 AMPS. PROVIDE FIRE ALARM CONNECTIONS AS REQUIRED.

**GENERAL DOOR RISER NOTES:**

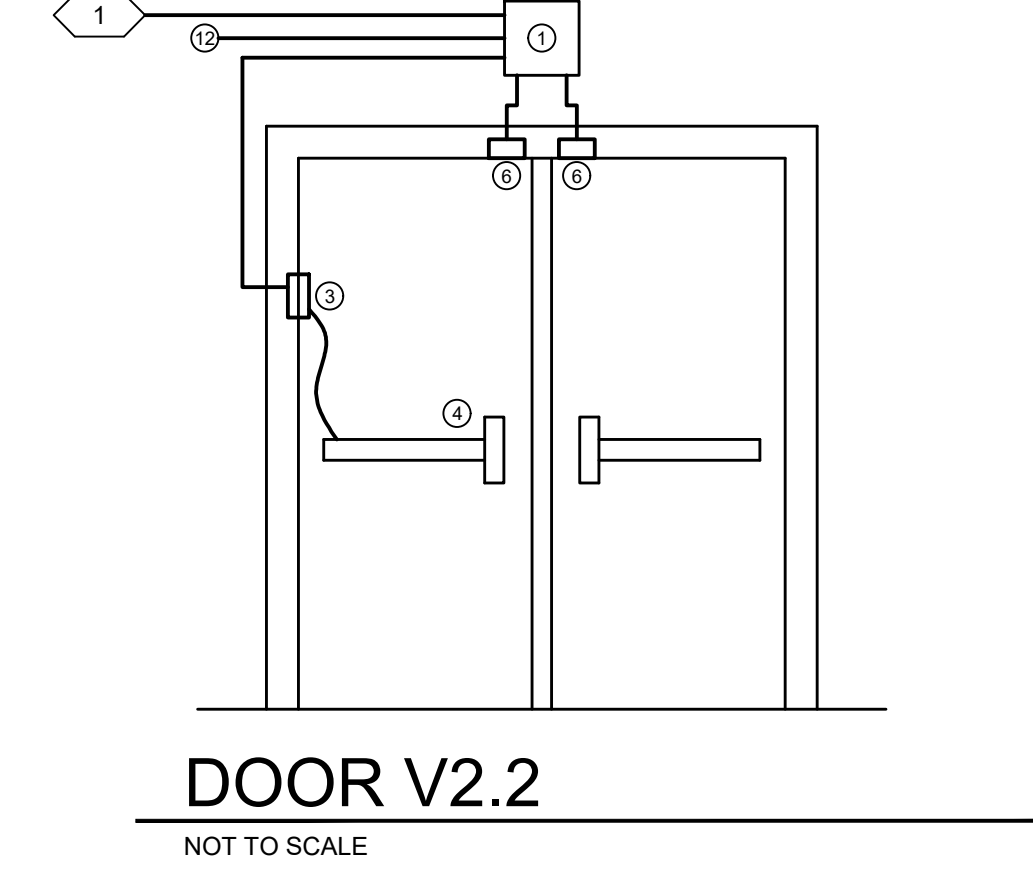
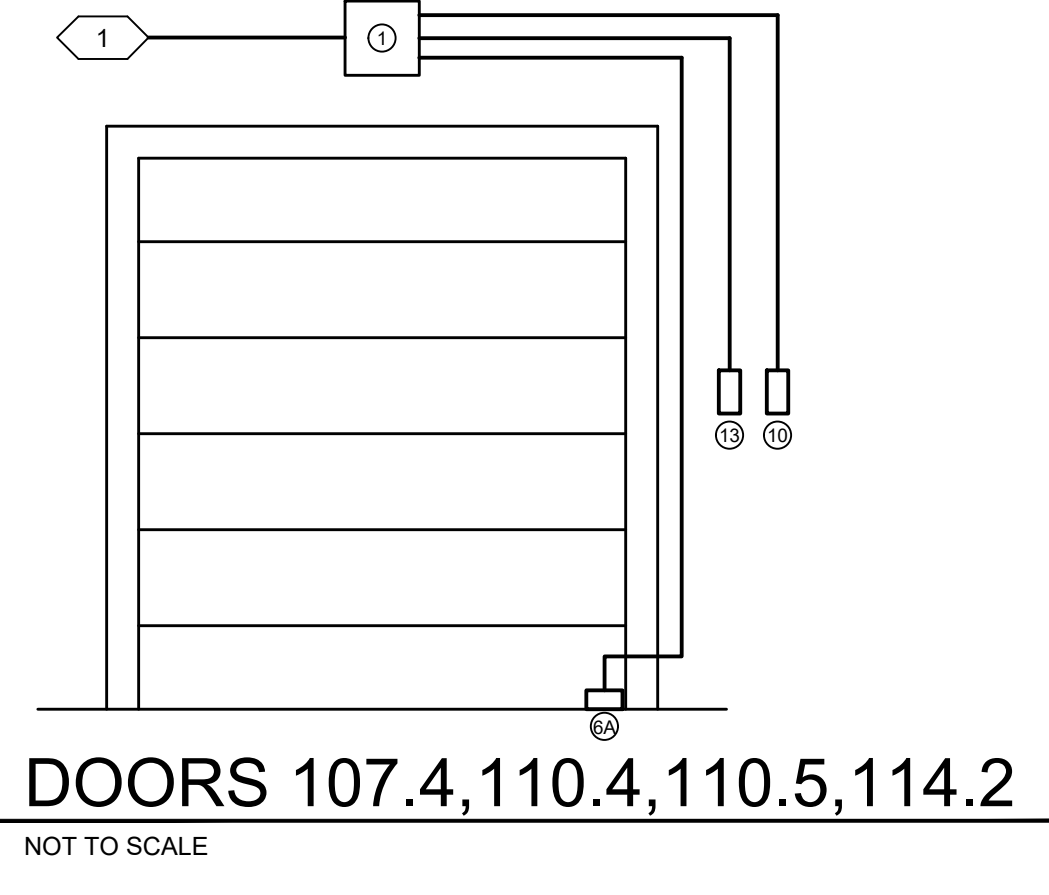
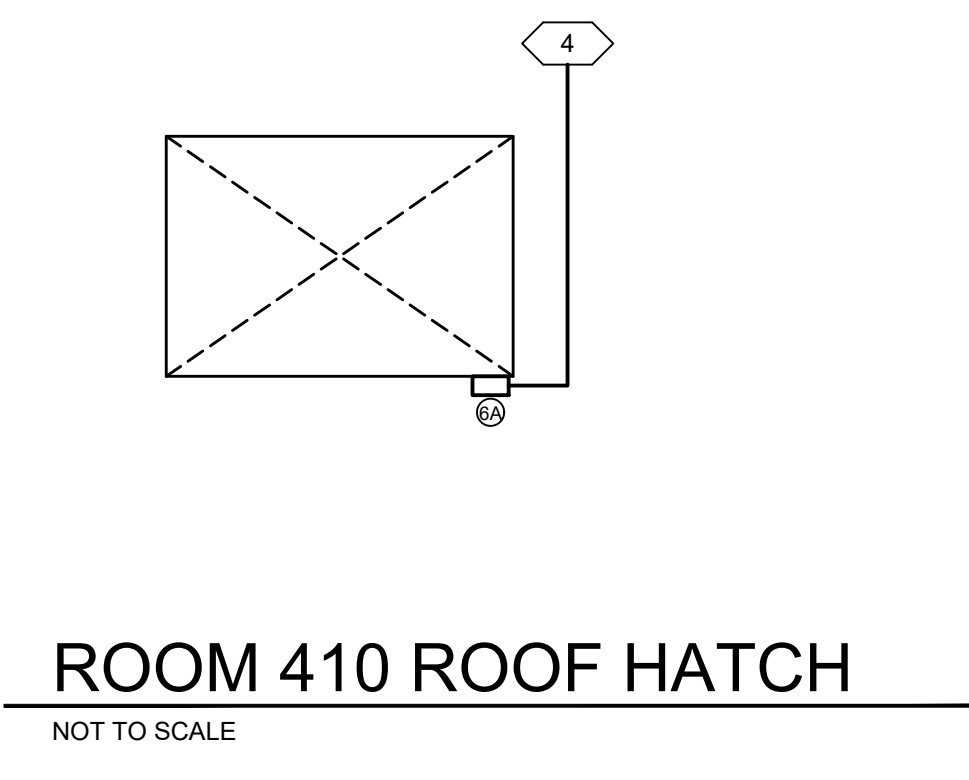
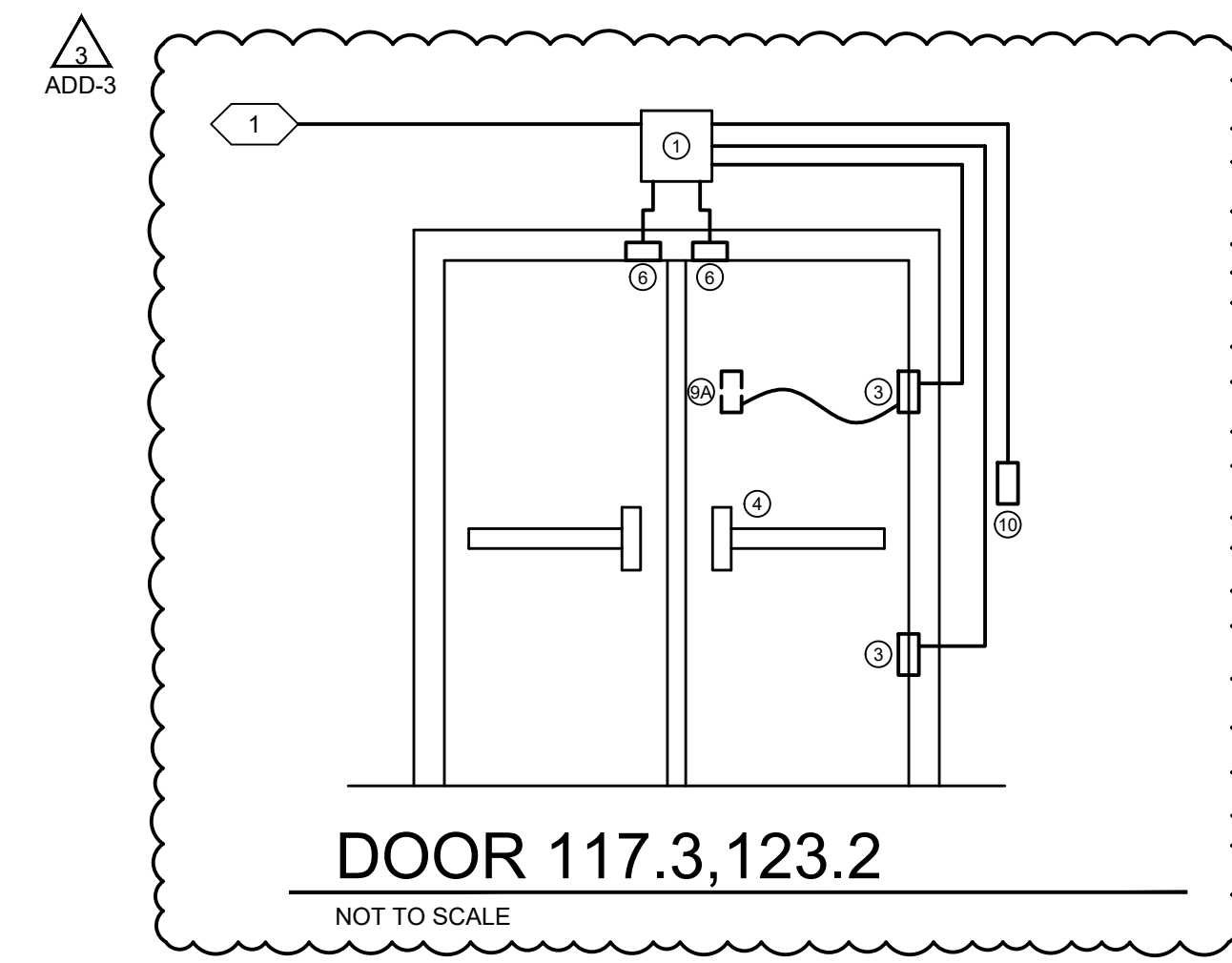
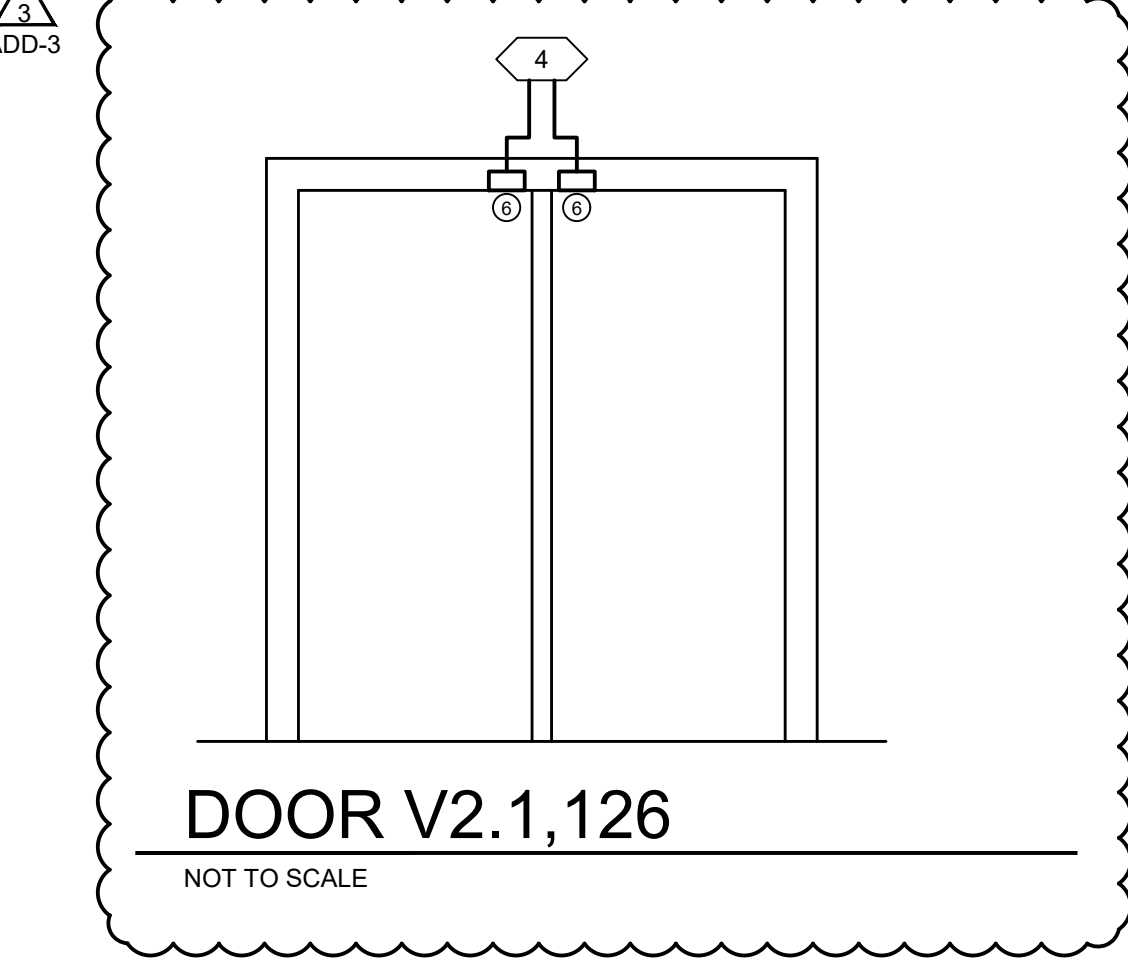
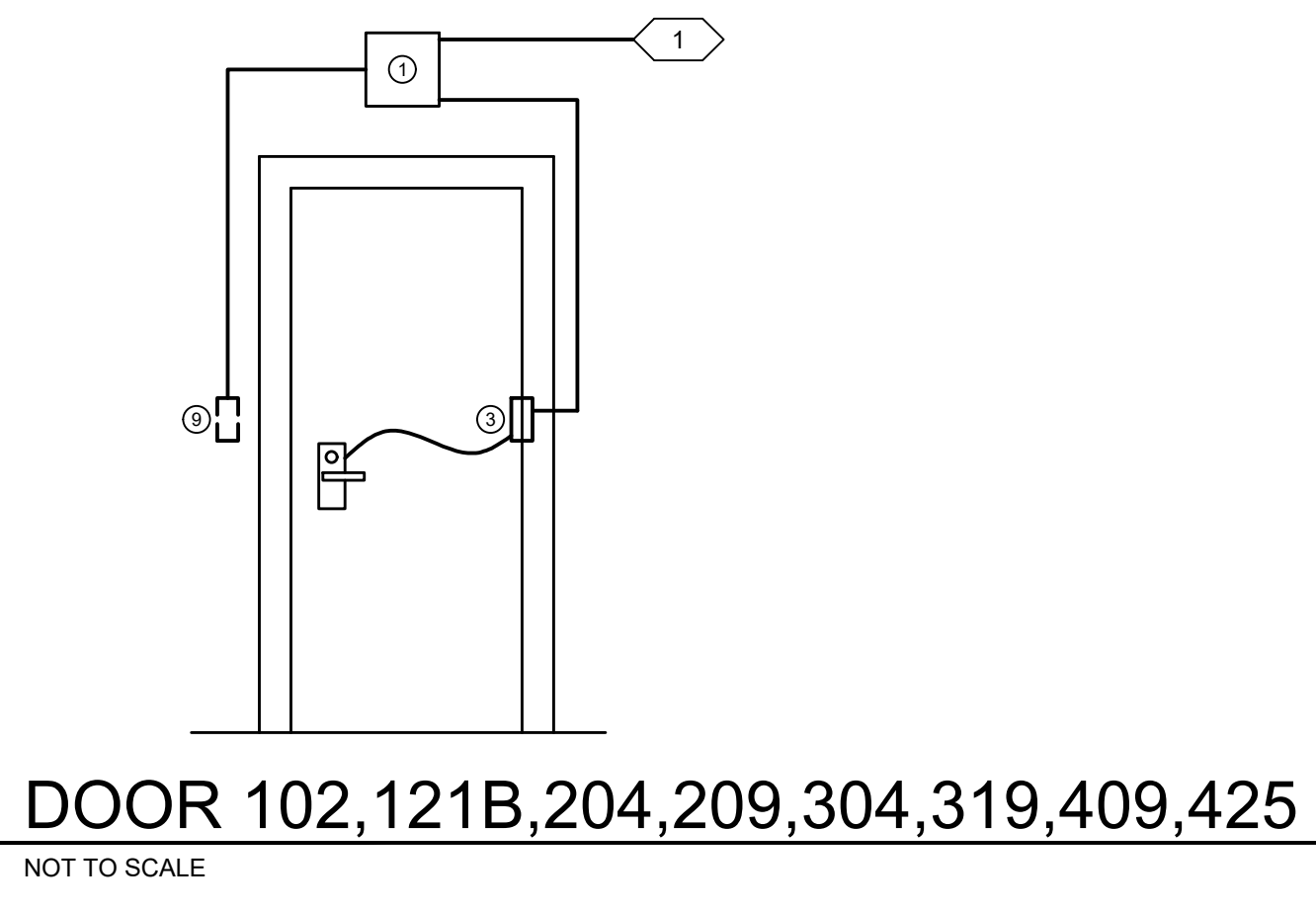
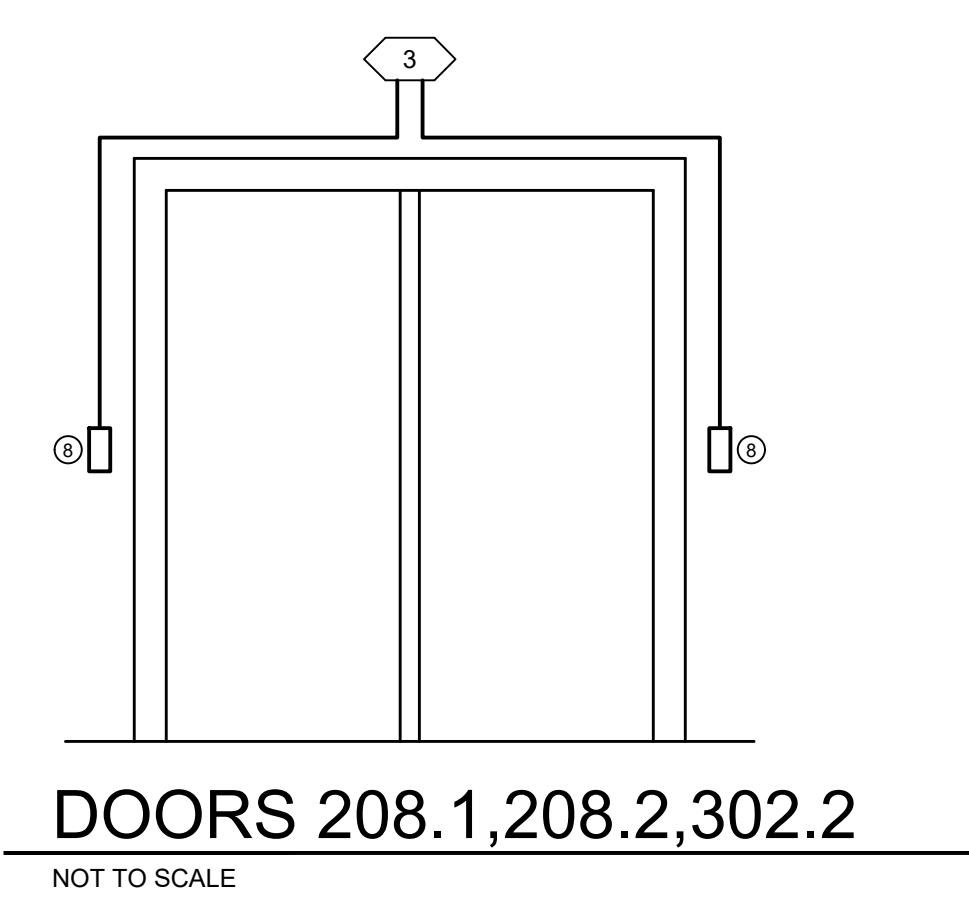
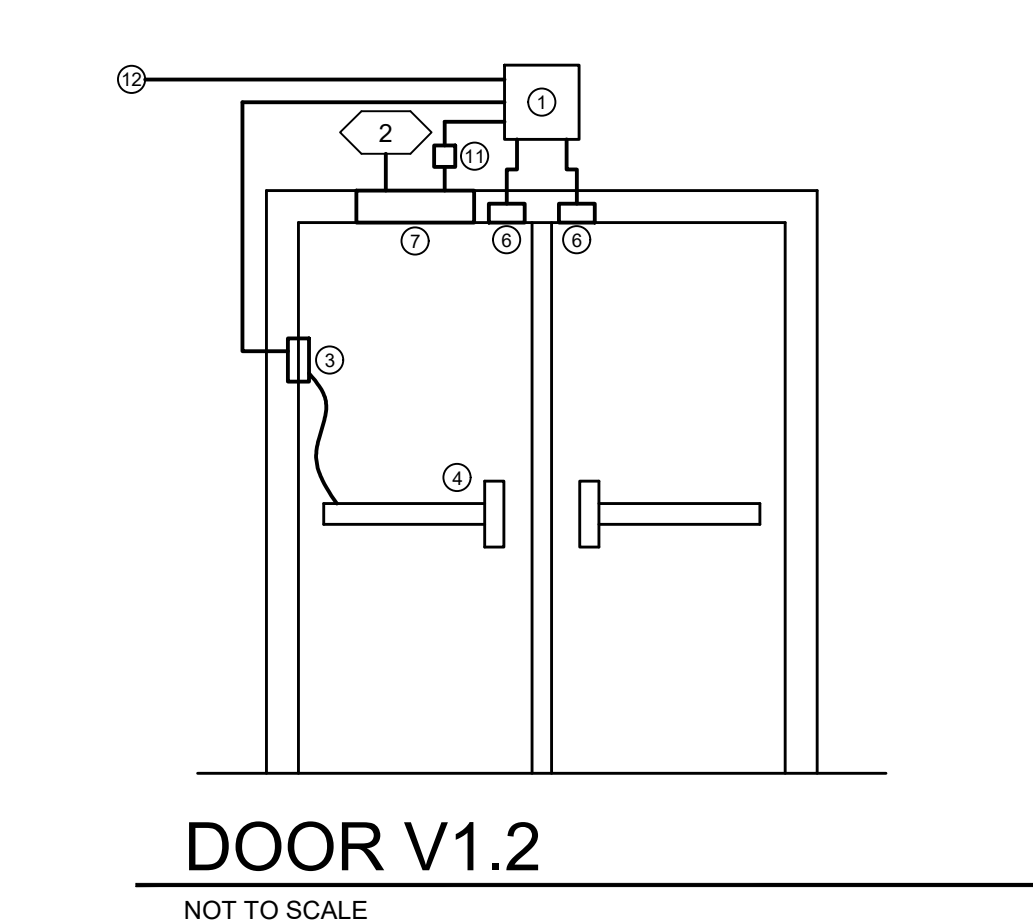
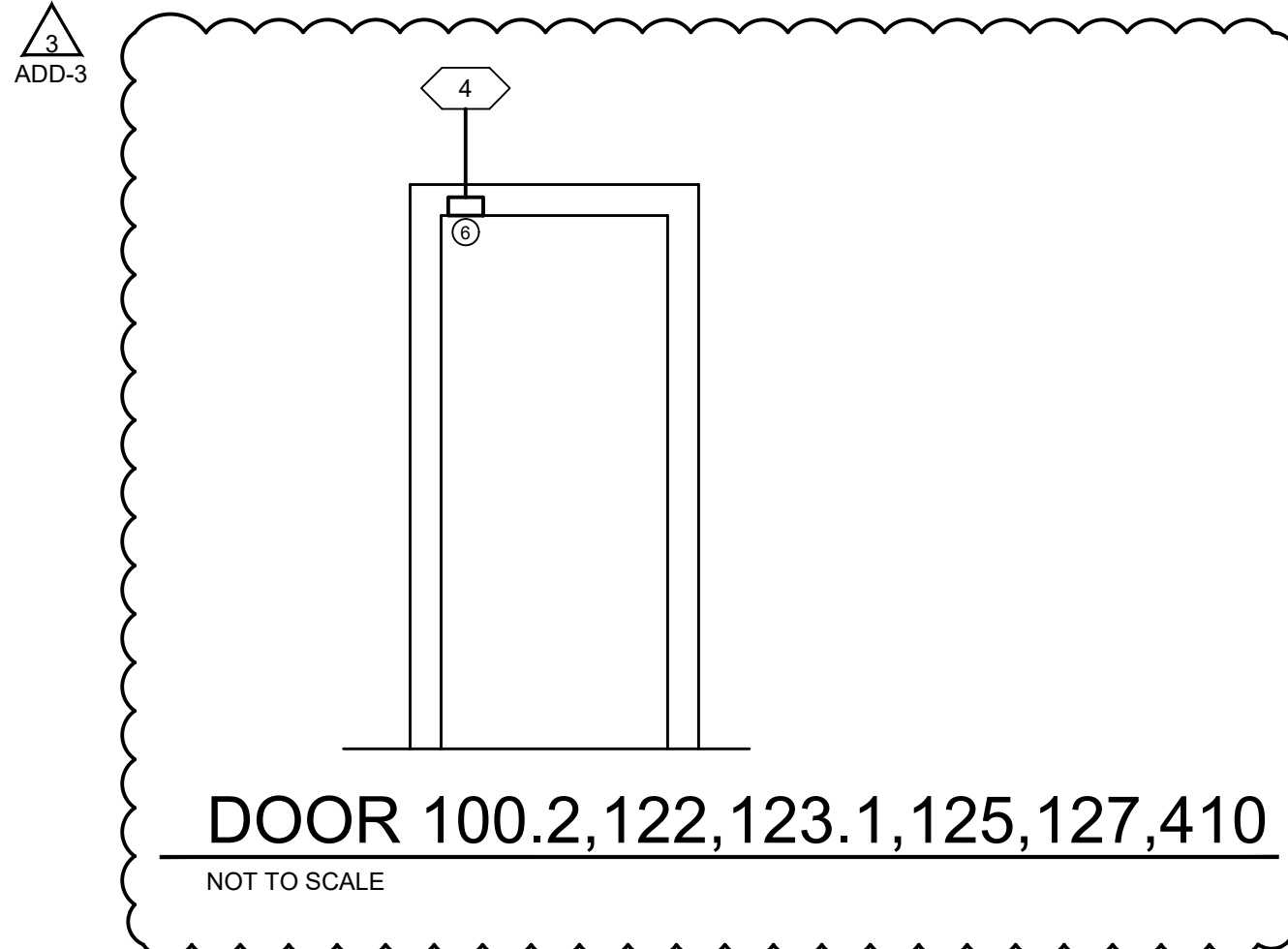
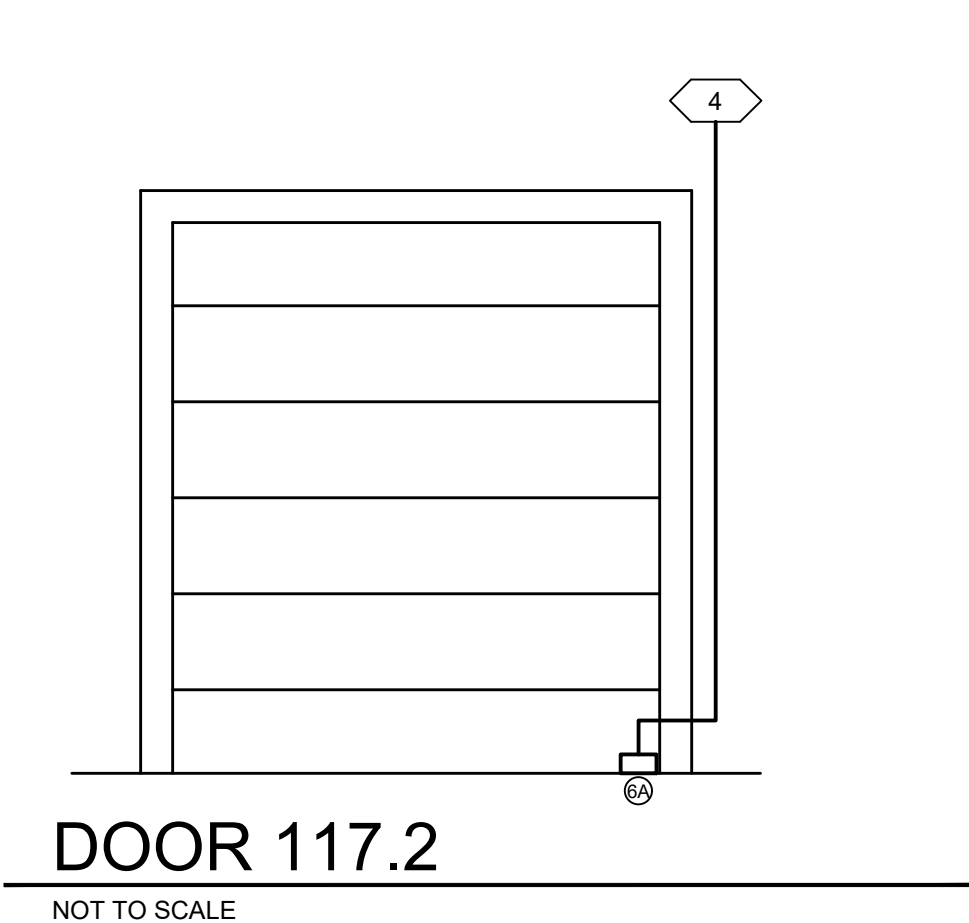
- THESE RISERS SHOW TYPICAL CONDUIT PATHWAYS REQUIRED TO BE CONCEALED IN FINISHED SPACES. SEE PLANS AND COORDINATE WITH DOOR HARDWARE CONTRACTOR AND ACCESS CONTROL PROVIDER FOR EXACT LOCATIONS OF ALL DEVICES.
- DASHED LINES INDICATE OTHER SIDE OF DOOR.

**ELECTRICAL SERVICE NOTES:**

- 120VAC, 60Hz, 1A SERVICE REQUIRED.
- 120VAC, 60Hz, 5A SERVICE REQUIRED.
- PROVIDE POWER, FIRE ALARM, AND CONTROL WIRING AS REQUIRED. COORDINATE EXACT REQUIREMENTS IN FIELD.
- CONDUIT STUB-UP TO CLEAR ACCESSIBLE SPACE.

**DOOR RISER NOTES:**

- POWER SUPPLY
- 4"D X 12"W X 12"H JUNCTION BOX BY ELECTRICAL CONTRACTOR IN CONCEALED ACCESSIBLE SPACE AS LOCATED BY ENGINEER OF RECORD.
- ELECTRIC POWER TRANSFER, CONCEALED IN FRAME AND DOOR.
- ELECTRIFIED EXIT DEVICE.
- ELECTRIFIED MORTISE LOCKSET WITH ONBOARD REX MONITORING CONTACT.
- DOOR POSITION SWITCH (CONCEALED IN TOP JAMB, SCREWED IN, MORTISED).
- DOOR POSITION SWITCH (FOR OVERHEAD DOOR).
- AUTOMATIC DOOR OPERATOR.
- MAGNETIC HOLDER (SINGLE-GANG).
- CARD READER (SINGLE GANG).
- CARD READER (CONCEALED INSIDE FRP DOOR).
- CARD READER (NARROW JAMB MOUNT).
- HARD-WIRED EXIT ALARM (DOUBLE-GANG), DETEX EAX-2520F X SI.
- ON-OFF LIGHT SWITCH, 120VAC (LOCATED ABOVE THE CEILING) BY ELECTRICAL CONTRACTOR.
- PUSHBUTTON WITH MOMENTARY SENSING (SURFACE MOUNTED UNDER DESK).
- KEY SWITCH (SINGLE-GANG).



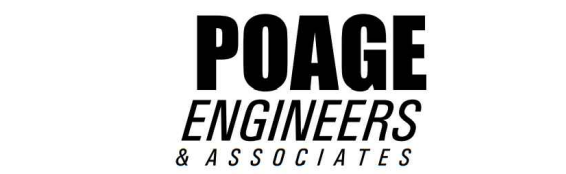
REVISIONS	
#	DESCRIPTION
1	DATE
1	10/14/22
2	10/21/22
3	10/21/22
	ADDENDUM 1
	ADDENDUM 3



**PROJECT TEAM**  
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 MEP Engineers  
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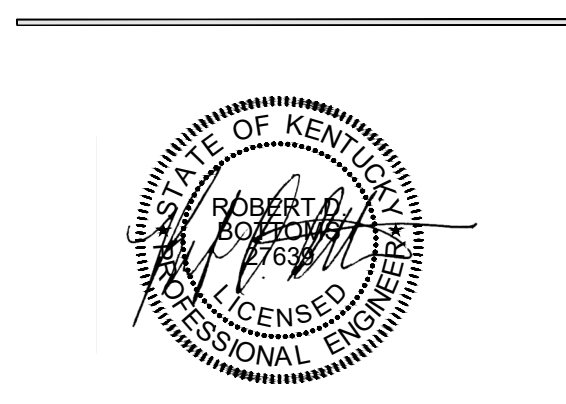


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Job Number 2150  
 Drawn by JHS  
 Checked by RDB  
 Date 09/28/2022



**ELECTRICAL ONE-LINE DIAGRAM AND PANEL SCHEDULES**

**GENERAL NOTES:**

REFER TO SHEETS E602 AND E600 FOR ADDITIONAL GENERAL NOTES.

**PANEL W.LAB.L**  
**NORMAL POWER**

BRANCH CIRCUIT PANELBOARD											
VOLTAGE	3 PHASE	POLES	MAIN AMPS			MAIN TYPE	A.I. RATING	MOUNTING			
			4 WIRE	30	60			28,000	SURFACE	POLE	NO.
277/480	4 WIRE	30	60			MLO	28,000				
POLE BREAKER	LOAD SERVED	KVA	A	B	C	KVA	LOAD SERVED	TRIP P.	NO.	TRIP P.	NO.
1	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
2	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
3	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
4	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
5	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
6	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
7	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
8	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
9	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
10	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
11	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
12	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
13	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
14	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
15	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
16	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
17	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
18	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
19	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
20	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
21	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
22	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
23	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
24	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
25	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
26	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
27	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
28	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
29	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
30	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
31	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
32	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
33	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
34	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
35	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
36	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
37	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
38	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
39	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
40	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
41	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
42	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
43	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
44	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
45	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
46	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
47	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
48	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
49	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
50	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
51	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
52	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
53	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
54	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
55	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
56	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
57	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
58	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
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64	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
65	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
66	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
67	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
68	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
69	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
70	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
71	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
72	20G 1 REC WELDING BOOTH	0.8	1.0	0.2	0.2	0.2	WELDING STATION HOOD	20	3	2	2
PHASE TOTALS:			48.3	48.3	48.3	48.3	141.3				
TOTAL:							141.3				

**ABBREVIATIONS:** G - GFCI; A - AFCI; L - LOCKOUT; S - SHUNT TRIP; C - COMBINATION GFCI/AFCI; E - ELECTRONIC ADJUSTABLE TRIP; MCB - MAIN CIRCUIT BREAKER; MLO - MAIN LUG ONLY

**NOTES:** 1. ALL BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LOCK-OUT DEVICE CAPABLE OF ACCEPTING A PADLOCK.

2. CIRCUIT 20G1 WELDING BOOTH QUADPLEX RECEPTACLES PER CIRCUIT. ODD # POLE POSITIONS 1-23

**PANEL W.LAB.H**  
**NORMAL POWER**

BRANCH CIRCUIT PANELBOARD											
VOLTAGE	3 PHASE	POLES	MAIN AMPS			MAIN TYPE	A.I. RATING	MOUNTING			
			4 WIRE	30	60			28,000	SURFACE	POLE	NO.
277/480	4 WIRE	30	60			MLO	28,000				
POLE BREAKER	LOAD SERVED	KVA	A	B	C	KVA	LOAD SERVED	TRIP P.	NO.	TRIP P.	NO.
1	20 3 WELDING STATION HOOD	2.3	4.6	4.6	2.3	2.3	WELDING STATION HOOD	20	3	2	2
2	20 3 WELDING STATION HOOD	2.3	4.6	4.6	2.3	2.3	WELDING STATION HOOD	20	3	2	2
3	20 3 WELDING STATION HOOD	2.3	4.6	4.6	2.3	2.3	WELDING STATION HOOD	20	3	2	2
4	20 3 WELDING STATION HOOD	2.3	4.6	4.6	2.3	2.3	WELDING STATION HOOD	20	3	2	2
5	20 3 WELDING STATION HOOD	2.3	4.6	4.6	2.3	2.3	WELDING STATION HOOD	20	3	2	2
6	20 3 WELDING STATION HOOD	2.3	4.6	4.6	2.3	2.3	WELDING STATION HOOD	20	3	2	2
7	20 3 WELDING STATION HOOD	2.3	4.6	4.6	2.3	2.3	WELDING STATION HOOD	20	3		

**ELECTRICAL ONE-LINE  
DIAGRAM AND PANEL  
SCHEDULES  
GENERAL NOTES:**

A. REFER TO SHEETS E602 AND E600 FOR ADDITIONAL GENERAL NOTES.

**BID DOCUMENTS**

REVISIONS	
#	DESCRIPTION
1	DATE
1	10/14/22
2	ADDENDUM 1
3	10/21/22
3	ADDENDUM 3

**DISTRIBUTION PANEL ESDP1A  
EMERGENCY STANDBY POWER**

VOLTAGE	3 PHASE	POLES	MAIN AMPS	MAIN TYPE	A. I. RATING	MOUNTING							
277/480	4 WIRE	18	50	MLO	28,000	SURFACE							
NO.	TRIP	P	LOAD SERVED	KVA	A	B	C	KVA	LOAD SERVED	TRIP	P	NO.	
1	20	1	LTG EMR 130	0.1	0.2	0.1	0.1	0.4	LTG MECH 121	20	1	2	
2	30	1	LTG XFRM 122	0.5	1.0	0.5	0.5	1.5	LTG MECH 121	20	1	4	
3	60	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	6	
4	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	8	
5	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	10	
6	100	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	12	
7	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	14	
8	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	16	
9	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	18	
10	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	20	
11	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	22	
12	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	24	
13	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	26	
14	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	28	
15	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	30	
16	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	32	
17	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	34	
18	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	36	
PHASE TOTALS:				4.7	4.6	2.6	2.1	15.9	KVA	TOTAL:			15.9

**ABBREVIATIONS:** G- GFCI BREAKER  
A- AFCI  
L- LOCKOUT BREAKER  
S- SHUNT TRIP BREAKER  
C- COMBINATION GFCI/AFCI BREAKER  
E- ELECTRONIC ADJUSTABLE TRIP BREAKER  
MLO- MAIN LUG ONLY

**NOTES:** 1. ALL BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LOCK-OUT DEVICE CAPABLE OF ACCEPTING A PADLOCK.

**DISTRIBUTION PANEL ESDP2B  
EMERGENCY STANDBY POWER**

VOLTAGE	3 PHASE	POLES	MAIN AMPS	MAIN TYPE	A. I. RATING	MOUNTING							
277/480	4 WIRE	18	50	MLO	28,000	SURFACE							
NO.	TRIP	P	LOAD SERVED	KVA	A	B	C	KVA	LOAD SERVED	TRIP	P	NO.	
1	20	1	LTG EMR 130	0.1	0.2	0.1	0.1	0.4	LTG MECH 121	20	1	2	
2	30	1	LTG XFRM 122	0.5	1.0	0.5	0.5	1.5	LTG MECH 121	20	1	4	
3	60	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	6	
4	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	8	
5	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	10	
6	100	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	12	
7	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	14	
8	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	16	
9	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	18	
10	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	20	
11	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	22	
12	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	24	
13	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	26	
14	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	28	
15	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	30	
16	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	32	
17	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	34	
18	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	36	
PHASE TOTALS:				4.6	5.5	4.5	3.0	16.7	KVA	TOTAL:			16.7

**ABBREVIATIONS:** G- GFCI BREAKER  
A- AFCI  
L- LOCKOUT BREAKER  
S- SHUNT TRIP BREAKER  
C- COMBINATION GFCI/AFCI BREAKER  
E- ELECTRONIC ADJUSTABLE TRIP BREAKER  
MLO- MAIN LUG ONLY

**NOTES:** 1. ALL BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LOCK-OUT DEVICE CAPABLE OF ACCEPTING A PADLOCK.

**PANEL ESK  
EMERGENCY STANDBY POWER**

VOLTAGE	3 PHASE	POLES	MAIN AMPS	MAIN TYPE	A. I. RATING	MOUNTING							
277/480	4 WIRE	18	50	MLO	28,000	SURFACE							
NO.	TRIP	P	LOAD SERVED	KVA	A	B	C	KVA	LOAD SERVED	TRIP	P	NO.	
1	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	2	
2	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	4	
3	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	6	
4	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	8	
5	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	10	
6	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	12	
7	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	14	
8	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	16	
9	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	18	
10	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	20	
11	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	22	
12	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	24	
13	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	26	
14	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	28	
15	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	30	
16	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	32	
17	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	34	
18	20	1	WT WALKIN COOLER	1.2	1.7	0.8	0.6	3.3	WT WALKIN COOLER	20	1	36	
PHASE TOTALS:				11.8	16.7	8.9	6.6	36.0	KVA	TOTAL:			36.0

**ABBREVIATIONS:** G- GFCI BREAKER  
A- AFCI  
L- LOCKOUT BREAKER  
S- SHUNT TRIP BREAKER  
C- COMBINATION GFCI/AFCI BREAKER  
E- ELECTRONIC ADJUSTABLE TRIP BREAKER  
MLO- MAIN LUG ONLY

**NOTES:** 1. ALL BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LOCK-OUT DEVICE CAPABLE OF ACCEPTING A PADLOCK.

**PANEL ES1AH  
EMERGENCY STANDBY POWER**

VOLTAGE	3 PHASE	POLES	MAIN AMPS	MAIN TYPE	A. I. RATING	MOUNTING							
277/480	4 WIRE	18	50	MLO	28,000	SURFACE							
NO.	TRIP	P	LOAD SERVED	KVA	A	B	C	KVA	LOAD SERVED	TRIP	P	NO.	
1	20	1	LTG MECH 123	0.4	1.0	0.1	0.1	0.6	LTG STORAGE 124	20	1	2	
2	20	1	LTG ADMIN AREA 100	1.0	1.1	0.1	0.1	1.2	LTG MECH 102	20	1	4	
3	20	1	LTG MECH 103	0.1	0.1	0.0	0.0	0.2	SPARE	20	1	6	
4	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	8	
5	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	10	
6	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	12	
7	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	14	
8	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	16	
9	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	18	
10	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	20	
11	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	22	
12	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	24	
13	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	26	
14	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	28	
15	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	30	
16	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	32	
17	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	34	
18	20	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	36	
PHASE TOTALS:				3.0	3.1	2.8	2.8	8.7	KVA	TOTAL:			8.7

**ABBREVIATIONS:** G- GFCI, A- AFCI, L- LOCKOUT, S- SHUNT TRIP, C- COMBINATION GFCI/AFCI, E- ELECTRONIC ADJUSTABLE TRIP, MCB- MAIN CIRCUIT BREAKER, MLO- MAIN LUG ONLY

**NOTES:** 1. ALL BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH LOCK-OUT DEVICE CAPABLE OF ACCEPTING A PADLOCK.

**PANEL ES1BH  
EMERGENCY STANDBY POWER**

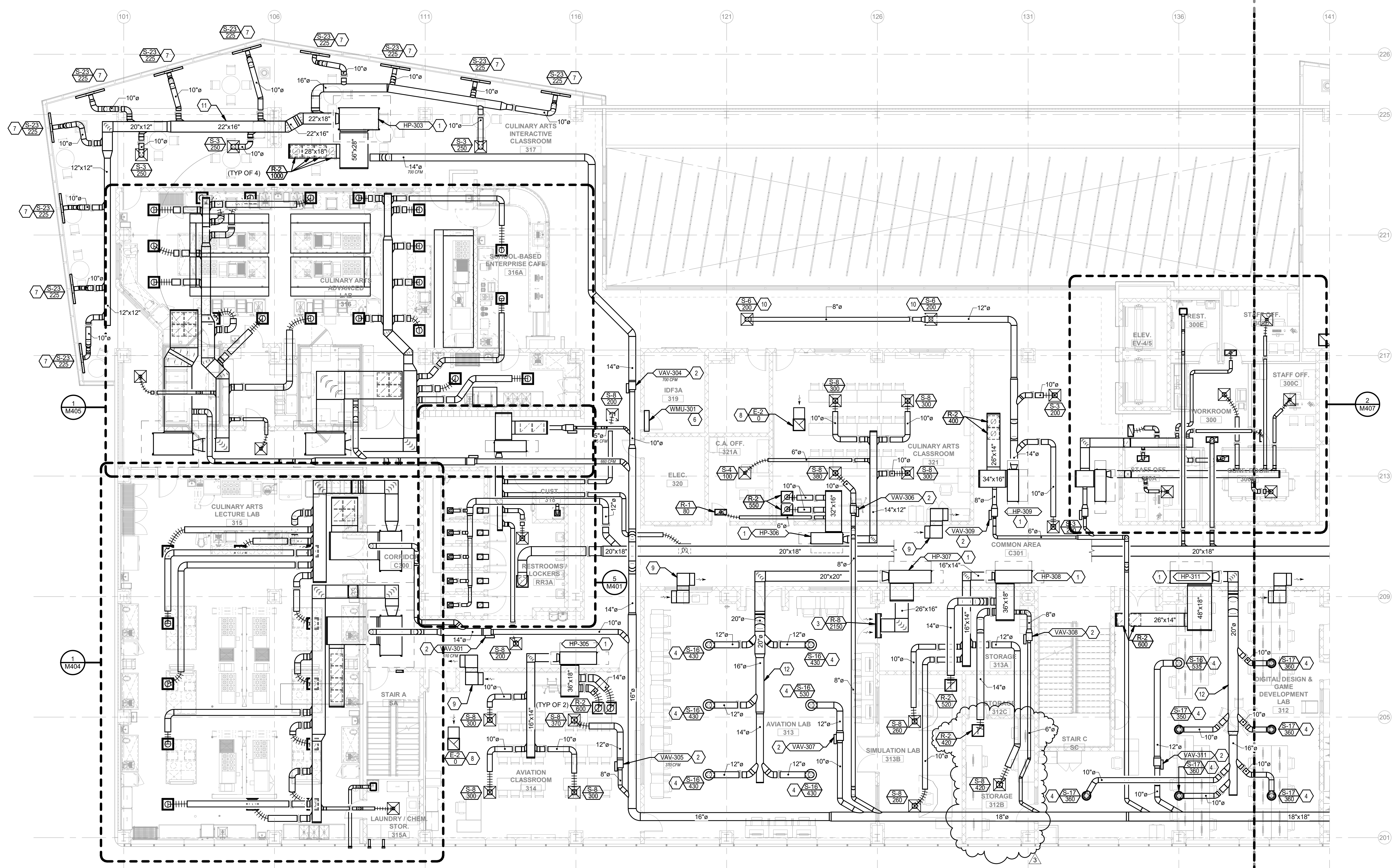
VOLTAGE	3 PHASE	POLES	MAIN AMPS	MAIN TYPE	A. I. RATING	MOUNTING						
277/480	4 WIRE	18	50	MLO	28,000	SURFACE						
NO.	TRIP	P	LOAD SERVED	KVA	A	B	C	KVA	LOAD SERVED	TRIP	P	NO.
1	20	1	LTG EMR 130	0.1	0.2	0.1	0.1	0.4	LTG MECH 121	20	1	2
2	30	1	LTG XFRM 122	0.5	1.0	0.5	0.5	1.5	LTG MECH 121	20	1	4
3	60	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	6
4	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	8
5	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	10
6	100	1	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	12
7	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	14
8	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	16
9	60	3	SPARE	0.5	1.0	0.5	0.5	1.5	SPARE	20	1	18
10	60	3	SPARE	0.5	1.0</							



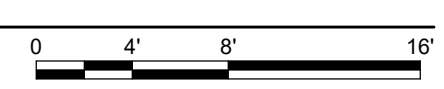


**GENERAL NOTES**

- REFER TO DRAWING M001 FOR MECHANICAL GENERAL NOTES AND LEGEND.
  - INTERIOR OF ALL RETURN, TRANSFER, AND EXHAUST AIR GRILLES/PLENUMS TO BE PAINTED MATTE BLACK.
- SHEET KEYNOTES**
- PROVIDE HORIZONTAL WATER-SOURCE HEAT PUMP UNIT WHERE INDICATED. HORIZONTAL UNITS MOUNTED ABOVE CEILING SHALL BE INSTALLED NO MORE THAN 2'-0" ABOVE CEILING SYSTEM. WSPH UNITS SHALL NOT BE INSTALLED ABOVE CABLE TRAY OR PIPING. REFER TO SCHEDULE AND DETAILS FOR ADDITIONAL REQUIREMENTS.
  - PROVIDE A SINGLE DUCT VARIABLE AIR VOLUME (VAV) BOX WHERE INDICATED FOR OUTSIDE AIR DEMAND CONTROL VENTILATION. REFER TO SCHEDULE AND DETAILS FOR ADDITIONAL REQUIREMENTS.
  - PROVIDE A SIDEWALL SURFACE MOUNTED RETURN AIR GRILLE WHERE INDICATED. INSTALL RETURN AIR GRILLE 12'-6" A.F.F. TO BOTTOM OF GRILLE. REFER TO AIR DEVICE SCHEDULE FOR SIZING AND ADDITIONAL REQUIREMENTS.
  - PROVIDE A DUCT MOUNTED SUPPLY AIR DIFFUSER. THE DIFFUSER SHALL BE INSTALLED ON RIGID DUCT AND SHALL BE INSTALLED AT 12' - 6" A.F.F. REFER TO AIR DEVICE SCHEDULE FOR SIZING AND ADDITIONAL REQUIREMENTS.
  - PROVIDE A SIDEWALL SURFACE MOUNTED SUPPLY AIR GRILLE WHERE INDICATED. GRILLE SHALL BE INSTALLED AT 12'-6" A.F.F. TO BOTTOM OF GRILLE. REFER TO AIR DEVICE SCHEDULE FOR SIZING AND ADDITIONAL REQUIREMENTS.
  - PROVIDE A WALL MOUNTED MINI-SPLIT UNIT WHERE INDICATED. UNIT SHALL BE INSTALLED AT 8'-0" A.F.F. REFER TO MINI-SPLIT SCHEDULE FOR ADDITIONAL REQUIREMENTS.
  - PROVIDE LINEAR SLOT DIFFUSER WHERE INDICATED. DIFFUSER SHALL BE SUPPORTED INDEPENDENTLY FROM STRUCTURE AND FLOATING. CONNECT WITH RIGID DUCT. REFER TO AIR DEVICE SCHEDULE FOR SIZE AND ADDITIONAL REQUIREMENTS.
  - PROVIDE AN EXHAUST AIR TRANSFER WHERE INDICATED. REFER TO TRANSFER/RETURN AIR BOOT DETAIL.
  - PROVIDE AN EXHAUST AIR TRANSFER SOUND TRAP WHERE INDICATED. REFER TO AIR DEVICE SCHEDULE AND 2" TRANSFER SOUND TRAP DETAIL.
  - PROVIDE SUPPLY AIR DIFFUSER WHERE INDICATED AND INSTALL ON END OF RIGID DUCT. DO NOT USE FLEX DUCT.
  - ALL DUCT IN THIS AREA SHALL BE EXTERNALLY INSULATED AND WRAPPED WITH CANVAS FOR FIELD PAINTING BY OTHERS.
  - ALL DUCT SHALL BE DOUBLE WALL SPIRAL. PROVIDE PAINT GRIP FINISH FOR FIELD PAINTING BY OTHERS.



**1 THIRD FLOOR PLAN A - HVAC**  
SCALE: 1/8" = 1'-0"



**NEW  
COMBINED CTE  
SCHOOL**  
BG# 22-167  
100 Midland Ave,  
Lexington, KY 40508

**BID DOCUMENTS**

REVISIONS	
#	DESCRIPTION
3	10/21/2022 ADDENDUM #3



**PROJECT TEAM**  
EOP Architects  
201 W. Short Street, Suite 700  
Lexington, KY 40507  
p. 859-231-7538 | f. 859-255-4380  
www.eopa.com



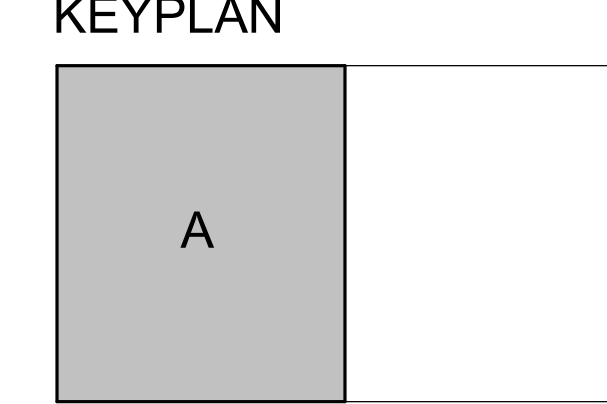
Element Design, PLLC.  
366 S. Broadway  
Lexington, KY 40508

**POAGE  
ENGINEERS  
& ASSOCIATES**  
Poage Engineers & Associates Inc  
Structural Engineers  
880 Sparta Ct. Ste. 200  
Lexington, KY 40504

**SHROUT  
TATE  
MECHANICAL AND  
ELECTRICAL ENGINEERS  
WILSON**  
Shrout Tate Wilson Consulting Engineers  
MEP Engineers  
628 Winchester Rd.  
Lexington, KY 40505

**Reitano Design Group**  
302 N. East Street, Studio One  
Indianapolis, IN 46202

**Calvert - Independent Hardware  
Specifications, LLC.**  
307 Oakwood Circle  
Vine Grove, KY 40175



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None of this information shall be used by or disclosed to any person or entity for any reason whatsoever without the permission of EOP Architects.

Written dimensions shall have precedence over scale dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job. Notify EOP Architects immediately of any variation from the dimensions and conditions shown by these drawings.

Job Number 2150  
Drawn By CS / JC  
Checked By RLW  
Date 09/28/2022

PLAN TRUE



9/28/2022

**THIRD FLOOR PLAN A -  
HVAC**

ADD# 3  
10/21/2022

**M103a**



**WATER SOURCE HEAT PUMP UNIT SCHEDULE**

MARK	AREA SERVED BY HEAT PUMP	MODEL	CAPACITY	AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (inH <sub>2</sub> O)	FLUID FLOW (GPM)	Fluid Pressure Drop (FT H <sub>2</sub> O)	COOLING								HEATING								ELECTRICAL					REMARKS	SERIAL NUMBER (TO BE COMPLETED BY CONTRACTOR)
								LAT		TOTAL (Btu/hr)	SENSIBLE (Btu/hr)	HEAT OF REJECTION (Btu/hr)	EER (Design)	EER (AHRF)	LAT (°F)	TOTAL (Btu/hr)	HEAT OF ABSORPTION (Btu/hr)	COP (Design)	COP (AHRF)	V/Hz / PH	COMPRESSOR RLA	FAN MOTOR FLA	TOTAL UNIT FLA	MCA (A)	MOCP					
								LDB (°F)	LWB (°F)																					
HP-101	PRINCIPAL PSA BOOKKEEPER	WGDH024	FULL	800	0.3	6.00	9.92	55.3	52.1	23646	16532	28756	15.8	18.3	94.2	20338	14539	3.5	3.4	460/60/3	3.5	2.4	5.9	6.8	15	1.5,7,8,9,11,13				
			PART	700	0.3	6.00	10.27	52.4	49.2	17603	12929	20611	20.0	24.2	93.7	17419	13093	4.0	3.9											
HP-102	CONFERENCE 100A	WGCH012	FULL	389	0.3	3.00	5.19	51.7	51.6	11035	9515	13847	13.4	14.2	98.7	11705	8510	3.7	3.2	265/60/1	4.7	0.5	5.2	6.4	15	1.4,7,8,11,13				
HP-103	RECEPTION 100 WORKROOM RECORDS	WGCH012	FULL	389	0.3	3.00	5.19	51.7	51.6	11035	9515	13847	13.4	14.2	98.7	11705	8510	3.7	3.2	265/60/1	4.7	0.5	5.2	6.4	15	1.4,7,8,11,13				
HP-104	CORRIDOR C101	WGCH012	FULL	389	0.3	3.00	5.19	51.7	51.6	11035	9515	13847	13.4	14.2	98.7	11705	8510	3.7	3.2	265/60/1	4.7	0.5	5.2	6.4	15	1.4,7,8,11,13				
HP-105	WELDING CLASS 105	WGDH030	FULL	1075	0.3	7.50	14.16	57.8	53.8	27216	19459	34119	13.5	15.7	92.7	25709	18238	3.4	3.2	460/60/3	4.3	2.4	6.7	7.8	15	1.5,7,8,11,13				
			PART	1000	0.3	7.50	14.66	53.8	50.1	22968	16964	27181	18.6	21.1	91.2	22235	16606	4.1	3.6											
HP-106	AUTOMOTIVE TECH 108	WGDH030	FULL	1075	0.3	7.50	14.16	57.8	53.8	27216	19459	34119	13.5	15.7	92.7	25709	18238	3.4	3.2	460/60/3	4.3	2.4	6.7	7.8	15	1.5,7,8,11,13				
			PART	1000	0.3	7.50	14.66	53.8	50.1	22968	16964	27181	18.6	21.1	91.2	22235	16606	4.1	3.6											
HP-107	AUTOMOTIVE TECH 109	WGDH030	FULL	1075	0.3	7.50	14.16	57.8	53.8	27216	19459	34119	13.5	15.7	92.7	25709	18238	3.4	3.2	460/60/3	4.3	2.4	6.7	7.8	15	1.5,7,8,11,13				
			PART	1000	0.3	7.50	14.66	53.8	50.1	22968	16964	27181	18.6	21.1	91.2	22235	16606	4.1	3.6											
HP-108	DIESEL CLASS 112	WGDH030	FULL	1075	0.3	7.50	14.16	57.8	53.8	27216	19459	34119	13.5	15.7	92.7	25709	18238	3.4	3.2	460/60/3	4.3	2.4	6.7	7.8	15	1.5,7,8,11,13				
			PART	1000	0.3	7.50	14.66	53.8	50.1	22968	16964	27181	18.6	21.1	91.2	22235	16606	4.1	3.6											
HP-109	OFFICE SUITE 111	WGDH030	FULL	1075	0.3	7.50	14.16	57.8	53.8	27216	19459	34119	13.5	15.7	92.7	25709	18238	3.4	3.2	460/60/3	4.3	2.4	6.7	7.8	15	1.5,7,8,11,13				
			PART	1000	0.3	7.50	14.66	53.8	50.1	22968	16964	27181	18.6	21.1	91.2	22235	16606	4.1	3.6											
HP-110	DIESEL ENGINE LAB 113	WGT0641	FULL	2000	0.3	15.00	9.55	53.4	51.3	62870	45465	75222	17.4	19.7	95.8	54292	40625	4.1	3.9	460/60/3	7.2	6.9	14.1	15.9	20	2.5,7,8,12,13				
			PART	1750	0.3	15.00	9.89	50.3	48.6	46362	36275	52888	24.2	28	93.7	43561	33770	4.5	4.3											
HP-111	CORRIDOR C102	WGCH015	FULL	866	0.3	3.75	6.72	58.6	56.2	15070	15283	16	16.8	86.1	13481	10406	4.4	3.5	265/60/1	4.3	1.0	5.3	6.4	15	1.4,7,8,11,13					
HP-112A	FIRE SAFETY LAB 115	WGDH030	FULL	1000	0.3	7.50	14.16	57.8	53.8	27216	19459	34119	13.5	15.7	92.7	25709	18238	3.4	3.2	460/60/3	4.3	2.4	6.7	7.8	15	1.5,7,8,12,13				
			PART	1000	0.3	7.50	14.66	53.8	50.1	22968	16964	27181	18.6	21.1	91.2	22235	16606	4.1	3.6											
HP-112B	FIRE SAFETY LAB 115	WGDH030	FULL	1000	0.3	7.50	14.16	57.8	53.8	27216	19459	34119	13.5	15.7	92.7	25709	18238	3.4	3.2	460/60/3	4.3	2.4	6.7	7.8	15	1.5,7,8,9,12,13				
			PART	1000	0.3	7.50	14.66	53.8	50.1	22968	16964	27181	18.6	21.1	91.2	22235	16606	4.1	3.6											
HP-113	FIRE CLASSROOM 116	WGDH036	FULL	1350	0.3	9.00	11.89	56.0	53.5	35366	26877	43344	15.1	17.6	91.5	30581	22178	3.6	3.3	460/60/3	5.7	3.4	9.1	10.5	15	1.5,7,8,11,13				
			PART	1200	0.3	9.00	12.32	53.7	50.7	25719	20490	30182	19.7	24.5	90.4	25757	19708	4.3	4											
HP-114	CUSTODIAL RECEIVING 118	WGDH024	FULL	800	0.3	6.00	9.92	55.3	52.1	23646	16532	28756	15.8	18.3	94.2	20338	14539	3.5	3.4	265/60/1	9.1	2.4	11.5	13.8	20	1.5,7,8,9,12,13				
			PART	700	0.3	6.00	10.27	52.4	49.2	17603	12929	20611	20.0	24.2	93.7	17419	13093	4.0	3.9											
HP-115A	WELDING LAB 107	WGDH036	FULL	1350	0.3	9.00	11.89	56.0	53.5	35366	26877	43344	15.1	17.6	91.5	30581	22178	3.6	3.3	460/60/3	5.7	3.4	9.1	10.5	15	1.5,7,8,12				
			PART	1161	0.3	9.00	12.32	53.7	50.7	25719	20490	30182	19.7	24.5	90.4	25757	19708	4.3	4											
HP-115B	OA - WELDING LAB 107	WGOV024	FULL	2500	0.3	39.90	3.70	55.0	54.0	165755	96995	193596			56.4	151172	130554	6.7		460/60/3	21.6	10.4	32.0	35.0	45	3.6,12,13, 15				
HP-116	AUTOMOTIVE LAB 110	WLVW1120	FULL	4000	0.76	30.00	13.70	59.2	56.9	123100	88266	151043	15.04	16.9	97.6	119132	90155	4.11	3.9	460/60/3	7.8	2.8	18.4	20.4	25	3.9,10,12,13				
			PART	940	0.3	9.00	8.89	49.8	47.8	37349	24833	44250	18.5	20.1	101.9	31504	23854	4.1	4.2											
HP-201	OFFICES 200A 200B 200C 200D	WGT0381	FULL	940	0.3	9.00	9.00	50.5	47.8	26565	19285	30210	24.9	28.9	96.4	26065	20549	4.7	4.7	460/60/3	5.7	4.1	9.8	11.2	15	2.5,7,8,9,11,14				
HP-202	ADMIN WAITING 200 CONFERENCE 200E	WGS0121	PART	402	0.3	3.00	9.13	53.5	51.7	12332	9072	15915	15.7	17.2	96.7	11259	8379	3.9	3.8	265/60/1	4.2	0.8	5.0	6.0	15	2.4,7,8,11,13				
HP-203	MEDIA FLEX 216	WGT0721	FULL	2160	0.3	18.00	13.53	52.1	50.9	70419	51977	85362	16.1	18.1	96.0	63618	46884	3.8	3.7	460/60/3	8.5	6.9	15.4	17.5	25	2.5,7,8,11,13				
			PART	1920	0.3	18.00	14.01	49.3	47.7	54873	41753	62862	23.4	26.1	96.5	53393	41023	4.3	4.2											
HP-204	RR LOCKERS COMMON	WGS0151	FULL	500	0.3	3.75	5.55	53.8	51.8	15158	11156	17999	18.2	19.1	95.9	13635	10322	4.1	3.8	265/60/1	5.0	2.6	7.4	8.9	15	2.4,7,8,11,13				
HP-205	SECURITY VESTIBULE V1	WGT0641	FULL	2000	0.3	15.00	9.55	53.4	51.3	62870	45465	75222	17.4	19.7	95.8	54292	40625	4.1	3.9	460/60/3	7.2	6.9	14.1	15.9	20	2.5,7,8,11,13				
			PART	1750	0.3	15.00	9.89	50.3	48.6	46362	36275	52888	24.2	28	93.7	43561	33770	4.5	4.3											
HP-206	STUDENT SHOWCASE 104	WGT0491	FULL	1600	0.3	12.00	5.93	54.0	51.9	47974	35249	57652	16.9	19.2	94.3	40809	30500	4.1	4	460/60/3	6.4	5.5	11.9	13.5	15	2.5,7,8,11,13				
			PART	1400	0.3	12.00	6.14	51.9	49.2	34948	26540	40020	23.5	28.2	92.8	33594	26088	4.5	4.4											
HP-207A	CARPENTRY LAB 203	WGT0641	FULL	2000	0.3	15.00	9.55	53.4	51.3	62870	45465	75222	17.4	19.7	95.8	54292	40625	4.1	3.9	460/60/3	7.2	6.9	14.1	15.9	20	2.5,7,8,9,12,13				
			PART	1750	0.3	15.00	9.89	50.3	48.6	46362	36275	52888	24.2	28	93.7	43561	33770	4.5	4.3											
HP-207B	CARPENTRY LAB 203	WGT0641	FULL	2000	0.3	15.00	9.55	53.4	51.3	62870	45465																			





# MECHANICAL SYSTEM SEQUENCES OF OPERATIONS

## PRIMARY GEOTHERMAL LOOP SYSTEM

The associated BAS controller shall activate and deactivate the geothermal loop per building occupancy schedule and loop supply temperature.

Pumps part of Primary Loop System: P-01A, 01B, AND 01C

- Unoccupied Mode - In unoccupied mode geothermal loop pump(s) shall be off.
  - During unoccupied mode if any secondary loop is activated and supply temperature exceeds 85deg F (adj.) in cooling or drops below 55deg F (adj.) in heating, the primary loop pumps shall be energized.
- Occupied Mode - In occupied mode the geothermal loop pump(s) shall be energized based on the following:
  - Pump(s) shall be energized when any of the secondary loop pump(s) are active, and the primary loop supply temperature exceeds 75deg F (adj.) in cooling or supply temperature drops below 55deg F (adj.) in heating.
  - When primary loop supply temperature falls below 70deg F (adj.) in cooling mode for more than 10 minutes (adj.) the primary pumps shall be deactivated.
  - When primary loop supply temperature exceeds 65deg F (adj.) in heating mode for more than 10 minutes (adj.) the primary pumps shall be deactivated.
- Pump Lead / Lag Control -
  - The pump headlag sequence shall be rotated on a weekly schedule. The sequence shall be based on calculated run time with the pump having the least run time designated as lead, the pump with the next lowest run time shall be the second in the sequence (or lag pump) and so on.
  - From the system human-interface panel or a BAS operator interface an operator shall be able to manually change the leading sequence.
  - If lead pump is unable to meet flow requirement after a 5 min (adj.) the lag pump shall be enabled.
- Pump VFD Control - When the distribution pump variable speed drive is enabled, the associated controller shall modulate the pump variable speed drive to maintain the loop flow. Primary loop shall be set at 200gpm greater than secondary loop flow. Flow shall be set by BAS controller by monitoring flow meters on secondary loops.
- Pump Status - The BAS controller shall detect distribution pump run status by a variable speed drive current switch.
  - Distribution Pump Failure: If the lead Start/Stop relay is enabled and the current switch status is off for more than 30 seconds (adj.), the associated controller shall annunciate a distribution water pump failure alarm to the BAS and shall start the lag pump.
  - Pump 01B shall operate as lag pump for both 01A and 01C. If P-01B is required to operate for either primary lead pump the BAS will command control valve open to divert water to correct well field. Refer to schematic plan on M400A
  - Once the problem has been corrected, the operator shall be able to clear the alarm failure from the BAS controller, from a BAS or by manually overriding the pump on momentarily. This shall re-enable the leading sequence.
- Make-up Water Flow - The BAS controller shall monitor the make-up water meter continually. The values shall be available on graphic at all times.
  - Data - The controller shall monitor and record water meter readings and provide trend usage history. History shall record daily, and month-to-date data.
  - Alarm - The BAS system shall record flow from flow meter and if a flow is detected a CRITICAL ALARM, shall be initiated and an alert shall be emailed / texted to appropriate FCPS Maintenance Personnel.
- System Flow - The BAS controller shall monitor flow meter on primary loop located in the neutral bridge. Flow and Direction shall be monitored and reported to BAS system.
  - BAS shall also monitor supply and return temperatures and provide BTU/h calculation on the graphic to show total system BTU/h usage.
- Alarms -
  - High Loop Temp Alarm - Loop Temp exceeds 95deg F. (adj.)
  - Low Loop Temp Alarm - Loop Temp falls below 50deg F. (adj.)
  - Pump Fail - If any pump fails to prove status.
  - VFD Fail - If VFD indicates failure
  - Low Flow - If primary pump(s) fail to meet required flow (Total Secondary Loop plus 200 GPM; when pump enable command is active.

IF ALTERNATE # 1 IS ACCEPTED THE SYSTEM WILL CHANGE TO BOILER / TOWER SYSTEM WITH A CLOSED CIRCUIT FLUID COOLER AND GAS FIRED CONDENSING BOILERS. REFER TO ALTERNATE 1 SEQUENCE OF OPERATIONS FOR PRIMARY LOOP.

## SECONDARY WSHHP LOOP SYSTEM(S)

The associated BAS controller shall activate and deactivate the secondary WSHHP loop system(s) per building occupancy schedule and zone heating / cooling requests.

Pumps part of Secondary System: P-02A, 02B, 03A, & 03B

- Unoccupied Mode - In unoccupied mode secondary WSHHP loop pump(s) shall be off.
  - During unoccupied mode if any zone requires heating, cooling, or dehumidification, the zone shall send a request to BAS system, and BAS shall energize the required secondary loop pump.
- Occupied Mode - In occupied mode the secondary WSHHP loop pump(s) shall be energized based on the occupancy schedule:
  - During occupied hours the secondary WSHHP loop pump(s) shall be energized and shall maintain loop differential pressure setpoint.
- Pump Lead / Lag Control -
  - The pump headlag sequence shall be rotated on a weekly schedule. The sequence shall be based on calculated run time with the pump having the least run time designated as lead, the pump with the next lowest run time shall be the second in the sequence (or lag pump) and so on.
  - From the system human-interface panel or a BAS operator interface an operator shall be able to manually change the leading sequence.
  - If the distributed water loop differential pressure falls 0.5 psig (adj.) below setpoint and the lead pump is at 100% (adj.) for more than 5 minutes (adj.), the next pump in the sequence shall start.
  - If the pump speed control output is below 40% (adj.) for more than 5 minutes (adj.), the last operating pump in the sequence shall be disabled.
- Pump VFD Control - When the distribution pump variable speed drive is enabled, the associated controller shall modulate the pump variable speed drive to maintain the distribution loop water differential pressure setpoint (adj.).
- Pump Status - The BAS controller shall detect distribution pump run status by a variable speed drive current switch.
  - Distribution Pump Failure: If the lead Start/Stop relay is enabled and the current switch status is off for more than 30 seconds (adj.), the associated controller shall annunciate a distribution water pump failure alarm to the BAS and shall start the lag pump.
  - Once the problem has been corrected, the operator shall be able to clear the alarm failure from the BAS controller, from a BAS or by manually overriding the pump on momentarily. This shall re-enable the leading sequence.
- System Flow - The BAS controller shall monitor the supply and return loop temperature(s), and flow meter(s) on secondary loop(s).
  - BAS shall provide BTU/h calculation on the graphic to show total secondary loop BTU/h usage for each zone.
- Alarms -
  - High Secondary Loop Temp Alarm - Loop Temp exceeds 95deg F. (adj.)
  - Low Secondary Loop Temp Alarm - Loop Temp falls below 50deg F. (adj.)
  - Pump Fail - If any pump fails to prove status, Pump Command on but status is off.
  - VFD Fail - If VFD indicates failure
  - High Loop Pressure
  - Low Loop Pressure
- Emergency Shutdown -
  - If secondary loop temp exceeds 105deg F. (adj.) command shall be given to shutdown compressors to all Water-Source Heat Pump Units and Water-Source Heat Pump Energy Recovery Units.
  - If secondary loop temps drop below 40deg F. (adj.) command shall be give to shutoff compressors to all Water-Source Heat Pump Units and Water-Source Heat Pump Energy Recovery Units, and Pumps secondary pumps for the loop shall be given a 100% speed command to provide flow and prevent possible freezing.

## WATER-SOURCE HEAT PUMP UNITS

Building Automation System Interface:  
The Building Automation System (BAS) shall send the controller Occupied Bypass, Morning Warm-up/Pre-Cool, Occupied/Unoccupied and Heat/Cool/Dehumidification modes. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

WSHP units shall operate per the manufacturer's unitary controllers. Manufacturer's controller shall control compressors, TXV, HGRH (where applicable), fan speed, and motorized water flow control valve (2-way and 3-way valves).

- Occupied -
  - During occupied periods, the supply fan shall run continuously. The DX heating and cooling shall control to maintain the active space temperature setpoint.
    - Occupied Setpoints -
      - 68 deg. F (adj.) Heating
      - 72 deg. F (adj.) Cooling
      - 55% RH
- Unoccupied -
  - When the space temperature is below the unoccupied heating setpoint of 55.0 deg. F (adj.) the supply fan shall start, and the DX heating shall be enabled. When the space temperature rises above the unoccupied heating setpoint of 55.0 deg. F (adj.) plus the unoccupied differential of 4.0 deg. F (adj.) the supply fan shall stop, and the DX heating shall be disabled. When the space temperature is above the unoccupied cooling setpoint of 85.0 deg. F (adj.) the supply fan shall start, and the DX cooling shall be enabled. When the space temperature falls below the unoccupied cooling setpoint of 85.0 deg. F minus the unoccupied differential 4.0 deg. F (adj.) the supply fan shall stop, and the DX cooling shall be disabled. Unit shall be able to perform Dehumidification during unoccupied as well to maintain a maximum space humidity level.
    - Unoccupied Setpoints :
      - 55 deg. F (adj.) Heating
      - 85 deg. F (adj.) Cooling
      - 55% RH
  - Zone Temperature / Humidity / Carbon Dioxide Sensor:  
Each space shall be provided with a zone temperature sensor, humidity sensor, and carbon dioxide sensor as indicated on drawings.
    - Public Spaces / Cafeteria / Auditorium / Gymnasium / Locker Rooms shall be sensors only; without display, user adjustments, or override buttons.
    - Classrooms / Resource Rooms shall be sensors with user adjustment slide and override button. No Digital Displays.
    - Offices / Kitchen / Media Center shall have a sensor with digital display, user adjustment, and override button.
  - Optimal Start -
    - The BAS shall monitor the scheduled occupied time, occupied space setpoints and space temperature to calculate when the optimal start occurs.
  - Morning Warm-Up Mode -
    - During optimal start, if the space temperature is below the occupied heating setpoint a morning warm-up mode shall be activated. When morning warm-up is initiated, the unit shall enable the heating and supply fan. When the space temperature reaches the occupied heating setpoint (adj.), the unit shall transition to the occupied mode.
  - Pre-Cool Mode -
    - During optimal start, if the space temperature is above the occupied cooling setpoint, pre-cool mode shall be activated. When pre-cool is initiated, the unit shall enable the fan and cooling. When the space temperature reaches occupied cooling setpoint (adj.), the unit shall transition to the occupied mode.
  - Optimal Stop -
    - The BAS shall monitor the scheduled unoccupied time, occupied setpoints and space temperature to calculate when the optimal stop occurs. When the optimal stop mode is active the unit controller shall maintain the space temperature to the space temperature offset point.
  - Occupied Bypass -
    - The BAS shall monitor the status of the ON and CANCEL buttons of the space temperature sensor. When an occupied bypass request is received from a space sensor, the unit shall transition from its current occupancy mode to occupied bypass mode and the unit shall maintain the space temperature to the occupied setpoint (adj.).
      - Override shall be limited as follows:
        - (1st) Push 30 minutes
        - (2nd) Push 60 minutes
        - (3rd) Push 90 minutes
        - (4th) Push 120 minutes

- Cooling Mode -
  - The unit controller shall use space temperature and space temperature setpoint to determine when to stage the cooling. When the space temperature rises above the setpoint, the unit controller shall stage the DX cooling as required to maintain the space temperature setpoint. When the space temperature falls below the setpoint the controller shall disable DX cooling. The unit shall be capable of performing advanced dehumidification setpoint shall be allowed to perform this whenever space temp is satisfied and humidity is above setpoint. When the space humidity is greater than the active dehumidification setpoint, the supply fan speed shall be modified to increase the dehumidification capacity of the unit.
- Heating Mode -
  - The unit controller shall use the space temperature and space temperature setpoint to determine when to initiate requests for heat. When the space temperature drops below the setpoint, the unit controller shall enable DX heating to maintain the space temperature setpoint. Once the space temperature rises above the setpoint the DX heating shall be disabled.
- Dehumidification - (Units with HGRH Option per Schedule)
  - The BAS controller shall monitor space humidity level and shall initialize dehumidification mode of WSHHP utilizing the factory installed hot gas reheat. Space Humidity setpoint shall be 55% RH (adj.)
    - HGRH shall be enabled whenever:
      - The space temp is below setpoint
      - AND the space humidity is above setpoint
      - AND the compressors are operating
      - AND the supply fan status is on.
    - During Dehumidification Mode the BAS shall monitor the unit Discharge Air Temperature, and shall modulate the water control valve as necessary to ensure unit LAT is room neutral 70°F +/- 1°F. The BAS shall modulate flow to restrict the flow to ensure that the Water Source Heat Pump is receiving correct entering water temp for dehumidification process utilizing HGRH.
- Supply Fan -
  - The supply fan shall be enabled while in the occupied mode and cycled on during the unoccupied mode.
- Supply Air Temperature -
  - The controller will monitor the supply air temperature.
    - Alarms will be provided as follows:
      - High Supply Air Temp: If the supply air temperature is greater than 120°F (adj.)
      - Low Supply Air Temp: If the supply air temperature is less than 45°F (adj.)
- Condensate Overflow Shutdown -
  - The unit will shut down and generate an alarm upon receiving a condensate overflow signal.
- Return Air Smoke Detection -
  - The unit will shut down when the detector goes into alarm. Units over 2,000 CFM supply air. Coordinate with Electrical Contractor providing duct smoke detector.
- Unit Fault Status -
  - The controller will monitor the fault status of the unit. When normal, the contact to the controller is closed. Should one of the safeties activate or the disconnect on the unit is pulled, the fault status will open - indicating an alarm.
- Unit Remote Reset -
  - Should the unit be tripped on any software safeties (low temperature, high/low suction pressure, condensate), the controller can be used to restart the unit from the BAS system. This restart is accomplished by cycling the Y1 input for 10 seconds.
- Return Air Filter Differential Pressure Monitor -
  - The controller shall monitor the differential pressure across the return air filter.
    - Alarms shall be provided as follows:
      - Return Air Filter Change Required: Filter differential pressure exceeds a user definable limit (adj.)
- Ventilation -
  - Ventilation for zones shall be provided by combination of VAV boxes served by ERUs, or by direct outside air connections.

ADD #3  
10/21/2022

During Dehumidification Mode the BAS shall monitor the unit Discharge Air Temperature, and shall modulate the water control valve as necessary to ensure unit LAT is room neutral 70°F +/- 1°F. The BAS shall modulate flow to restrict the flow to ensure that the Water Source Heat Pump is receiving correct entering water temp for dehumidification process utilizing HGRH.

## ENERGY RECOVERY UNITS

Building Automation System Interface:  
The Building Automation System (BAS) shall send the controller Occupied/Unoccupied and discharge air temperature setpoints based on occupancy schedule. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

Energy Recovery Units shall operate per the manufacturer's unitary controllers. Manufacturer's controller shall control WSHHP compressors, TXV, HGRH (where applicable), fan speed, energy recovery wheel, and dampers.

- Occupied -
  - The BAS shall send occupied signal to ERU that building is occupied. During occupied hours the ERU shall initialize the Supply and Exhaust Fans.
- Unoccupied -
  - The ERU shall send unoccupied signal to ERU that building is unoccupied. During unoccupied hours, the ERU shall be commanded off. Supply and Exhaust fans shall be off, and all dampers closed.
- Variable Air Volume System -
  - BAS shall monitor the duct static pressure sensor. BAS shall send signal to modulate supply fan and exhaust fan to required air flow. Exhaust fan shall track supply fan and shall modulate to be 150cfm (ADL) less than supply to maintain a net positive supply air volume.
- Discharge Air Setpoints -
  - The BAS shall send Discharge Air Temperature (DAT) setpoint to unit controller. The unit controller shall monitor the supply air temperature and humidity, and shall maintain a supply temperature setpoint via dehumidification, cooling, or heating modes. Dewpoint optimization shall be disabled during ventilation mode. Dewpoint control shall always have precedence over dry bulb control.
- Cooling -
  - The supply air temperature setpoint shall be reset for cooling based on zone cooling requirements as follows:
    - The initial supply air temperature setpoint shall be 70°F (adj.)
    - As cooling demand increases, the setpoint shall incrementally reset down to a minimum of 55°F (adj.)
    - As cooling demand decreases, the setpoint shall incrementally reset up to a maximum of 70°F (adj.)
  - Heating -
    - If more zones require heating than cooling, then the supply air temperature setpoint shall be reset for heating as follows:
      - The initial supply air temperature setpoint shall be 70°F (adj.)
      - As heating demand increases, the setpoint shall incrementally reset up to a maximum of 75°F (adj.)
      - As heating demand decreases, the setpoint shall incrementally reset down to a minimum of 70°F (adj.)
- Operation Modes -
  - The ERU shall operate in the required mode to maintain discharge air conditions as set by the BAS.
    - Dehumidification mode: The unit will operate in dehumidification when the outdoor air dew point is above 55°F (adj.) as measured after the enthalpy wheel
    - Cooling mode: The unit will operate in the cooling mode when the outdoor air wet bulb is below 55°F (adj.) AND the outdoor air dry bulb is greater than 70°F (adj.) as measured after the enthalpy wheel
    - Ventilation mode: The unit will operate in the ventilation mode when the outdoor air dew point is below 55°F (adj.) AND the outdoor air temp is between 55°F (adj.) and 70°F (adj.) as measured before the enthalpy wheel.
    - Heat mode: The unit will operate in heating mode when the outdoor air dew point is below 55°F (adj.) AND the outdoor air temperature is below 55°F (adj.) as measured after the enthalpy wheel
  - Outside/Exhaust Air Dampers -
    - The outside/exhaust air dampers will open anytime the unit runs and will close anytime the unit stops. The supply fan will start only after the damper status has proven the damper is open.
      - Alarms shall be provided as follows:
        - Damper fails to make position switch
        - Damper is commanded open / closed but not in correct position.
  - Outdoor Air Filter Differential Pressure Monitor -
    - The controller shall monitor the differential pressure across the outdoor air filter.
      - Alarms shall be provided as follows:
        - Filter Change Required: Filter differential pressure exceeds a user definable limit (adj.)
        - Return Air Filter Differential Pressure Monitor -
      - The controller shall monitor the differential pressure across the return air filter.
        - Alarms shall be provided as follows:
          - Return Air Filter Change Required: Filter differential pressure exceeds a user definable limit (adj.)
    - Return Air Smoke Detection -
      - The unit shall shut down and generate an alarm upon receiving a return air smoke detector status.

- Alarms -
  - BAS shall integrate or provide alarms as follows:
    - High Supply Air Temp: If the supply air temperature is 3°F (adj.) greater than setpoint.
    - Low Supply Air Temp: If the supply air temperature is 3°F (adj.) lower than setpoint.
    - Supply Fan Failure: Commanded on, but the status is off.
    - Supply Fan In Hand: Commanded off, but the status is on.
    - Supply Fan Runtime Exceeded: Status runtime exceeds a user definable limit (adj.)
    - High Supply Air Static Pressure: If the supply air static pressure is 25% (adj.) greater than setpoint.
    - Low Supply Air Static Pressure: If the supply air static pressure is 25% (adj.) less than setpoint.
    - Supply Fan VFD Fault.
    - Exhaust Fan Failure: Commanded on, but the status is off.
    - Exhaust Fan In Hand: Commanded off, but the status is on.
    - Exhaust Fan Runtime Exceeded: Status runtime exceeds a user definable limit (adj.)
    - Exhaust Fan VFD Fault.
    - Heat Wheel Rotation Failure: Commanded on, but the status is off.
    - Heat Wheel In Hand: Commanded off, but the status is on.
- Unoccupied Mode -
  - The unit shall shut down and generate an alarm upon receiving a return air smoke detector status.

- Unoccupied Mode -
  - During unoccupied hours the VAV boxes shall be fully closed and off.
- Occupied -
  - During occupied hours the BAS shall set each VAV box to minimum occupied setpoint. The BAS shall monitor the CO2 levels in each space and if the level increases above 900ppm (adj.) the BAS will increase the CFM of VAV box incrementally based on CO2 levels, until maximum setpoint. VAV will begin closing back to minimum setpoint when CO2 level drops below 850ppm (adj.)
- VAV Setpoints -
  - The VAV minimum and maximum setpoints shall be per the VAV Box Schedule.

## VARIABLE AIR VOLUME BOXES FOR VENTILATION

Building Automation System Interface:  
The Building Automation System (BAS) shall send the VAV controller CFM setpoint based on zone Carbon Dioxide (CO2) levels. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

VAV Boxes shall operate per the manufacturer's unitary controllers. BAS controller shall provide units setpoints.

- Unoccupied -
  - During unoccupied hours the VAV boxes shall be fully closed and off.
- Occupied -
  - During occupied hours the BAS shall set each VAV box to minimum occupied setpoint. The BAS shall monitor the CO2 levels in each space and if the level increases above 900ppm (adj.) the BAS will increase the CFM of VAV box incrementally based on CO2 levels, until maximum setpoint. VAV will begin closing back to minimum setpoint when CO2 level drops below 850ppm (adj.)
- VAV Setpoints -
  - The VAV minimum and maximum setpoints shall be per the VAV Box Schedule.

## DIRECT OUTSIDE AIR VENTILATION

Building Automation System Interface:  
The Building Automation System (BAS) shall send the enable / disable / setpoint to motorized dampers serving WSHHP unit ventilation. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

Motorized dampers shall be driven to positions per BAS setpoints.

- Unoccupied -
  - During unoccupied hours the motorized dampers shall be fully closed.
- Occupied -
  - During occupied hours the BAS shall set each motorized damper to minimum occupied setpoint. The BAS shall monitor the CO2 levels in each space and if the level increases above 900ppm the BAS will increase the position of motorized damper / CFM incrementally based on CO2 levels, until maximum setpoint. Motorized dampers will begin closing back to minimum setpoint when CO2 level drops below 850ppm.
- Units Served by Direct Outside Air Connections -
  - HP-127A, 127B, 128, 129, and 130
    - HP-127A & 127B Setpoints:
      - 0 CFM Unoccupied; 1,400 CFM Occupied Minimum; 2,700 CFM Occupied Maximum
    - HP-128 Setpoints:
      - 0 CFM Unoccupied; 1,200 CFM Occupied Min/Max Setpoint
    - HP-129 Setpoints:
      - 0 CFM Unoccupied; 250 CFM Occupied Minimum; 565 CFM Occupied Maximum
    - HP-130 Setpoints:
      - 0 CFM Unoccupied; 250 CFM Occupied Minimum; 565 CFM Occupied Maximum
- Return Air Dampers -
  - Units served by direct outside air shall have a motorized damper in the return air duct. The return air motorized damper will track the outside air damper position. (If outside air is at 10% open; return air damper will be 90% open/10% closed)

## EXHAUST FAN VENTILATION & MAKEUP AIR

Building Automation System Interface:  
The Building Automation System (BAS) shall send the enable / disable / setpoint to motorized dampers serving WSHHP unit ventilation. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

Motorized dampers shall be driven to positions per BAS setpoints.  
This sequence applies to EF-29, EF-30, EF-37, L-15, L-16, L-17, located in Rooms 234 & 235

- Off Conditions:
  - Exhaust Fans shall be controlled by wall switch. When exhaust fans are off, the motorized damper on louvers shall be closed.
- On Conditions:
  - When Exhaust Fans are energized by the wall switch, the motorized dampers shall be opened to allow for make-up air.
- Heat Pump Lockout Sequence:
  - If either EF-29, EF-30, EF-37 are energized for longer than 10 minutes (adj.) continuously, the BAS shall disable the operation of HP-129 until exhaust fan is deactivated.

## MECHANICAL ROOM VENTILATION AND HEATING

Building Automation System Interface:  
The Building Automation System (BAS) shall send the enable / disable / setpoint to exhaust fan, motorized dampers, and electric unit heater(s). If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

- Ventilative Exhaust Fan:
  - Run Conditions - Scheduled: The unit shall be enabled according to a user definable time schedule in the following modes:
    - Occupied Mode: The unit shall maintain a zone temperature cooling setpoint of 80°F (adj.)
    - Unoccupied Mode (night setback): The unit shall maintain a zone temperature cooling setpoint of 85°F (adj.)
  - Alarms shall be provided as follows:
    - High Zone Temp: If the zone temperature is greater than the cooling setpoint by a user definable amount (adj.)
- Fan -
  - The fan shall run anytime the zone temperature rises above cooling setpoint unless shutdown on safeties.
- Exhaust Air and Intake Air Damper:
  - The exhaust air and intake air damper shall open anytime the unit runs and shall close anytime the unit stops. The dampers shall close 30 sec (adj.) after the fan stops.
- Fan Status -
  - The controller shall monitor the fan status.
    - Alarms shall be provided as follows:
      - Fan Failure: Commanded on, but the status is off.
      - Fan In Hand: Commanded off, but the status is on.
      - Fan Runtime Exceeded: Fan status runtime exceeds a user definable limit (adj.)

Where an area is served by both ventilative cooling fans and unit heaters the equipment may be controlled via a single controller. Space temperature sensors shall be located as shown on the plans.

- Unit Heaters:
  - Run Conditions - Scheduled: The unit shall run according to a user definable time schedule in the following modes:
    - Occupied Mode: The unit shall maintain a heating setpoint of 60°F (adj.)
    - Unoccupied Mode (night setback): The unit shall maintain a heating setpoint of 50°F (adj.)
  - Alarms shall be provided as follows:
    - Low Zone Temp: If the zone temperature is less than the heating setpoint by a user definable amount (adj.)
  - Zone Setpoint Adjust:
    - The occupant shall be able to adjust the zone temperature heating and cooling setpoints at the zone sensor.
  - Zone Unoccupied Override:
    - A limited local override control shall allow an occupant to override the schedule and place the unit into an occupied mode for an adjustable period of time. At the expiration of this time, control of the unit shall automatically return to the schedule.
  - Fan -
    - The fan shall run anytime the zone temperature drops below heating setpoint unless shutdown on safeties.
  - Electric Heating Stage:
    - The controller shall measure the zone temperature and stage the heating to maintain its heating setpoint. To prevent short cycling, the stage shall have a user definable (adj.) minimum runtime.
    - The heating shall be enabled whenever:
      - Outside air temperature is less than 60°F (adj.)
      - AND the zone temperature is below heating setpoint.
      - AND the fan is on.

Where multiple heaters serve a single area all the heaters can be enabled simultaneously. Individual control of each unit heater is not required.

## AUTOMOTIVE / DIESEL ENGINE GAS DETECTION SYSTEMS

Building Automation System Interface:  
The Building Automation System (BAS) shall continuously monitor Carbon Monoxide (CO) and Nitrogen Dioxide (NO2) levels within the required spaces. BAS Gas Detection system shall provide the following:

- System Enable -
  - System shall be enabled for monitoring 24/7.
  - System shall monitor both CO and NO2 levels for each space as indicated on plans.
- Occupied Mode -
  - During occupied hours the BAS shall energize the Primary Exhaust Fan to run continuously. Upon a rise in CO levels above 15 ppm (adj.), the secondary exhaust fan shall be enabled to run unit CO levels fall below 10 ppm (adj.)
  - During occupied hours the BAS shall energize the Primary Exhaust Fan to run continuously. Upon a rise in NO2 levels above 5 ppm (adj.), the secondary exhaust fan shall be enabled to run unit NO2 levels fall below 2 ppm (adj.)
- Unoccupied Mode -
  - During unoccupied hours the Primary Exhaust Fan and Secondary Exhaust Fan shall be off.
  - Monitoring shall remain active.
  - Upon a rise in CO levels above 15 ppm (adj.), the primary and secondary exhaust fans shall be enabled to run unit CO levels fall below 10 ppm (adj.)
  - Upon a rise in NO2 levels above 5 ppm (adj.), the secondary exhaust fan shall be enabled to run unit NO2 levels fall below 2 ppm (adj.)

- Alarms -
  - If Carbon Monoxide levels exceed 25 ppm, an alarm will be indicated at the BAS and local audiovisual indicators will be activated until the Carbon Monoxide level falls below 20 ppm(adj).
  - Refer to plans for location of Audio/Visual Devices
  - If Nitrogen Dioxide levels exceed 8 ppm, an alarm will be indicated at the BAS and local audiovisual indicators will be activated until the Nitrogen Dioxide level falls below 6 ppm(adj).
  - Refer to plans for location of Audio/Visual Devices
  - If the primary or secondary fan enable and operating status do not match following a 30 second(adj) startup span, an alarm will be indicated at the BAS.
  - If alarms are generated during unoccupied hours the BAS shall be capable of sending an emergency text / email to select FCPS personnel.

## MINI-SPLIT SYSTEMS

Building Automation System Interface:  
The Building Automation System (BAS) shall integrate the mini-split systems via Mini-Split BACnet Interface.

- Unit Control -
  - Unit runs under factory controls continuously.
- Zone Temperature Monitoring -
  - The controller will monitor the temperature of the zone.
- The alarms will be provided as follows -
  - High Zone Temp: If the space temp is greater than the user adj setpoint.
  - Low Zone Temp: If the space temp is lower than the user adj setpoint.
- Unit Fault Monitoring -
  - The controller will monitor the unit fault contacts.
- Alarms will be provided as follows -
  - Unit fault alarm

## GENERAL EXHAUST FANS (LOW VOLTAGE SWITCH / OCCUPANCY CONTROL

Building Automation System Interface:  
The Building Automation System (BAS) shall monitor fan status. Fan enable / disable shall be by local occupancy switch or wall switch as indicated on plans / schedules.

- Fan Status -
  - The controller will monitor the fan status.
    - Alarms will be provided as follows:
      - Fan Failure: Commanded on, but the status is off.
      - Fan In Hand: Commanded off, but the status is on.

## CULINARY HOOD SYSTEMS

Building Automation System Interface:  
The Building Automation System (BAS) shall integrate the Kitchen Exhaust & Make-up Air systems via manufacturer's BACnet Interface.

- Kitchen Hood Make Up Air Unit & Hood Exhaust Fans -
  - The makeup air fan and hood exhaust fans are interlocked to run simultaneously through their factory controls.
- Kitchen Hood Make Up Air Unit Fan Status -
  - The BAS controller will monitor the fan status for runtime hours and reporting.
- Kitchen Hood Exhaust Fan(s) Status -
  - Fan Failure: If the status of the MUA fan and the status of the Exhaust fan(s) do not match states.
- Supply Air Temperature -
  - The BAS controller will monitor the supply air temperature
- Alarms will be provided as follows -
  - Fan Failure: If the supply air temperature is greater than alarm setpoint 95 deg. F(adj.)
  - Low Supply Air Temp: If the supply air temperature is less than alarm setpoint 55 deg. F(adj.)

## KITCHEN FREEZER / COOLER MONITORING

Building Automation System Interface:  
The Building Automation System (BAS) shall monitor and report the temperature of the walk-in freezers and coolers located in kitchen. No integration to refrigeration equipment shall be required. BAS shall provide temperature sensors only.

- Alarm will be generated as follows -
  - High Freezer Temperature: Temperature in freezer rises to 15.F (adj)
  - High Cooler Temperature: Temperature in cooler rises to 45.F (adj)
  - Low Freezer Temperature: Temperature in freezer falls to -20.F (adj)
  - Low Cooler Temperature: Temperature in cooler falls to 34.F (adj)
- Temperature History -
  - The controller will monitor and record the high and low temperature readings for the freezer and cooler. These readings will be recorded on a daily, month-to-date, and year-to-date basis.

## DOMESTIC WATER HEATING SYSTEM

Building Automation System Interface:  
The Building Automation System (BAS) shall monitor domestic water heating system and domestic hot water recirculation pump. BAS shall provide enable / disable command to water heaters and recirculation pumps based on schedules.

- Domestic Hot Water System Run Conditions -
  - The domestic water heaters will run based on user defined schedule. BAS will provide enable / disable. Water heater temperature setpoints shall be by unit internal controls.
- Domestic Hot Water Pump Control & Monitoring -
  - The domestic hot water recirculation pump will be enabled to run by the BAS based on schedule defined by owner.
- Primary Hot Water Heater Supply Temperature Monitoring -
  - The hot water supply water temperature is monitored by the BAS.
- Alarms will be provided as follows -
  - High Primary Hot Water Supply Temp: If greater than 125°F (adj.)
  - Low Primary Hot Water Supply Temp: If less than 115°F (adj.)

## OUTSIDE AIR CONDITIONS

Building Automation System Interface:  
The Building Automation System (BAS) shall monitor outside air conditions (temperature and humidity) on a continual basis. These values shall be made available to the system at all times.

- Outside Air Temperature History -
  - The controller will monitor and record the high and low temperature readings for the outside air. These readings will be recorded on a daily, month-to-date, and year-to-date basis.
- Cooling Degree Day -
  - The controller will provide a Degree Day history index that reflects the energy consumption for the facilities cooling demand. Computations will use a mean daily temperature of 65°F (adj.). The Degree Day peak value readings will be recorded on a daily, month-to-date, and year-to-date basis.
- Heating Degree Day -
  - The controller will provide a Degree Day history index that reflects the energy consumption for the facilities heating demand. Computations will use a mean daily temperature of 65°F (adj.). The Degree Day peak value readings will be recorded on a daily, month-to-date, and year-to-date basis.
- Alarm will be generated as follows -
  - Sensor Failure: Sensor reading indicates shorted or disconnected sensor.

## DOMESTIC WATER METER

Building Automation System Interface:  
The Building Automation System (BAS) shall monitor domestic water meter on a continual basis. These values shall be made available to the system at all times.

- Peak Demand History -
  - The controller shall monitor and record the peak (high and low) demand readings from the water meter. These readings shall be recorded on a daily, month-to-date, and year-to-date basis.
- Usage History -
  - The controller shall monitor and record water meter readings to provide a water consumption history. Usage readings shall be recorded on a daily, month-to-date, and year-to-date basis.

## NATURAL GAS METER

Building Automation System Interface:  
The Building Automation System (BAS) shall monitor natural gas meter on a continual basis. These values shall be made available to the system at all times.

- Peak Demand History -
  - The controller shall monitor and record the peak (high and low) demand readings from the water meter. These readings shall be recorded on a daily, month-to-date, and year-to-date basis.
- Usage History -
  - The controller shall monitor and record water meter readings to provide a water consumption history. Usage readings shall be recorded on a daily, month-to-date, and year-to-date basis.

## ELECTRICAL POWER MONITORING

Building Automation System Interface:  
The Building Automation System (BAS) shall monitor electrical power consumption on a continual basis. This shall be through the electrical switchgear which is to be provided with MODBUS / BACnet interface for integration to BAS. These values shall be made available to the system at all times.

- Electrical Power Monitoring -
  - Current status and operating conditions will be monitored through the power meter communications port. The interface will monitor and trend the points as shown on the Points List.
- Peak Demand History -
  - The controller will monitor and record the peak (high and low) demand readings from the electric meter. Peak readings will be recorded on a daily, month-to-date, and year-to-date basis.
- Usage History -
  - The controller will monitor and

# MECHANICAL SYSTEM SEQUENCES OF OPERATIONS CONT'D

## CULINARY MAKEUP AIR - MAU-101 & 102 -

Building Automation System Interface: The Building Automation System (BAS) shall send the enable / disable / setpoint to Makeup Air Unit. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

FACTORY CONTROLLER: Controller shall be provided with required sensors and programming for rooftop unit. Controller shall be factory programmed, mounted and tested. Controller shall have a LCD readout for changing set points and monitoring unit operation.

UNIT START COMMAND (Unit will be enabled to start once a jumper is placed between R to G):
• Factory mounted and wired outdoor air damper actuator is powered
• Supply fan starts within 4 (adj.) delay.
• Tempering options to function as described below.

UNIT STOP COMMAND (OR DE-ENERGIZED):
• Supply fan, exhaust fan and tempering options de-energized.
• Outdoor air damper actuator is spring return close.

OCCUPIED/UNOCCUPIED MODES: Shall be based on a 7-day time clock internal to the controller. The schedule shall be set by the end user. When a user initiates an override input, the controller will switch from unoccupied to occupied mode. The controller will return to the scheduled mode after the override time has expired. If internal time clock is disabled, a remote contact or a BMS can control the occupied/unoccupied mode.

Occupied Mode:
• Damper control per below.
• Supply fan ON
• Heating per below.
• Cooling per below.

Unoccupied Mode (Unit Off): Unit remains off when in unoccupied mode.
• Supply fan OFF
• Tempering OFF
• Outdoor air damper closed.

MORNING WARMUP/COOL DOWN: Prior to occupancy, the unit will run using the warmup or cool down sequence until the occupied set point is achieved. The heating or cooling mode must not be locked out and the space temperature is below or above set point by the unoccupied hysteresis (adj.) (This Sequence must be field configured.)

SUPPLY BLOWER SEQUENCE: The supply blower is provided with a factory mounted variable frequency drive. The supply blower speed will be controlled with the following sequences:

Constant Volume-Adj: Setpoint: The supply blower will operate at a constant speed set point (adj.) during operation.

BMS Control: The supply blower is modulated based upon a command from the Building Management System. (This Sequence must be field configured.)

Outdoor Air Damper Control: The outdoor air damper is factory mounted and wired with a non-modulating actuator. When the unit is enabled/occupied the outdoor air damper will open to 100%.

COOLING SEQUENCE: The cooling is controlled to maintain the supply temperature set point. The mechanical cooling will be locked out when the outside air is < 55 F (adj.).

Packaged DX Cooling (Inverter Scroll): The controller will provide a modulating signal for cooling. From 0-100%, the inverter scroll will be controlled to maintain discharge temperature. The electronic expansion valve will modulate to maintain 8.0 F of superheat.

Modulating Head Pressure Control: Lead condenser fan will have an EC motor and will modulate to maintain a head pressure set point.

DEHUMIDIFICATION CONTROL SEQUENCE: The cooling is controlled to maintain the cooling-coil set point. The dehumidification sequence will be locked out when the OA is < 10 F(adj.) above the cold-coil set point (adj.).

Cold Coil Set Point Control: The controller will control the cooling to maintain a cold coil set point. The active set point will be set to local control (55 F, adj.) from the factory and can be field adjusted locally or by the BMS.

HEATING SEQUENCE: The heating is controlled to maintain the supply temperature set point. The heating will be locked out when the outside air is > 80 F (adj.). Maximum allowable discharge air set point is 100 F.

Indirect Gas Furnace: The controller will modulate the indirect gas furnace to maintain the supply temperature set point (adj.).

TEMPERATURE CONTROL SEQUENCE: The unit will maintain the supply air discharge setpoint per the following. Adjustable locally or by BMS.

Supply Discharge Temperature Control: The supply setpoint will be a constant temperature setpoint from the controller (adj.).

BUILDING FREEZE PROTECTION: If the supply air temperature drops below 35 F (adj.) for 300s (adj.), the controller will de-energize the unit and activate the alarm output.

TEMPERATURE PROTECTION: The controller will enable the supply fan to modulate down to help the unit keep up with heating demand in the event of wheel failure or the unit operating outside design conditions. (This can be enabled under the manufacturer menu in the controller)

ALARMS INDICATION: The controller will display alarms and have one digital output for remote indication of an alarm condition. Possible alarms include:

Building Management System: The controller will send all alarms to the BMS.
Supply Air Alarm: The controller monitors the proving switch on supply blower and sends an alarm in the case of the blower proving switch not engaging for 30s (adj.).

DX Alarm: The controller monitors the refrigerant pressure in the case of low refrigerant pressure the compressors will shut down until refrigerant pressure returns to normal values and the controller will send an alarm. In the case of high refrigerant pressure the compressors will shut down, requiring a manual reset and the controller will send an alarm.

Temperature Sensor Alarm: The controller sends an alarm in the case of a failed air temperature sensor.

ACCESSORIES: The following accessories will be included with the unit to expand the functionality or usability of the controller.

BMS Interfacing: A BMS port or serial card is provided with the controller for field interfacing with a building management system. Each card is sent out with the default parameters, and the controls contractor must change the appropriate addresses to match the BMS settings.

Phase and Browout Protection: Factory mounted and wired component which monitors the main power coming into the unit. If a phase drops out, or if the incoming voltage exceeds the acceptable range, the component will turn off the unit to help protect the electrical systems.

Damper End Switch: Damper end switch will be provided to ensure the supply and exhaust fans do not enable until the dampers are proven open.

## GEOHERMAL LOOP MONITOR AND PUMPS W/ VFD (PRIMARY PUMPS)

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Primary Loop Water Supply Temp, Primary Loop Water Return Temp, Primary Loop Water Flow Rate (BI DIRECTIONAL), etc.

## BUILDING LOOP MONITOR AND PUMPS W/ VFD (SECONDARY PUMPS)

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Loop Water Supply Temp (Mech Room), Loop Water Return Temp (Mech Room), Loop Water Flow Rate (Typ of 2), etc.

NOTES: POINTS LIST NAMES THAT HAVE # INDICATED SHALL BE TIED TO THE ZONE NUMBER THE POINT SERVES. EXAMPLE: ZONE FLOW RATE POINT NAME TYPICAL SHALL BE HPW\_FLW\_RT\_SEC\_Z\_# FOR ZONE NUMBER 1 THE POINT SHALL BE HPW\_FLW\_RT\_SEC\_Z\_1

## WATER SOURCE HEAT PUMPS

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Zone Temp, Zone Setpoint Adjust, Discharge Air Temp, Zone Carbon Dioxide PPM, etc.

## VARIABLE AIR VOLUME TERMINAL UNIT POINTS LIST

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Airflow, Discharge Air Temp, Zone Damper, Airflow Setpoint, etc.

REMARK: 1. ZONE OCC STATUS SHALL BE VIA OCCUPANCY SENSOR PROVIDED BY ELECTRICAL CONTRACTOR.

## ENERGY RECOVERY UNIT (TYPICAL FOR ALL ERUS)

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Outside Air Temperature, Outside Air Enthalpy, Supply Airflow Volume, Exhaust Airflow Volume, etc.

Notes: 1. Temperature Controls Contractor (TCC) shall be responsible to provide all points indicated on points list, piping diagrams, and sequences of operations. If the point is not available via BA/Net integration from manufacturer the TCC shall provide additional controllers and sensors to provide points.

## VARIABLE FREQUENCY DRIVE INTERFACE

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Motor Speed RPM, Motor Frequency Hertz, Motor Current Amps, etc.

## GENERAL EXHAUST FAN POINTS LIST

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Fan Status, Fan Start/Stop, Schedule, Fan Failure, etc.

## RELIEF FAN POINTS LIST (EF-106A)

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Fan Status, Fan Start/Stop, Fan Failure, Space Differential Pressure, etc.

## ELECTRIC UNIT HEATER

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Zone Temp, Zone Setpoint (Adj), Discharge Air Temp, Zone Override, etc.

## MINI SPLIT UNITS POINTS LIST

Table with 13 columns: Point Name, AI, AO, BI, BO, AV, BV, Sched, Trend, Alarm, Show On Graphic, I/O Point Abbreviation. Rows include Zone Temp, Zone Setpoint (Adj), Zone Override, Zone Hi / Low Temp Alarm, etc.

REMARKS: 1. MINI-SPLIT SYSTEMS ARE TO BE PROVIDED WITH EACH MSTE COMMUNICATIONS. T.C.C. WILL INTEGRATE SYSTEMS. 2. T.C.C. SHALL PROVIDE 4-WIRE THERMOSTAT FOR UNIT.

# MECHANICAL SYSTEM SEQUENCES OF OPERATIONS (ALT #1)

## PRIMARY BOILER / TOWER LOOP SYSTEM

The associated BAS controller shall activate and deactivate the boiler / tower loop per building occupancy schedule and loop supply temperature.

Pumps part of Primary Loop System: P-01A and 01B
• Unoccupied Mode - In unoccupied mode geothermal loop pump(s) shall be off.
• During unoccupied mode if any secondary loop is activated and supply temperature exceeds 85deg F (adj.) in cooling or drops below 55deg F (adj.) in heating, the primary loop pumps shall be energized.

• Occupied Mode - In occupied mode the geothermal loop pump(s) shall be energized based on the following:
o Pump(s) shall be energized when any of the secondary loop pump(s) are active, and the primary loop supply temperature exceeds 75deg F (adj.) in cooling or supply temperature drops below 55deg F (adj.) in heating.
o When primary loop supply temperature falls below 70deg F (adj.) in cooling mode for more than 10 minutes (adj.) the primary pumps shall be deactivated.
o When primary loop supply temperature exceeds 65deg F (adj.) in heating mode for more than 10 minutes (adj.) the primary pumps shall be deactivated.

• Pump Lead / Lag Control -
o The pump leading sequence shall be rotated on a weekly schedule. The sequence shall be based on calculated run time with the pump having the least run time designated as lead, the pump with the next lowest run time shall be the second in the sequence (or lag pump) and so on.
o From the system human-interface panel or a BAS operator interface an operator shall be able to manually change the leading sequence.
o If lead pump is unable to meet flow requirement after a 5 min (adj.) the lag pump shall be enabled.

• Pump VFD Control - When the distribution pump variable speed drive is enabled, the associated controller shall modulate the pump variable speed drive to maintain the loop flow. Primary loop shall be set at 200gpm greater than secondary loop flow. Flow shall be set by BAS controller by monitoring flow meters on secondary loops.

• Pump Status - The BAS controller shall detect distribution pump run status by a variable speed drive current switch.
o Distribution Pump Failure: If the lead Start/Stop relay is enabled and the current switch status is off for more than 30 seconds (adj.), the associated controller shall annunciate a distribution water pump failure alarm to the BAS and shall start the lag pump.
o Once the problem has been corrected, the operator shall be able to clear the alarm failure from the BAS controller from a BAS terminal by manually overriding the pump on momentarily. This shall re-enable the leading sequence.

• Gas-Fired Hot Water Boilers
o The BAS shall reset the boiler leaving water temperature set point to maintain a minimum building loop temperature of 65F (adjustable). The boiler manufacturer's control panel shall receive a 4-20mA or 0-10VDC analog signal to reset the boiler leaving water temperature. The boiler control panel provided by the boiler manufacturer shall stage the boilers to achieve the leaving hot water temperature set point input by BAS. When the boiler and boiler controls are enabled by BAS, the boiler manufacturer's control panel shall start the applicable boiler loop pump. Refer to the points list for complete monitoring and control points.
o The BAS contractor shall install and wire the control panel and sensors provided by the boiler manufacturer. See boiler specifications.

• Closed Loop Fluid Cooler
o The closed loop fluid cooler will have a sump heater, a sump circulating pump, and two fans with VFD. The sump heater shall be controlled to maintain the minimum recommended sump fluid temperature (adjustable).
o The fluid cooler shall be sequenced to maintain the loop temperature between 70F (adjustable) and 85F (adjustable). The fluid cooler staging shall be as follows when called upon to reject the build loop heat:
o Stage 1: Start Circulating Pump
o Stage 2: Open dampers (if required by equipment manufacturer) and start to ramp up fan.
o The Control Contractor shall interface with the fluid cooling control panel. See fluid cooler specifications.

• Provide a 5 degree F (adj.) dead band between heat addition and heat rejection setpoints to prevent simultaneous heating and cooling.
• Make-up Water Flow - The BAS controller shall monitor the make-up water meter continually. The values shall be available on graphic at all times. There shall be (2) make-up water meters. (1) meter for building loop and (1) meter for tower make-up.
o Data - The controller shall monitor and record water meter readings and provide trend usage history. History shall record daily, month-to-date, and year-to-date data.
o Alarm - The BAS system shall record flow from flow meter and if a flow is detected a CRITICAL ALARM shall be initiated and an alert shall be emailed / texted to appropriate FCPS Maintenance Personnel.

• System Flow - The BAS controller shall monitor flow meter on primary loop located in the neutral bridge. Flow and Direction shall be monitored and reported on BAS system.
o BAS shall also monitor supply and return temperatures and provide BTU/h calculation on the graphic to show total system BTU/h usage.

• Alarms -
o High Loop Temp Alarm - Loop Temp exceeds 100deg F. (adj.)
o Low Loop Temp Alarm - Loop Temp falls below 55deg F. (adj.)
o Pump Fail - If any pump fails to prove status.
o VFD Fail - If VFD indicates failure.
o Low Flow - If primary pump(s) fail to meet required flow (Total Secondary Loop plus 200 GPM; when pump enable command is active.

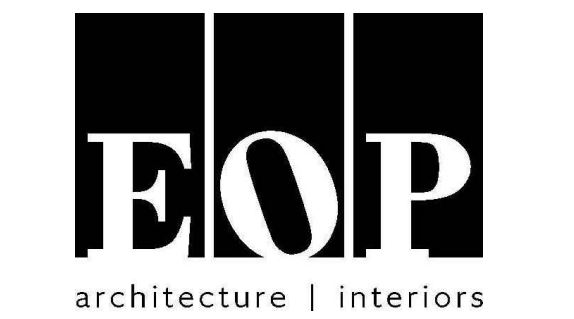
# NEW COMBINED CTE SCHOOL

BG# 22-167

100 Midland Ave, Lexington, KY 40508

## BID DOCUMENTS

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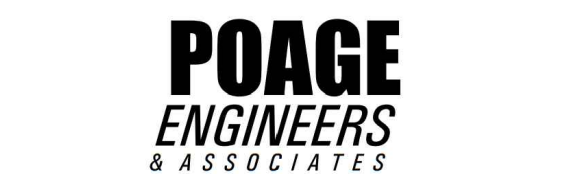


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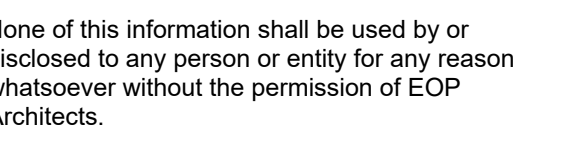


Calvert - Independent Hardware Specifications, LLC.
307 Oakwood Circle
Vine Grove, KY 40175

## KEYPLAN

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Written dimensions shall have precedence over scale dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job. Notify EOP Architects immediately of any variation from the dimensions and conditions shown by these drawings.

Job Number 2150 PLAN
Drawn by JBC
Checked by RLV
Date 09/28/2022



9/28/2022

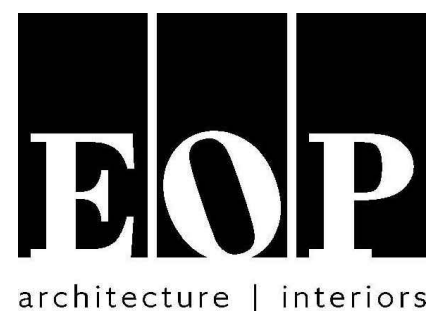
BUILDING AUTOMATION SYSTEM - TEMPERATURE CONTROLS

M704





REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3

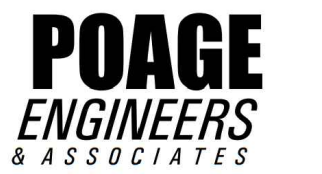


**PROJECT TEAM**

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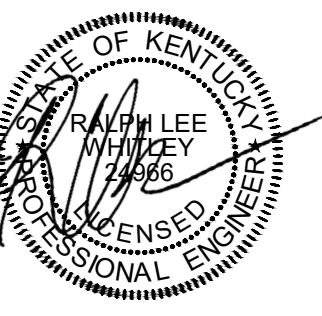
**KEYPLAN**

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Written dimensions shall have precedence over scale dimensions. Contractor shall verify and be responsible for all dimensions and conditions on the job. Notify EOP Architects immediately of any variation from the dimensions and conditions shown by these drawings.

Job Number 2150  
Drawn By BRG  
Checked By RLV  
Date 09/28/2022



9/28/2022

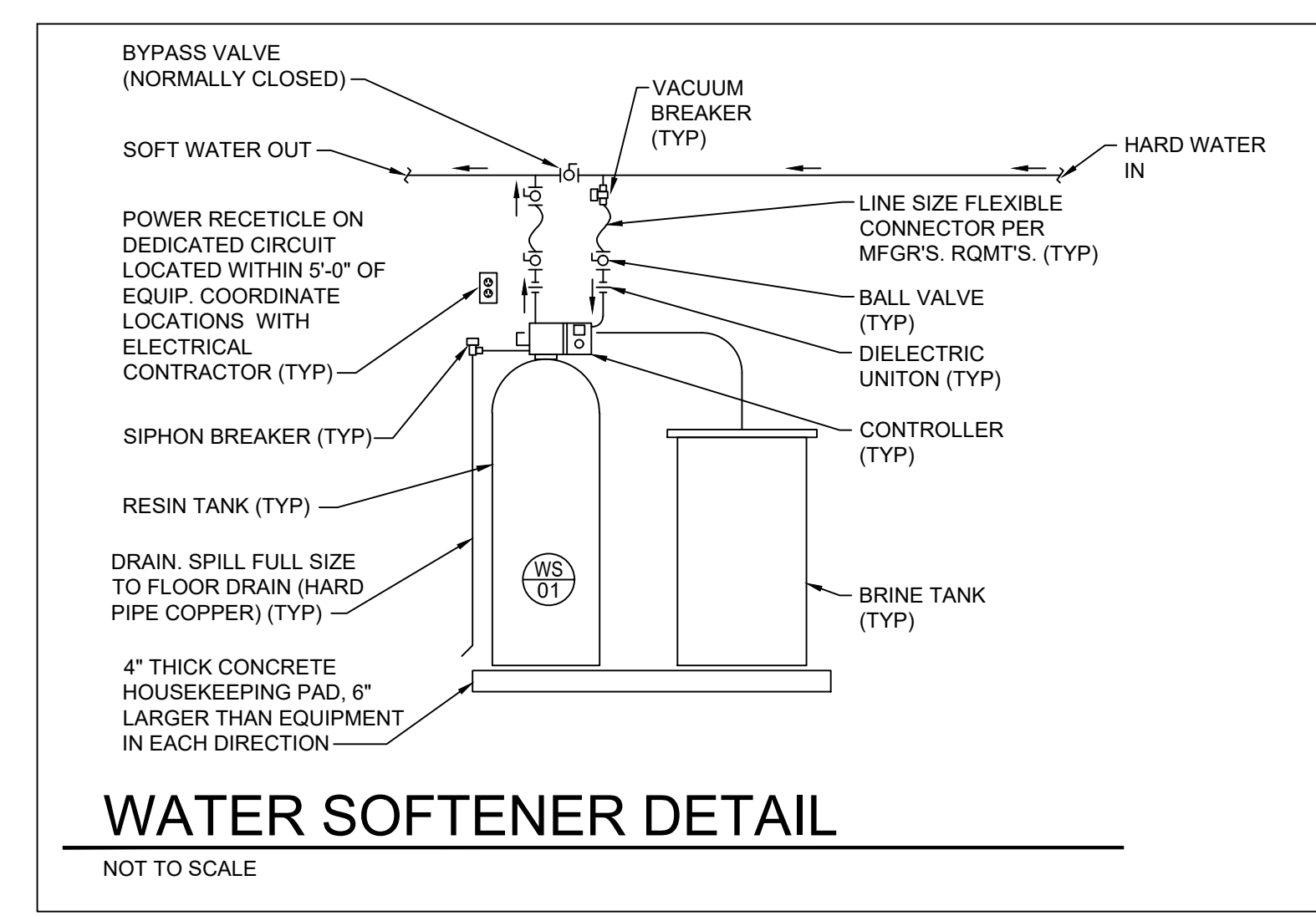
**PLUMBING SCHEDULES**

ADD #3  
10/21/2022

**P601**

**PLUMBING FIXTURE SCHEDULE**

MARK	MANUFACTURER	MODEL / TYPE	TRIM	CW	HW	TRAP	WASTE	VENT	MOUNTING	REMARKS	OTHER ACCEPTABLE MANUFACTURERS	SERIAL NUMBER (TO BE COMPLETED BY CONTRACTOR)
WC1 / WC1A	AMERICAN STANDARD	2257.101 WATER CLOSET, WALL HUNG	FLUSH VALVE; SLOAN 111 REGAL, MANUAL SEAT; AMERICAN STANDARD 5905.100	1"	---	INTEGRAL	4"	2"	WALL HUNG; WC1 - RIM 15" WC1A - RIM 17"	ADA COMPLIANT, ELONGATED BOWL, TOP SPUD, 1.6 GPF MANUAL FLUSH VALVE, EXTRA HEAVY DUTY OPEN FRONT SEAT LESS COVER, WITH CARRIER	WC1/WC1A: KOHLER, CRANE FV; ZURN	
U1 / U1A	AMERICAN STANDARD	6590.001 URINAL, WALL HUNG	FLUSH VALVE; SLOAN 186-1 REGAL, MANUAL	3/4"	---	INTEGRAL	2"	2"	WALL HUNG; U1 - LIP 24" U1A - LIP 17"	TOP SPUD, 1.0 GPF MANUAL FLUSH VALVE, WITH CARRIER	U1/U1A: KOHLER, CRANE FV; ZURN	
L1 / L1A	AMERICAN STANDARD	0355.012 ADA WALL HUNG LAVATORY	FAUCET; AMERICAN STANDARD 6114.116.002, SINGLE LEVER TRIM; CHROME PLATED GRID DRAIN, LOOSE KEY OPERATED SUPPLY STOPS, ADA COMPLIANT INSULATION WRAP.	1/2"	1/2"	1-1/4"	2"	2"	WALL HUNG; RIM 34"	20-1/2" X 18-1/4", VITREOUS CHINA, 4" CENTERS, BACK AND SIDE SPLASH, HEAVY DUTY CONCEALED ARM CARRIERS, SINGLE HANDLE FAUCET, 0.5 GPM, LESS POP UP	L1/L1A: KOHLER, CRANE FAUCET; ZURN, MOEN, DELTA, CAMBRIDGE, T&S	
L2A	AMERICAN STANDARD	FAUCET ONLY	FAUCET; AMERICAN STANDARD 7385.003 TRIM; CHROME PLATED GRID DRAIN, LOOSE KEY OPERATED SUPPLY STOPS, ADA COMPLIANT INSULATION WRAP.	1/2"	1/2"	1-1/4"	2"	2"	COUNTER SET	4" CENTERS, SINGLE HANDLE FAUCET	FAUCET: ZURN, MOEN, DELTA, CAMBRIDGE, T&S	
S1	ELKAY	LRAD2521.5 ADA SINGLE COMPARTMENT SINK	FAUCET; AMERICAN STANDARD 4205.000 TRIM; CHROME PLATED GRID STRAINER, LOOSE KEY OPERATED SUPPLY STOPS.	1/2"	1/2"	1-1/4"	2"	2"	COUNTER SET	21" X 15-3/4" X 5" INSIDE BOWL, #18 GAUGE 304 STAINLESS STEEL, OFF-CENTER REAR DRAIN, 3 HOLE PUNCH, SINGLE HANDLE FAUCET	JUST, AMERICAN STANDARD, KOHLER, MOEN, DELTA, T&S	
S2	ELKAY	LRAD3322.5 ADA TWO COMPARTMENT SINK	FAUCET; AMERICAN STANDARD 4205.001 TRIM; CHROME PLATED GRID STRAINER, LOOSE KEY OPERATED SUPPLY STOPS.	1/2"	1/2"	1-1/4"	2"	2"	COUNTER SET	18" X 13-1/2" X 5" INSIDE BOWLS, #18 GAUGE 304 STAINLESS STEEL, OFF-CENTER REAR DRAIN, 4 HOLE PUNCH, SINGLE HANDLE FAUCET W/ HAND SPRAY	JUST, AMERICAN STANDARD, KOHLER, MOEN, DELTA, T&S	
S3	ADVANCE TABCO	7-PS-54 S.S. SINK, WITH BACKSPLASH MOUNTED FAUCET	304 S.S. CONSTRUCTION, ONE-PIECE BOWL DESIGN, SPLASH MOUNTED GOOSENECK FAUCET, 4" O.C., 1-1/2" BASKET DRAIN, CHROME PLATED P-TRAP	1/2"	1/2"	1-1/2"	2"	2"	WALL HUNG	COORDINATE FINAL INSTALLATION WITH ARCHITECT	JOHN BOOS, JUST MFG.	
DF1A	ELKAY	VRCTLRDOWSK HILO DRINKING FOUNTAIN WITH BOTTLE FILLER	VANDAL-RESISTANT, STAINLESS STEEL, NON-FILTERED, NON-REFRIGERATED, PROVIDE MODEL 98524C CANE APRON.	1/2"	---	1-1/4"	2"	2"	WALL MOUNTED	ELECTRONIC BOTTLE FILLER BUTTON WITH MECHANICAL FRONT BUBBLER BUTTON. FIVE YEAR LIMITED WARRANTY. ADA COMPLIANT	HALSEY-TAYLOR, HAWS, ACORN	
WF1	ACORN	3424-ES-ADA-1-H-ST 4 PERSON WASH FOUNTAIN	TRIM; ES CONTOURED BASE, MANUAL OPERATED, ST SINGLE TEMPERATURE VALVE, LOOSE KEY OPERATED SUPPLY STOPS.	1/2"	1/2"	1-1/2"	2"	2"	RIM 34"		ACORN, WILLOUGHBY, SLOAN	
MB1	FIAT ADD #3 10/21/2022	TSB9000 TERRAZZO MOP SINK 12" DEEP WITH 6" DROP FRONT	FAUCET; T&S BRASS B-0665-85TR-963, CONTINUOUS PRESSURE VACUUM BREAKER, TOP BRACE, PAIL HOOK TRIM; 832AA HOSE AND HANGER, MSJ WALL GUARDS ACCESSORY; GAURDIAN G5012 DRENCH HOSE UNIT	3/4"	3/4" + 1/2" TEPID	3"	3"	2"	FLOOR SET ADD #3 10/21/2022	24" X 24" X 12" w/ 6" DROP FRONT, STAINLESS STEEL CAPS ON ALL SIDES, ACCESSIBLE CHECK VALVES ON SUPPLIES, PROVIDE THERMOSTATIC MIXING VALVE FOR DRENCH HOSE.	STERN WILLIAMS, MUSTEE	
EEW1	BRADLEY	S19-310DC PEDESTAL MOUNTED COMBINATION DRENCH SHOWER & EYEWASH	TRIM; S19-2200 NAVIGATOR EFX60 THERMOSTATIC MIXING VALVE	1"	1"	---	---	---	PEDESTAL FLOOR SET	1-1/4" TEMPERED WATER FROM VALVE TO FIXTURE. FIXTURES LOCATED IN KITCHEN AND CULINARY SHALL BE HARD PIPED DWV.	EEW: GUARDIAN, HAWS	
EW1	BRADLEY	S19214 PEDESTAL MOUNTED EYEWASH, PLASTIC BOWL AND COVER	TRIM; S19-2000 NAVIGATOR EFX8 THERMOSTATIC MIXING VALVE	1/2"	1/2"	---	---	---	PEDESTAL FLOOR SET	1/2" TEMPERED WATER FROM VALVE TO FIXTURE. FIXTURES LOCATED IN KITCHEN AND CULINARY SHALL BE HARD PIPED DWV.	EW: GUARDIAN, HAWS	
WB1	PRECISION PLUMBING PRODUCTS	MM-500-MLB METAL WASHING MACHINE OUTLET BOX	TRIM; QUARTER TURN BALL VALVES, WITH HAMMER ARRESTORS	1/2"	1/2"	2"	2"	2"	48" AFF	WITH METAL FRAME, SUPPLY CONNECTION TYPE TO MATCH PIPING SYSTEM	WB: ZURN, GUY GRAY, OATEY, JAY R SMITH	
IMB1	PRECISION PLUMBING PRODUCTS	MM-500-MIMB METAL WASHING ICE MAKER OUTLET BOX	TRIM; QUARTER TURN BALL VALVES, WITH HAMMER ARRESTORS	1/2"	---	---	---	---	48" AFF	WITH METAL FRAME, SUPPLY CONNECTION TYPE TO MATCH PIPING SYSTEM	IMB: ZURN, GUY GRAY, OATEY, JAY R SMITH	
HB1	WOODFORD	B24, HOSE BIBB, BOXED	WITH VACUUM BREAKER, POLYCARBONATE WHEEL HANDLE AND LOOSE TEE KEY	3/4"	---	---	---	---	18" AFF	BOXED, RECESSED IN WALL	HB1: MURDOCK, ZURN	
HB2	WOODFORD	24, HOSE BIBB, EXPOSED	WITH VACUUM BREAKER, METAL HANDLE	3/4"	---	---	---	---	36" AFF	EXPOSED	HB2: MURDOCK, ZURN	
WH1	WOODFORD	MODEL B68 FREEZELESS WALL HYDRANT, ENCLOSED BOX	FLIP DOWN S.S. COVER, ALL BRONZE INTERIOR PARTS, REPLACEABLE BRONZE SEAT AND WASHER, LOOSE TEE KEY	3/4"	---	---	---	---	18" A.F.F.	WALL MOUNTED	WH1: WATTS, MURDOCK	
BEP-01	FEBCO (A WATTS BRAND)	MASTER SERIES LF880V-OSY Z-PATTERN, REDUCED PRESSURE ZONE BACK FLOW ASSEMBLY	DUCTILE IRON BODY, OS&Y SHUT-OFF VALVES, STRAINER, FULL SIZE AIR GAP FITTING	4"	---	---	---	---	24" A.F.F.	SPILL AIR GAP FULL SIZE THRU WALL AND ELL DOWN	BFP: WATTS, AMES SILVER BULLET, APOLLO, WILKENS ZURN	
FD1	JOSAM	30004-A FLOOR DRAIN	7" SATIN FINISH BRONZE STRAINER, 1/2" TRAP PRIMER CONNECTION	1/2"	---	---	4"	---	---	TRAP PIMER PIPING MAY BE PEX TYPE.	WATTS, JAY R SMITH, MIFAB, WADE, ZURN	
FD2	JOSAM	37810 FLOOR DRAIN, MEDIUM SUMP, HEAVY-DUTY TOP, REMOVABLE SEDIMENT BUCKET	12" DUCTILE IRON STRAINER, 1/2" PRIMER CONNECTION	1/2"	---	---	4"	---	---	TRAP PIMER PIPING MAY BE PEX TYPE.	WATTS, JAY R SMITH, MIFAB, WADE, ZURN	
FD3	JOSAM	37810 FLOOR DRAIN, MEDIUM SUMP, HEAVY-DUTY TOP, REMOVABLE SEDIMENT BUCKET, HINGED GRATE, ACID RESISTANT EPOXY COATING	12" DUCTILE IRON STRAINER, 1/2" PRIMER CONNECTION, SEDIMENT BUCKET	1/2"	---	---	4"	---	---	TRAP PIMER PIPING MAY BE PEX TYPE.	WATTS, JAY R SMITH, MIFAB, WADE, ZURN	
FS1	JOSAM	49324A-LF FLOOR SINK	CAST IRON BODY WITH ACID RESISTANT EPOXY COATED INTERIOR, LESS FLANGE, 3/4 GRATE	---	---	---	4"	---	RIM 1" AFF	TRAP PIMER PIPING MAY BE PEX TYPE.	WATTS, JAY R SMITH, MIFAB, WADE, ZURN	
TD1	JOSAM	PRO-PLUS 200C, 8" INTERNAL WIDTH, POLYMER TRENCH DRAIN, WITH DUCTILE IRON CLASS "C" GRATE	BOTTOM OUTLET, END CAPS, SLOPED CHANNEL, SUPPORT BRACKETS CAPABLE OF ACCEPTING REBAR.	---	---	---	4"	---	---	TRAP PIMER PIPING MAY BE PEX TYPE.	WATTS, JAY R SMITH, MIFAB, WADE, ZURN	
QR	---	PIPE HUB RIM 2" A.F.F.	---	---	---	2" OR 4" SEE RISER	2" OR 4" SEE RISER	2"	RIM 2" A.F.F.	PIPE HUB ONE SIZE LARGER THAN WASTE SIZE. SEE RISER	---	
CB1	WADE	5810-H20 OIL/SEDIMENT INTERCEPTOR	24"x24" SQ., TWO PIECE DUCTILE IRON	---	---	---	4"	2"	SEE PLANS	FABRICATED, ACID RESISTANT COATED (A.R.C.) STEEL, H20 LOAD RATED, INTEGRAL TRAP	JOSAM, MIFAB	
AP	PRECISION PLUMBING PRODUCTS	S.S. ACCESS PANEL F-1212SS	12"x12" ACCESS PANEL, KEYED LOCK CYLINDER, VANDAL RESISTANT	---	---	---	---	---	---	ALL LOCATIONS SHALL BE REVIEWED AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION	WADE, MIFAB	
CRD1	WADE	3042 COMBINATION MAIN/OVERFLOW ROOF DRAIN, CAST IRON, ALUMINUM DOME, 12" DIA., INSIDE CALK, ADJUSTABLE DRAIN EXTENSION, UNDERDECK CLAMP.	BOTTOM OUTLET, END CAPS, SLOPED CHANNEL, SUPPORT BRACKETS CAPABLE OF ACCEPTING REBAR.	---	---	---	8"	---	ROOF	---	JOSAM, ZURN	
CRD2	WADE	3042 COMBINATION MAIN/OVERFLOW ROOF DRAIN, CAST IRON, ALUMINUM DOME, 12" DIA., INSIDE CALK, ADJUSTABLE DRAIN EXTENSION, UNDERDECK CLAMP.	BOTTOM OUTLET, END CAPS, SLOPED CHANNEL, SUPPORT BRACKETS CAPABLE OF ACCEPTING REBAR.	---	---	---	4"	---	ROOF	---	JOSAM, ZURN	
DSN	ZURN	2-189 DOWNSPOUT NOZZLE WITH FLAPPER	ALL ALUMINUM BODY WITH POWDER COATED WALL FLANGE, PERFORATED HINGED FLAPPER	---	---	---	2" - 10"	---	SEE PLANS	LINE SIZE, REFER TO PLANS. GASKET FOR CAST IRON OR PVC CONNECTION.	JOSAM, MIFAB	
ECO	JOSAM	55000-1-Y INTERIOR CLEANOUT	COATED CAST IRON BODY, WITH SATIN FINISH NIKALOY TOP	---	---	---	2"-4"	---	FLOOR	LINE SIZE UP TO 4", 4" MAXIMUM. COORDINATE FLOOR TYPE WITH ARCH. DRAWINGS. COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.	WADE, ZURN	
ECO	JOSAM	55000-Y HEAVY DUTY EXTERIOR CLEANOUT	COATED CAST IRON	---	---	---	2"-4"	---	GROUND	LINE SIZE UP TO 4", 4" MAXIMUM. COORDINATE FLOOR TYPE WITH ARCH. DRAWINGS. COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.	WADE, ZURN	
WCO	JOSAM	58800-CO-VP WALL CLEANOUT	D.C.C.I. BODY GAS/WATER TIGHT TAPERED THREAD PLUS, ROUND STAINLESS STEEL ACCESS COVER WITH SECURING SCREW	---	---	---	2"-4"	---	WALL	LINE SIZE UP TO 4", 4" MAXIMUM. COORDINATE FLOOR TYPE WITH ARCH. DRAWINGS. COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.	WADE, ZURN	



**THERMOSTATIC MIXING VALVE SCHEDULE**

MARK	MANUFACTURER	MODEL	LOCATION	FLOW RANGE GPM	FLOW AT 5 PSIG DROP	OUTLET TEMP °F (ADJ.)	CONNECTIONS CW/HW INLET	OUTLET	REMARKS	SERIAL NUMBER (TO BE COMPLETED BY CONTRACTOR)
TMV-01	LAWLER	805-96	SEE PLANS	5 - 96	64	120°	2" / 2"	2"	1,2,3,4	
TMV-02	LAWLER	803-60	SEE PLANS	3 - 60	43	120°	2" / 2"	2"	1,2,3,4	
TMV-03	LAWLER	805-96	SEE PLANS	5 - 96	64	120°	2" / 2"	2"	1,2,3,4	
TMV-04	LAWLER	803-60	SEE PLANS	3 - 60	43	120°	2" / 2"	2"	1,2,3,4	

REMARKS:  
1. LOCKABLE BRASS BALL VALVES AT INLET CONNECTIONS AND TEMPERATURE GAUGE WITH PETCOCK AT OUTLET  
2. ASSE 1017 COMPLIANT, LEAD FREE, SOLID BRASS MASTER MIXING VALVE WITH INTEGRAL CARTRIDGE STYLE CHECKS AND SCREENS  
3. FACTORY TEST CONNECTION WITH GARDEN HOSE CONNECTION, SHUT-OFF AND THERMOMETER  
4. ALL BRASS FINISHES.  
OTHER ACCEPTABLE MANUFACTURERS INCLUDE: LAWLER, STINGRAY SYSTEMS, POWERS, LEONARD. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

ADD #3  
10/21/2022

**ELECTRIC WATER HEATER SCHEDULE**

MARK	MANUFACTURER	MODEL	LOCATION	SERVICE	TANK CAPACITY (GAL)	RECOVERY AT 100°F RISE	EXPANSION TANK #	CIRCULATING PUMP #	MIXING VALVE #	KW	V / Ø / Hz	MCA	MOCP	REMARKS	SERIAL NUMBER (TO BE COMPLETED BY CONTRACTOR)
EWH-01	AO SMITH	DRE-52-18	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	18	208/3/60	62.5	65	ALL	
EWH-01A	AO SMITH	DRE-52-18	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	18	208/3/60	62.5	65	ALL	
EWH-02	AO SMITH	DRE-52-36	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	36	208/3/60	124.9	125	ALL	
EWH-02A	AO SMITH	DRE-52-36	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	36	208/3/60	124.9	125	ALL	
EWH-03	AO SMITH	DRE-52-36	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	36	208/3/60	124.9	125	ALL	
EWH-03A	AO SMITH	DRE-52-36	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	36	208/3/60	124.9	125	ALL	
EWH-04	AO SMITH	DRE-52-18	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	18	208/3/60	62.5	65	ALL	
EWH-04A	AO SMITH	DRE-52-18	SEE PLANS	GENERAL	50	74	ET-01	RP-01	TMV-01	18	208/3/60	62.5	65	ALL	

REMARKS:  
1. PROVIDE WITH ASME APPROVED TEMPERATURE AND PRESSURE RELIEF VALVE.  
2. SET AT 140 DEGREES.  
3. SURFACE MOUNTED THERMOSTAT.  
4. ANODE RODS.  
5. BRASS DRAIN VALVE.  
OTHER ACCEPTABLE MANUFACTURERS INCLUDE: STATE, LOCHINVAR, BRADFORD WHITE, RHEEM. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

ADD #3  
10/21/2022

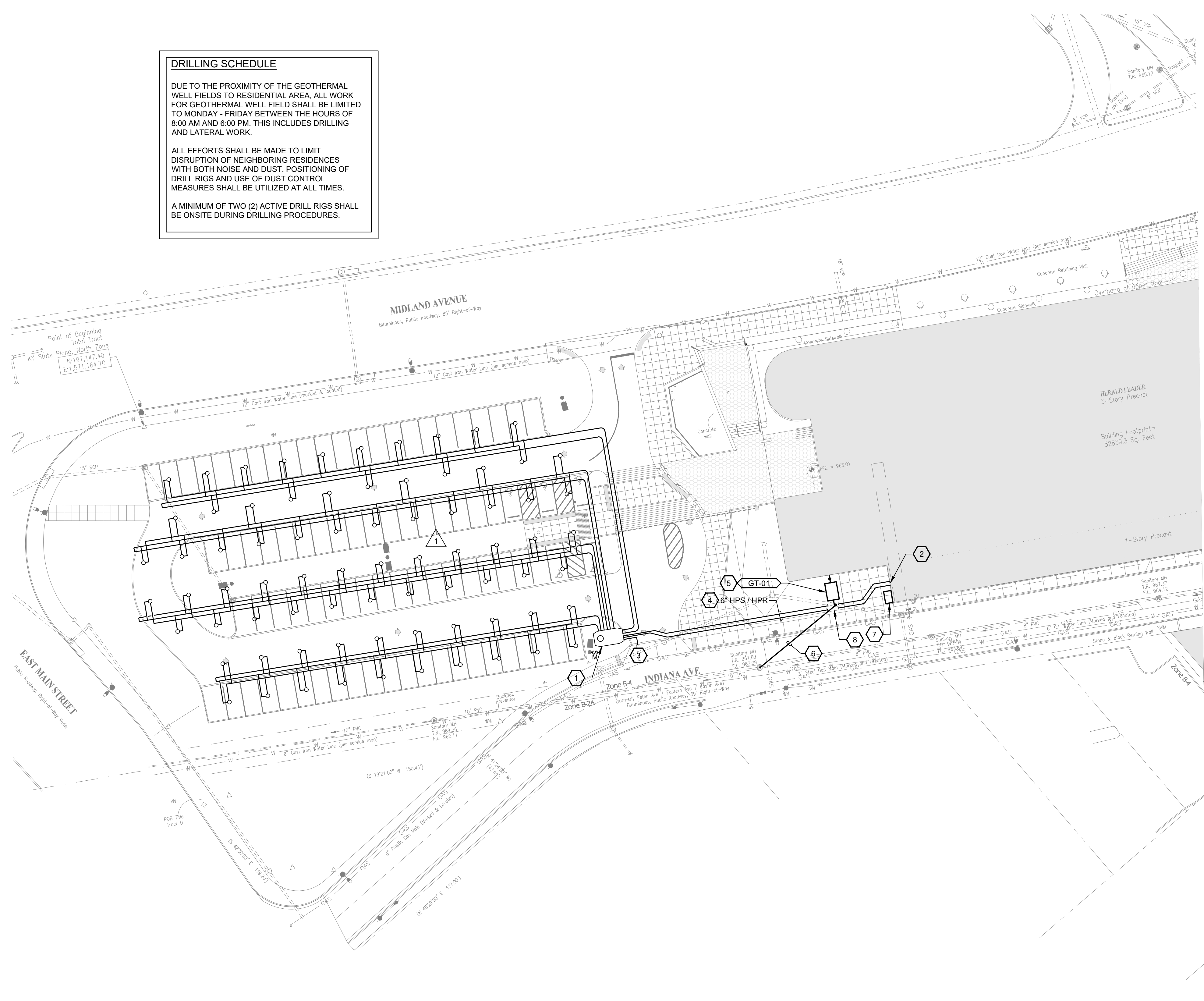


**DRILLING SCHEDULE**

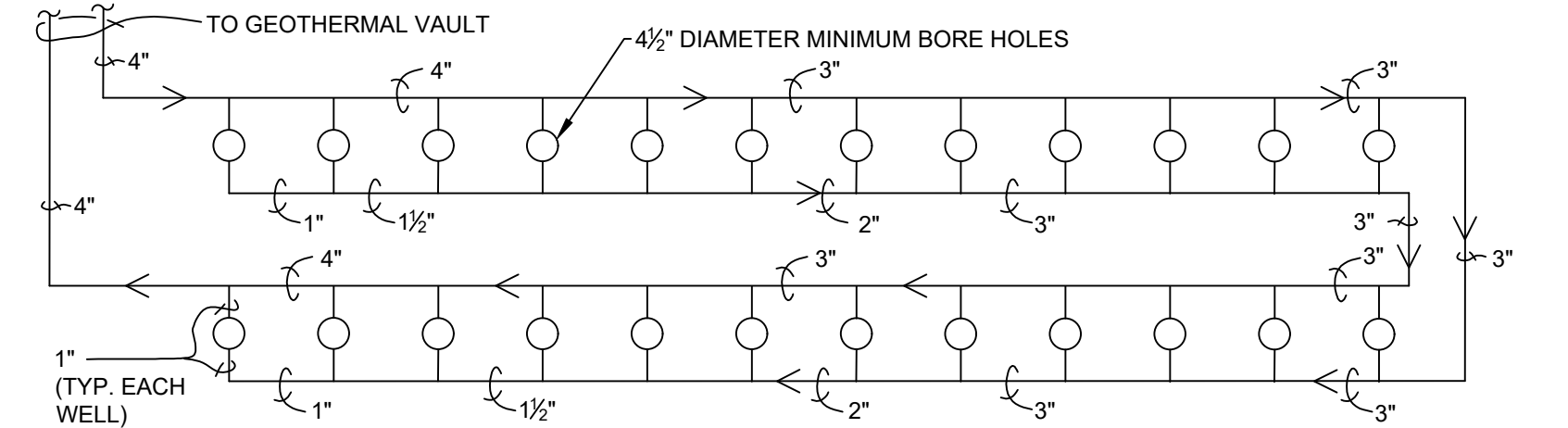
DUE TO THE PROXIMITY OF THE GEOTHERMAL WELL FIELDS TO RESIDENTIAL AREA, ALL WORK FOR GEOTHERMAL WELL FIELD SHALL BE LIMITED TO MONDAY - FRIDAY BETWEEN THE HOURS OF 8:00 AM AND 6:00 PM. THIS INCLUDES DRILLING AND LATERAL WORK.

ALL EFFORTS SHALL BE MADE TO LIMIT DISRUPTION OF NEIGHBORING RESIDENCES WITH BOTH NOISE AND DUST. POSITIONING OF DRILL RIGS AND USE OF DUST CONTROL MEASURES SHALL BE UTILIZED AT ALL TIMES.

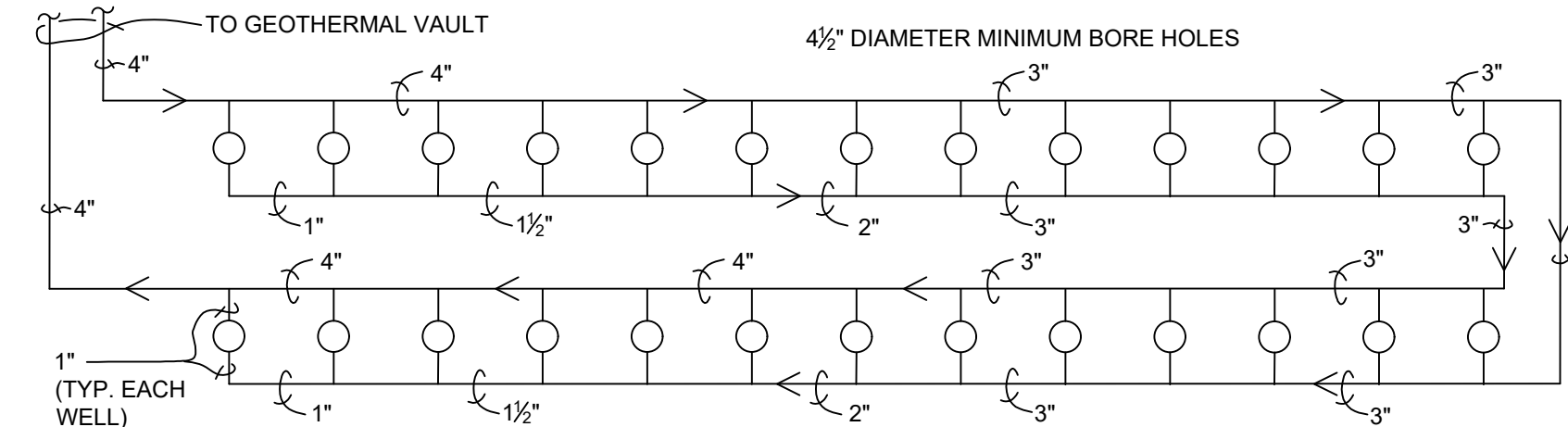
A MINIMUM OF TWO (2) ACTIVE DRILL RIGS SHALL BE ON SITE DURING DRILLING PROCEDURES.



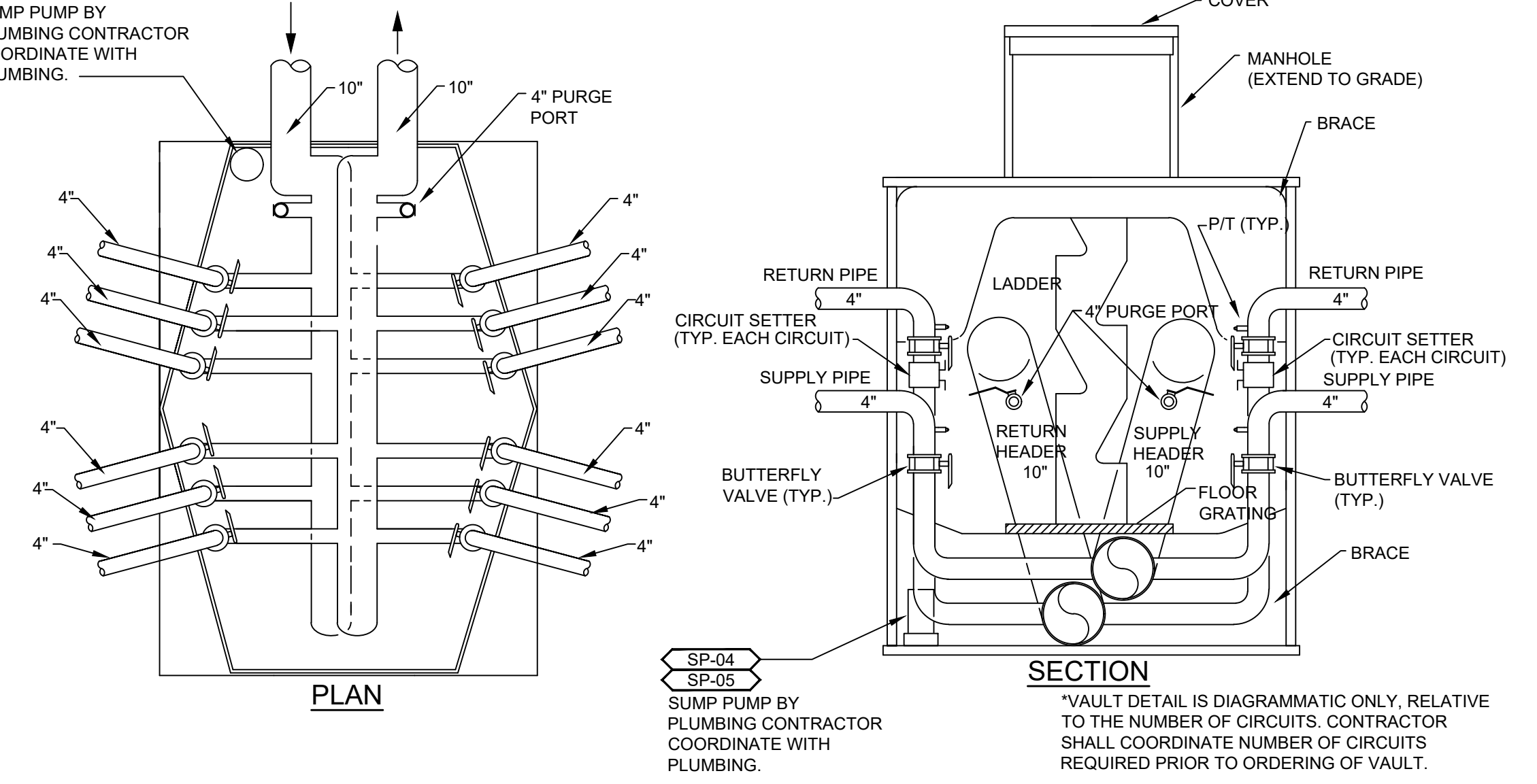
**PARTIAL GEOTHERMAL SITE PLAN - MECHANICAL**  
SCALE: 1"=30'-0"



**GEOTHERMAL LOOP PIPING DIAGRAM - 24 VERTICAL BORES**  
NO SCALE \* ARROWS INDICATE DIRECTION OF FLOW



**GEOTHERMAL LOOP PIPING DIAGRAM - 26 VERTICAL BORES**  
NO SCALE \* ARROWS INDICATE DIRECTION OF FLOW



**TYPICAL GEOTHERMAL VAULT DETAIL**  
NOT TO SCALE

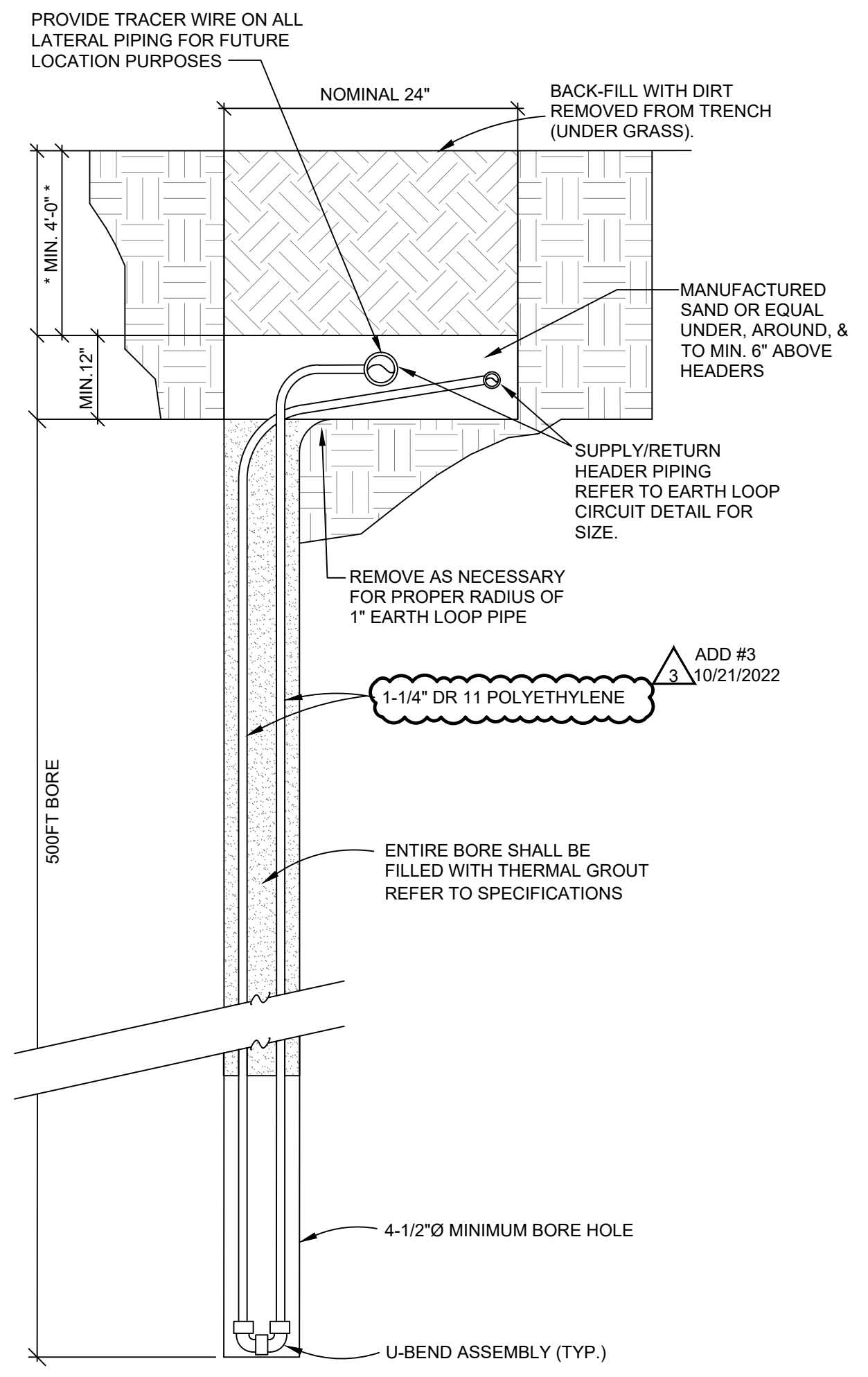
NOTE:  
AT CONTRACTOR'S OPTION, A CONCRETE VAULT MAY BE USED IN LIEU OF THE POLYETHYLENE VAULT DETAILED ABOVE.  
SUMP PUMP DISCHARGE SHALL BE ROUTED OUT OF VAULT AND SHALL BE DISCHARGED INTO THE ROCK BACKFILL OF THE MAIN TRENCH. COORDINATE WITH PLUMBING CONTRACTOR AND GEOTHERMAL LATERAL AND VAULT INSTALLER.

**GENERAL NOTES:**

1. THE CONTRACTOR UNDER THIS SCOPE SHALL CONTACT ALL UTILITIES TO HAVE ALL EXISTING UNDER GROUND SERVICES MARKED. CONTRACTOR SHALL HAVE THE ABILITY TO LOCATE SERVICES USING THEIR OWN INSTRUMENTS. ANY DAMAGED UNDERGROUND UTILITIES UNDER THIS SCOPE DUE TO FAILURE TO LOCATE UTILITIES, WILL BE RESTORED TO ORIGINAL CONDITION AT NO ADDITIONAL COST TO OWNER.
2. THE CONTRACTOR UNDER THIS SCOPE SHALL BE REQUIRED TO COORDINATE THE INSTALLATION OF BORINGS AND LATERALS WITH ALL OTHER PROPOSED SITE UTILITIES AND SITE DRAINAGE. THIS INCLUDES BUT IS NOT LIMITED TO SCHEDULING.
3. INSTALL GEOTHERMAL BORE HOLES AT 20'-0" ON CENTER. REFER TO WELL FIELD LOOP SCHEDULE FOR DEPTHS.
4. CONTRACTOR UNDER THIS SCOPE SHALL BRING THE DISTURBED AREAS OF WELL FIELD AND LATERALS BACK TO WITHIN 12" OF FINAL GRADE. COORDINATE WITH CIVIL PLANS.
5. CONTRACTOR UNDER THIS SCOPE SHALL KEEP A DETAILED DRILL LOG. DRILL LOG SHALL INCLUDE A LOG FOR EACH BORING. LOG SHALL INDICATE BORE DIAMETER, EARTH CONDITIONS DURING DRILLING, WATER (GPM), GAS (PPM), LINEAR FEET OF CASING IF REQUIRED. DRILL LOG SHOULD INCLUDE GPS COORDINATES OF BORE HOLE UNLESS OTHER MEANS OF SURVEY/MARKING IS PROVIDED.
6. (2) GEOTHERMAL TEST WELLS WERE DRILLED ON SITE. THE FOLLOWING ARE THE RESULTS.  
0' - 1' - ASPHALT  
1' - 10' - CLAY  
10' - 80' - LIMESTONE - HARD  
80' - 400' - LIMESTONE  
\* VERTICAL BORING RESULTED IN 3GPM WATER AT 80 - 81'
7. CONTRACTOR(S) RESPONSIBLE FOR FIRE PROTECTION AND DOMESTIC WATER SERVICES SHALL COORDINATE INSTALLATION WITH ALL OTHER TRADES. REFER TO ENTIRE SET OF CONTRACT DOCUMENTS FOR SITE UTILITIES.
8. GEOTHERMAL INSTALLER SHALL REVIEW ALL CIVIL DRAWINGS FOR GRADES AND OTHER SITE RELATED WORK.

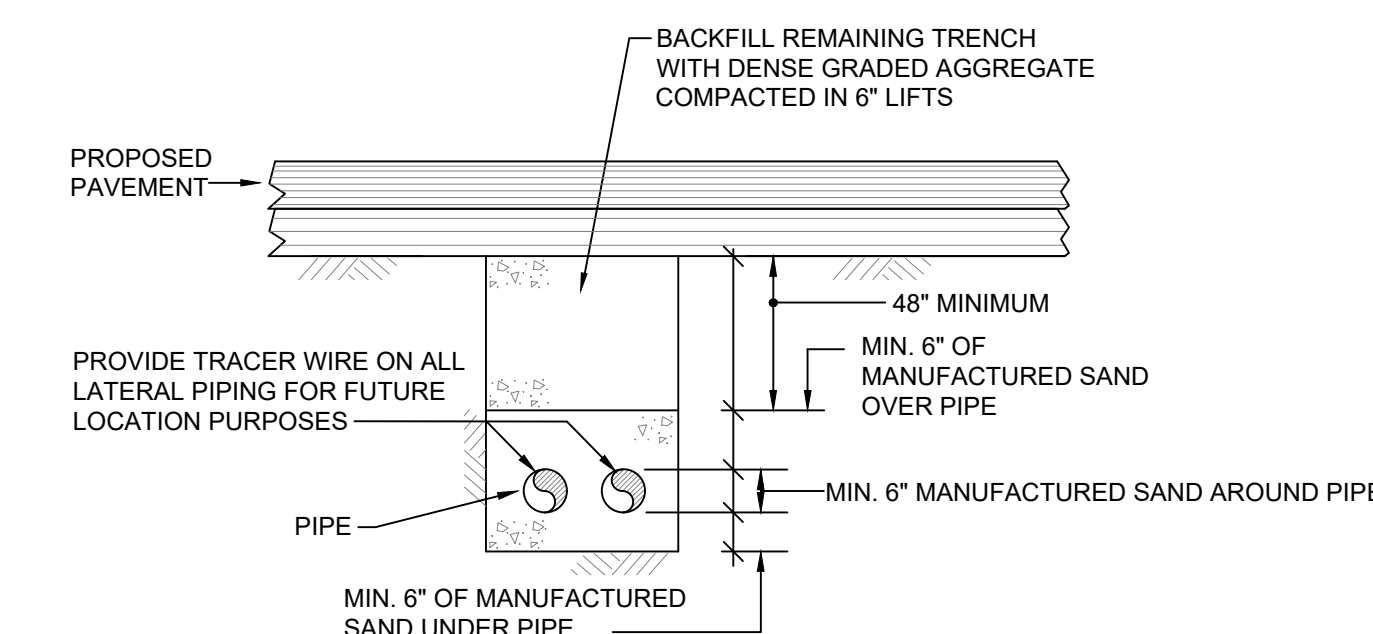
**SHEET KEYNOTES:**

1. PROVIDE AND INSTALL A GEOTHERMAL HEADER VAULT, PER DETAILS ON THIS SHEET. COORDINATE WITH PLUMBING CONTRACTOR TO INSTALL VAULT SUMP PUMP.
2. HEAT PUMP SUPPLY AND RETURN PIPING INTO BUILDING. REFER TO FIRST FLOOR PLAN AREA A - MECHANICAL PIPING, ON SHEET M201a, FOR CONTINUATION.
3. SUMP PUMP DISCHARGE LINE TO BE ROUTED AND DISCHARGED TO MAIN TRENCH LINE OR TO NEAREST STORM DRAIN INLET.
4. ROUTE 6" HPS AND HPR AS INDICATED. REFER TO DETAILS FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE A 1,000 GALLON GREASE TRAP FOR CULINARY PROGRAM WHERE INDICATED. REFER TO PLUMBING SCHEDULES AND DETAILS FOR ADDITIONAL REQUIREMENTS.
6. NEW SANITARY CONNECTION FROM GREASE TRAP TO EXISTING MANHOLE. REFER TO CIVIL DRAWINGS FOR THIS WORK.
7. NEW GAS METER ASSEMBLY BY COLUMBIA GAS, CONNECTED LOAD: 17,089 CFH, DELIVERY PRESSURE 2.0 PSI.
8. CONTRACTOR SHALL COORDINATE WITH NEW SANITARY AND EXISTING STORM PIPING FOR INSTALLATION OF NEW GEOTHERMAL PIPING.



**VERTICAL EARTH LOOP BORE DETAIL**  
NO SCALE

NOTE:  
\* ALL LATERAL PIPING SHALL BE INSTALLED A MINIMUM OF 48" BELOW FINISHED GRADE, UNLESS OTHERWISE NOTED.



**TRENCH DETAIL FOR UNDER PAVEMENT / PARKING LOT**  
NOT TO SCALE

**NEW COMBINED CTE SCHOOL**  
BG# 22-167  
100 Midland Ave,  
Lexington, KY 40508

**BID DOCUMENTS**

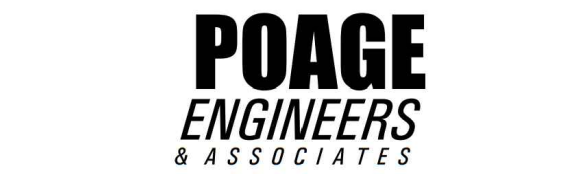
REVISIONS		
#	DATE	DESCRIPTION
1	10/14/22	ADDENDUM 1
3	10/21/22	ADDENDUM 3



**PROJECT TEAM**  
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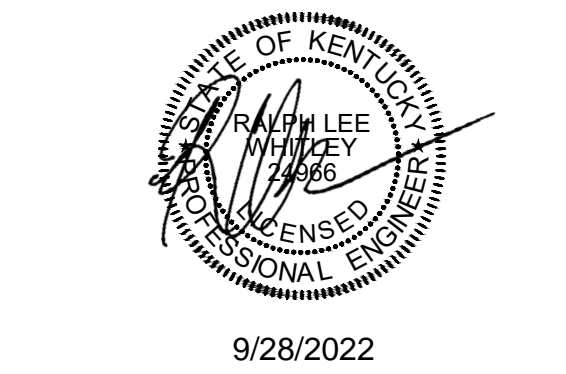
**KEYPLAN**

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Job Number 2150 PLAN TRUE  
Drawn By JBC  
Checked By RLV  
Date 09/28/2022



9/28/2022  
**PARTIAL GEOTHERMAL SITE PLAN - MECHANICAL**

**U101**  
ADD #3 10/21/2022

**GENERAL NOTES:**

A. REFER TO SHEET E002 FOR ADDITIONAL GENERAL NOTES.

**SHEET KEYNOTES:**

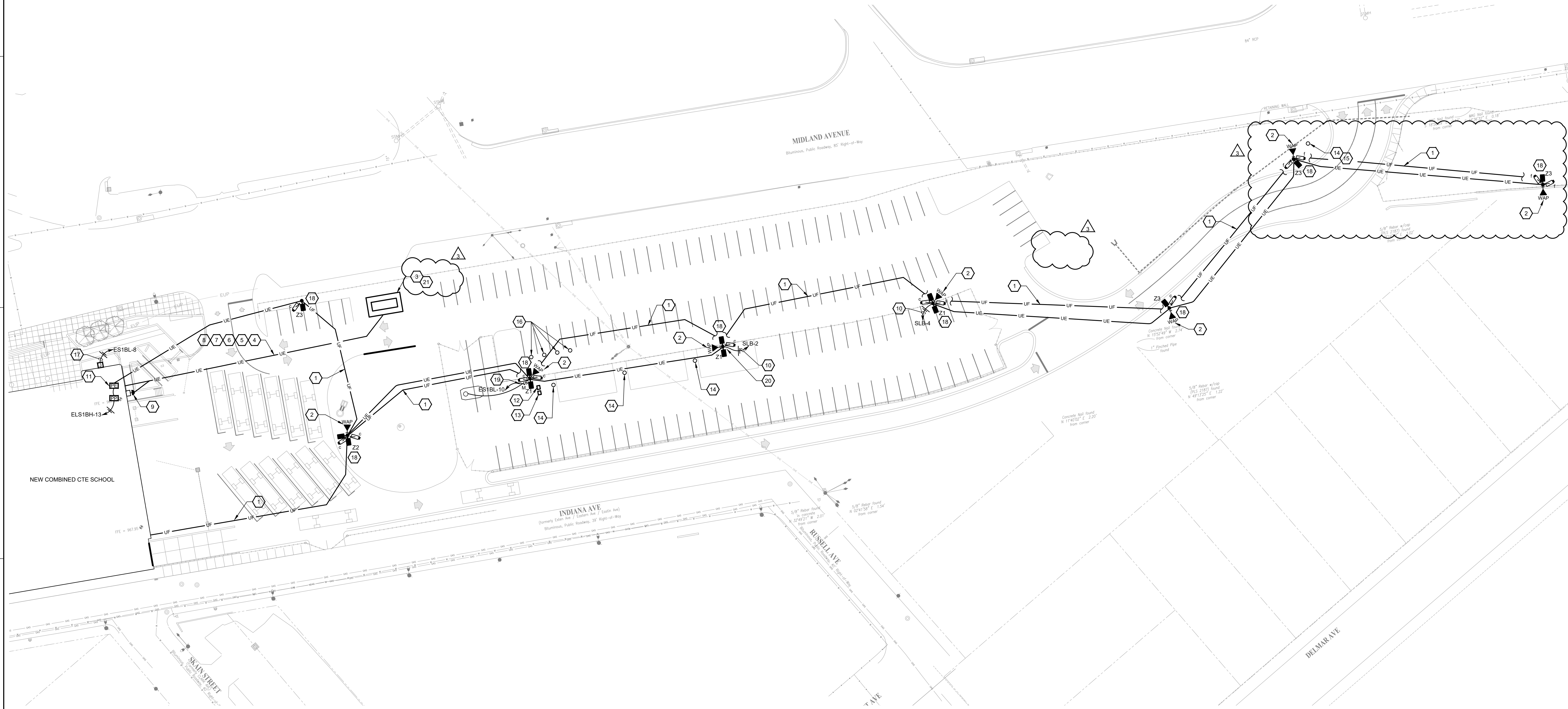
1. PROVIDE A DEDICATED 8 STRAND MULTIMODE (UNUSED STRANDS TO BE SPARE), DIRECT BURIAL FIBER OPTIC CABLING IN 2" CONDUIT FROM BUILDING TO EACH LIGHT POLE BASE NETWORK SWITCH. PROVIDE CATEGORY 6 CABLING FROM NETWORK SWITCH TO EACH PAGING HORN, WIRELESS ACCESS POINT, AND/OR CAMERA AS SHOWN.
2. PROVIDE EXTERIOR RATED WIRELESS ACCESS POINT ON LIGHT POLE.
3. PROVIDE NEW GENERATOR AND CONCRETE PAD IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
4. PROVIDE 3#10,3#10G IN 1" CONDUIT TO PANEL 'ES1BL' CIRCUITS AT POLES 2, 4, AND 6 FOR GENERATOR BATTERY CHARGER, HEATER, AND RECEPTACLE.
5. SEE ONE-LINE DIAGRAM FOR EMERGENCY FEEDER AND CONDUIT SIZES.
6. PROVIDE BELDEN 9841 COMMUNICATION CABLE IN 1" CONDUIT UNDERGROUND BETWEEN GENERATOR AND REMOTE ANNUNCIATOR.

7. PROVIDE TWO SETS OF 2#12, 1#12G IN 1" CONDUIT UNDERGROUND FROM GENERATOR CONTROLLER TO AUTOMATIC TRANSFER SWITCHES.
8. PROVIDE ONE (1) EMPTY 1" CONDUIT WITH PULLWIRE UNDERGROUND FROM GENERATOR CONTROLLER TO REMOTE ANNUNCIATOR FOR BUILDING AUTOMATION SYSTEM MONITORING AND CONTROL CABLING FOR INTEGRATION. COORDINATE WITH OWNER AND MECHANICAL CONTROLS CONTRACTOR TO MONITOR AND/OR CONTROL 25 OWNER DETERMINED GENERATOR FUNCTIONS VIA THE BUILDING AUTOMATION SYSTEM.
9. PROVIDE EMERGENCY STOP BUTTON WITH GENERATOR. PROVIDE 2#12, 1#12, 1" UNDERGROUND FROM PUSH BUTTON TO GENERATOR CONTROLLER.
10. ROUTE CIRCUIT THROUGH EXTERIOR LIGHTING CONTROL RELAY ADJACENT TO PANEL SLB. FIELD COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
11. PROVIDE EMERGENCY LIGHTING INVERTER MOUNTED TO STRUCTURE IN CUSTODIAL RECEIVING 118. FIELD COORDINATE EXACT LOCATION. REFER TO LEGEND FOR

- ADDITIONAL INFORMATION:
12. PROVIDE HANDHOLE FOR FUTURE POWER CONNECTIVITY ON SITE. EXTEND FOUR(4) 3" CONDUITS FROM HANDHOLE TO MAIN SWITCHBOARD MSB2B2.
  13. PROVIDE HANDHOLE FOR FUTURE SYSTEMS CONNECTIVITY ON SITE. EXTEND TWO (2) 4" CONDUITS FROM HANDHOLE TO THE CABLE TRAY IN ROOM IDF1B.
  14. EXTEND ONE(1) 2" CONDUIT TO HANDHOLE IDENTIFIED BY SHEET NOTE #12 AND ONE(1) 2" CONDUIT TO HANDHOLE IDENTIFIED BY SHEET NOTE #13. CAP CONDUITS BELOW GRADE FOR FUTURE USE.
  15. EXTEND ONE(1) 1-1/4" CONDUIT TO PANEL RSB FOR FUTURE USE. CAP CONDUIT BELOW GRADE FOR FUTURE USE.
  16. EXTEND ONE(1) 1-1/4" CONDUIT TO HANDHOLE IDENTIFIED BY SHEET NOTE #12 AND ONE(1) 1-1/4" CONDUIT TO HANDHOLE IDENTIFIED BY SHEET NOTE #13. CAP CONDUITS BELOW GRADE FOR FUTURE USE.

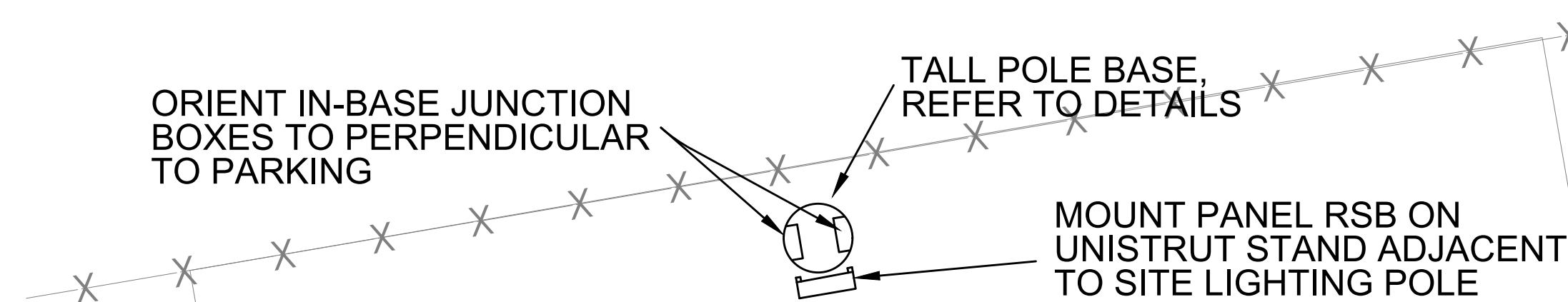
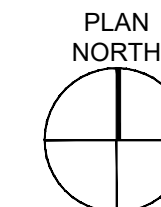
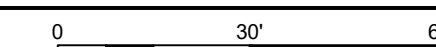
17. PROVIDE HARD WIRED CONNECTION FOR INTERNALLY LIT LED SIGNAGE (BUILDING ADDRESS, UP HIGH). COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. ROUTE CIRCUIT THROUGH DEDICATED EXTERIOR LIGHTING CONTROL RELAY AND EMERGENCY BYPASS RELAY. LOCATE RELAY(S) ADJACENT TO PANEL ES1BL. FIELD COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
18. PROVIDE DEDICATED 120 VOLT CIRCUIT (3#10, 3/4") FROM PANEL RSA TO POLE BASE JUNCTION BOX TO SERVE POWER SUPPLY FOR NETWORK SWITCH. PROVIDE 240 WATT POWER SUPPLY, TRENDNET T1-24048, AND 10 PORT NETWORK SWITCH, TRENDNET T1-PG102, FOR CONVERSION OF FIBER CONNECTION TO CATEGORY 6 CABLING TO SERVE POLE MOUNTED CAMERAS, WIRELESS ACCESS POINTS, AND/OR PAGING HORNS.

19. PROVIDE A 20A MANUAL MOTOR STARTER IN A LOCKABLE NEMA 3R ENCLOSURE AND HARD WIRE CONNECTION TO PUMP PUMP IN ADJACENT GEOTHERMAL VAULT. CIRCUIT TO BE 2#4, 8#5, IN 1" CONDUIT DISCONNECT ON UNISTRUT FRAME ADJACENT TO SITE LIGHTING POLE BASE. REFER TO TYPICAL GEOTHERMAL VAULT DETAIL ON MECHANICAL DRAWINGS, SHEET U100, FOR ADDITIONAL INFORMATION.
20. REFER TO ELECTRICAL PANEL RSB DETAIL ON THIS SHEET FOR ADDITIONAL REQUIREMENTS AT THIS POLE LOCATION.
21. PROVIDE TEMPORARY GENERATOR DOCKING STATION FOR THE EMERGENCY POWER LIFE SAFETY BRANCH. FIELD COORDINATE EXACT LOCATION WITHIN THE FENCED-IN GENERATOR AREA.



**PARTIAL SITE PLAN - ELECTRICAL**

SCALE: 1"=30'-0"

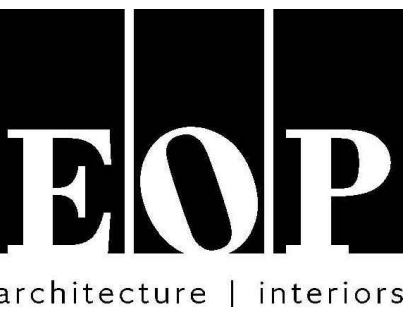


**NEW COMBINED CTE SCHOOL**  
BG# 22-167

100 Midland Ave,  
Lexington, KY 40508

**BID DOCUMENTS**

REVISIONS	
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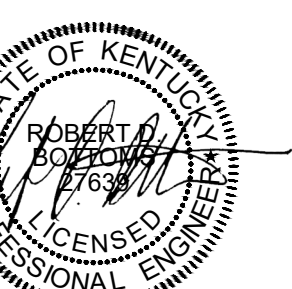
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Job Number 2150  
Drawn By JHS  
Checked By RDB  
Date 09/28/2022



**PARTIAL SITE PLAN - ELECTRICAL**

**U202**