



University of Kentucky

Procurement Services

INVITATION FOR BIDS

CCK-2607.0-1-24

Replace AHU 3 at Pav WH

ADDENDUM # 2

10/9/2023

IMPORTANT: BID AND ADDENDUM MUST BE RECEIVED BY 10/17/2023 @ 3:00 P.M. LEXINGTON, KY TIME

Bidder must acknowledge receipt of this and any addendum as stated in the Invitation for Bids.

ITEM #1: BIDDER NOTICES

- This addendum moves the bid date to 10/17/2023 at 3:00 PM EST.

ITEM #2: QUESTIONS AND RESPONSES

- Refer to and incorporate within the offer, the enclosed Questions and Responses.
- Please review the updated specifications and drawings attached to this addendum. Multiple changes have been made.

OFFICIAL APPROVAL
UNIVERSITY OF KENTUCKY

SIGNATURE

Patricia Pflug

Contracting Officer / (859) 257-5409

Typed or Printed Name

CCK-2607.0-1-24
 Replace AHU 3 at Pav WH
 Question and Response Log

#	Question	Response
1	Is Victaulic fittings/valves with grooved joints acceptable for the hydronic piping 2-1/2" and larger?	Please bid without Victaulic and recommendation can be evaluated after project is awarded.
2	Notes on the plan requires the bidding contractors to use a specified roofing contractor, IRC, for all roofing work. We have reached out to them, and they will only offer unit prices with mobilization charges, not a complete bid. Will the University consider an allowance for them to do this work? Otherwise, we feel IRC should offer a hard bid number so all contractors are on a level playing field.	IRC note removed from drawings per UK.
3	The project specifications mentioned provide to a temporary air handling for climate control during the AHU Replacement on AB-1. However, the plans do not show a location for a temporary air handling unit or any duct or piping details. Do we need to provide a temporary air handling unit? If so, please provide specifications on the air handling unit and drawings showing the install details.	No temporary unit required.
4	Do we need to turn in the determination of responsibility with the bid or the following day?	Determination of Responsibility <i>may</i> be turned in with the bid, but is <i>due</i> by noon the following day.
5	Special conditions Article 41 insurance on SC-21 states to provide inland marine coverage of 20 million. Is this really required?	If a crane will be used, yes this policy is required.
6	Please provide the piping and fitting specifications on the RO piping.	POLYVINYLIDENE FLOURIDE (PVDF) PIPING FOR PURE WATER APPLICATIONS A. Pipe: PVDF Pipe: Schedule 80, iron pipe dimensions, from virgin, unpigmented PVDF (polyvinylidene fluoride) resin, using no plasticizers or pigments. ASTM D3222. B. Fittings: PVDF Fittings: Schedule 80, virgin, unpigmented PVDF (polyvinylidene fluoride) resin meeting ASTM D3222. Fittings are to be joined by using the socket fusion method, conforming to ASTM 2657.
7	Clarify and provide details for Note H-20 on print M-104.	Maintenance requested an easier way to replace motors. AHU-3 basis of design unit includes a rail system. Bid alternate would entail providing a Unistrut trolley and attaching a chain fall.
8	Is there a temporary unit required, PROJECT DESCRIPTION: Replace AHU 3 in Pavilion WH. Furnish and install a temporary AHU for climate control during the replacement.	No temporary unit required.
9	Please provide wall details where new louver is to be cut in.	Please see attached architectural as built for reference. See A-8.2 detail 5 (LV1) and A-9.4 detail 5.
10	Please provide PAV WH roofing contractor	Insulated Roofing for the north tower roof and the new roof replacement (penthouse side) is by Isaac Roofing.
11	Please provide Roof curb, and roofing details, for level 3 roof	Please see detail 233113.00-07 on M-501.
12	Please provide layouts, details, fan size, location, & specifications, Alt #1- "Combine existing exhaust ductwork and replace existing exhaust fan. Refer to Keyed Note H1 on sheet M-104."	The design intent is to clean up the existing lab exhaust fan configuration. Alternate replacement fan shall be sized for 32,000 CFM at 5" ESP per original design conditions and shall be Greenheck model VEKTOR or equivalent.
13	Please provide building height and site layout for crane positioning	Penthouse level is 40' above ground. Please see architectural sheet A-3 for elevation and sheets L-2, L-3, L-4 for existing site plans.
14	Please provide details for alternate, Drawing M-104, note H20, need specs for roof hatch, hoist and trolley system, details on floor sealing of existing opening, Alternate not shown on bid form.	Maintenance requested an easier way to replace motors. AHU-3 basis of design unit includes a rail system. Bid alternate would entail providing a Unistrut trolley and attaching a chain fall.
15	Drawing MD-100, note H5, indicates a bid alternate, please indicate what duct is to be demoed, Alternate not shown on bid form.	Ductwork from chase to mechanical room. Outlined in addendum.
16	Drawing MP-100, note H19, indicates a bid alternate, Please provide more information and detail on what is required for the RO systems and Atm Tank, Alternate not shown on bid form.	Relocate existing tank after demolition of AHU-3 and repipe to new location.
17	Drawing MP-104, note H18, indicates a bid alternate, Alternate not shown on bid form.	The alternate is listed on the bid form/form of proposal.
18	Drawing MP-104. note 23, please provide thickness of pad.	4".
19	Above ground Hydronic Piping, will Victaulic grooved piping be acceptable for CHWS/R piping 2 1/2" and up	Please bid without Victaulic and recommendation can be evaluated after project is awarded.
20	Please indicate tie-in points for CHWS/R, HWS/R, and LPC piping	Tie-in points indicated on MP-104. HW, CHW, LPS all enter penthouse between columns L.1 and N.1 (center chase). LPC to route low along duct and connect into LPC line serving AHU-2. Connect to existing tags will be added.
21	Looking at the drawing the units it will most likely need to be split for installation. Please confirm the max length of each split based on drawing MP-104.	15' max segments should be able to fit between opening and parapet.
22	Key note H17 Bipolar Generator/ is this to be provided by the AHU manufacture or the controls contractor? Please provide specification. Please add Phenomenal Aire as an approved manufacture.	Controls contractor. Specification will be provided in addendum.
23	Specification 237313.00 2.3 Fan, Drive and Motor Section I. Variable Frequency Controllers 1. Are the VFDs to be provided by the AHU manufacture? If not does the AHU manufacture need to provide individual disconnects and overloads?	BOD AHU has ABB VFDs included. If provided separately, yes, AHU manufacturer will need to provide electrical coordination information.
24	Please confirm the system pressure for the RO pump since the RO system is on ground level and the humidifier unit is located in the penthouse. Drawing shows 1" RO water feed line. Does this need to be increased?	1" pipe will lose less than 0.5psi/100' in friction loss with max flow required by humidifier and about 60ft of head up which is well under the maximum operation of the existing pump.
25	HU-3, Is the alternate just for a 5 year warranty? or pipework and all with the HU-3.	5 year warranty on the humidifier itself.
26	Where is the new access hatch and new hoist and trolley system for motor replacement .What will it look like and will it go over the AHU-3?	Maintenance requested an easier way to replace motors. AHU-3 basis of design unit includes a rail system. Bid alternate would entail providing a Unistrut trolley and attaching a chain fall. Exact location can be vetted if alternate is accepted.
27	Is the ro water piping ss or sch 80 pvc?	POLYVINYLIDENE FLOURIDE (PVDF) PIPING FOR PURE WATER APPLICATIONS A. Pipe: PVDF Pipe: Schedule 80, iron pipe dimensions, from virgin, unpigmented PVDF (polyvinylidene fluoride) resin, using no plasticizers or pigments. ASTM D3222. B. Fittings: PVDF Fittings: Schedule 80, virgin, unpigmented PVDF (polyvinylidene fluoride) resin meeting ASTM D3222. Fittings are to be joined by using the socket fusion method, conforming to ASTM 2657.

Revision Narrative

Addendum 1

Project Name: UK Pav WH - AHU-3 Replacement 11289
Project Number: 25130.00
Document Set Name: Bid/Construction

Date: 10/06/2023

The following modifications to the Bidding and Contract Documents for the referenced project shall hereby be incorporated into the Work described, and their effect on the bidding shall be reflected in the Bidder's Form of Proposal. Bidder shall verify receipt of Addendum on the Form of Proposal. Bidder is cautioned to read the entire Addendum, as a definite order does not necessarily follow, and to check that all pages of the Addendum have been included in the Bidder's copy of Addendum.

DRAWING CHANGES:

- 1) Sheet M-104 - Mechanical Level 4 Plan Overall
 - a) Added more detail to bid alt.
 - b) Moved ductwork outside of penthouse. Extended prefabricated exterior ductwork system.
 - c) Removed note about roofing contractor.
- 2) Sheet M-502 - Mechanical - Details
 - a) Updated AHU BOD.
- 3) Sheet M-601 - Mechanical - Schedules
 - a) Updated humidifier steam value.
 - b) Added notes to AHU.
- 4) Sheet MD100 - Mechanical Demolition Ground Floor Plan Overall
 - a) Alternate demolition duct noted.
 - b) Added relocation of VFD.
- 5) Sheet MP-100 - Mechanical Piping Ground Floor Plan
 - a) Added note where existing tank is located.
 - b) Added note about piping material.
 - c) Added relocation of VFD.
- 6) Sheet MP-104 - Mechanical Piping Level 4 Plan
 - a) Added connect to existing symbols.

SPECIFICATION CHANGES:

- 1) 234300.00 Electronic Air Cleaners
 - a) Specification for bipolar ionization added.

2) 237313.00 Modular Indoor Central Station Air Handling Units

- a) Additional manufacturers added.
- b) AHU construction details modified.

237313.00 Modular Indoor Central Station Air Handling Units

SECTION 237313.00 - MODULAR INDOOR CENTRAL STATION AIR HANDLING UNITS

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

A. Product Data

1. Provide for each type of product indicated.
 - a. Unit dimensions and weight.
 - b. Cabinet material, metal thickness, finishes, insulation, and accessories.
 - c. Certified fan-performance curves with system operating conditions indicated. Certified fan-sound power ratings. Fan construction and accessories. Motor ratings, electrical characteristics, and motor accessories.
 - d. Certified coil-performance ratings with system operating conditions indicated.
 - e. Dampers, including housings, linkages, and operators.
 - f. Filters with performance characteristics.

B. Shop Drawings

1. Fabrication drawings

1.2 EXTRA MATERIALS

- A. (1) set of filters for each air handling unit.
- B. (1) set of gaskets for each access door.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Ventrol / Temtrol
 2. Governair
 3. Haakon
 4. TMI Climate Solutions
 5. Airflow Equipment
 6. ClimateCraft

2.2 UNIT CASINGS

- A. General Fabrication Requirements for Casings:
 1. Forming: Form walls, roofs, and floors with at least two breaks at each joint.
 2. With fiberglass insulation, construct casings of 16-ga minimum exterior and 20-ga minimum interior liner mill galvanized steel, designed to withstand specific operating pressures.

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3. With foam injected insulation construct casings of 18-ga minimum exterior galvanized steel and 22-ga minimum interior liner 304 stainless steel, designed to withstand specific operating pressures.
 4. Casing Joints: Sheet metal screws or pop rivets.
 5. Sealing: Seal all joints with water-resistant sealant.
 6. Factory Finish for Steel and Galvanized-Steel Casings: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat, baked-on enamel finish, consisting of prime coat and thermosetting topcoat.
 7. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
 8. Each module/section shall contain a 8" minimum full perimeter base rail with intermediate lateral supports to be determined by unit manufacturer. Each module/section shall be able to be supported independently from the base rail(s).
- B. Casing Insulation and Adhesive:
1. Materials: ASTM C 1071, Type I.
 2. Casings: Casings for interior use shall be 4" solid double walled construction with 1-½ lb/cu. ft density insulation between panels or shall be foam injected with insulation equal to a minimum of R-12
 3. Location and Application: Factory applied with adhesive and mechanical fasteners to the internal surface of section panels downstream from, and including, the cooling-coil section.
 - a. Liner Adhesive: Comply with ASTM C 916, Type I.
 - b. Mechanical Fasteners: Galvanized steel, suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by manufacturer and without causing leakage in cabinet.
 - c. Liner materials applied in this location shall have air-stream surface coated with a temperature-resistant coating or faced with a plain or coated fibrous mat or fabric depending on service-air velocity.
- C. Inspection and Access Panels and Access Doors:
1. Panel and Door Fabrication: Formed and reinforced, double-wall and insulated panels of same materials and thicknesses as casing.
 2. Inspection and Access Panels:
 - a. Fasteners: Two or more camlock type for panel lift-out operation. Arrangement shall allow panels to be opened against air-pressure differential.
 - b. Gasket: Neoprene, applied around entire perimeters of panel frames.
 - c. Fan modules shall be provided with perforated inner wall panel with fiberglass insulation and polymer liner to encapsulate insulation.
 - d. Discharge plenums shall be provided with perforated inner wall pane with fiberglass insulation and polymer liner to encapsulate insulation.
 - e. Size: Large enough to allow inspection and maintenance of air-handling unit's internal components.
 3. Access Doors:
 - a. Hinges: A minimum of two ball-bearing hinges or stainless-steel piano hinge and two wedge-lever-type latches, operable from inside and outside. Arrange doors to be opened against air-pressure differential.
 - b. Gasket: Neoprene, applied around entire perimeters of panel frames.
 - c. Fabricate windows in fan section doors of double-glazed, wire-reinforced safety glass with an air space between panes and sealed with interior and exterior rubber seals.
 - d. Size: At least 24 inches wide by full height of unit casing up to a maximum height of 72 inches.
 4. Locations and Applications:

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- a. Fan Section: Doors and inspection and access panels.
- b. Access Section: Doors.
- c. Coil Section: Inspection and access panel.
- d. Damper Section: Doors.
- e. Filter Section: Doors large enough to allow periodic removal and installation of filters.
- f. Mixing Section: Doors.
- g. Humidifier Section: Doors.
- 5. Service Light: 15-W LED vaporproof fixture with switched junction box located outside adjacent to door.
 - a. Locations: Each section accessed with door.
- D. Condensate Drain Pans:
 - 1. Fabricated with two percent slope in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and from humidifiers and to direct water toward drain connection.
 - a. Length: Extend drain pan downstream from leaving face to comply with ASHRAE 62.1.
 - b. Depth: A minimum of 2 inches deep.
 - 2. Integral part of floor plating.
 - 3. Double-wall, IAQ galvanized -steel sheet with space between walls filled with foam insulation and moisture-tight seal.
 - 4. Drain Connection: Located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple on one end of pan.
 - 5. Units with stacked coils shall have an intermediate drain pan to collect condensate from top coil.
 - 6. Provide high condensate in primary condensate pan to de-energize unit upon detection of high condensate levels.
- E. Air-Handling-Unit Mounting Frame: Formed galvanized-steel channel or structural channel supports, designed for low deflection, welded with integral lifting lugs.

2.3 FAN, DRIVE, AND MOTOR SECTION

- A. Fan and Drive Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum-rated fan speed and motor horsepower.
 - 1. Shafts: Designed for continuous operation at maximum-rated fan speed and motor horsepower, and with field-adjustable alignment.
 - a. Turned, ground, and polished hot-rolled steel with keyway. Ship with a protective coating of lubricating oil.
 - b. Designed to operate at no more than 70 percent of first critical speed at top of fan's speed range
 - c. Design fan shafts so as not to pass through first critical speed when unit comes up to rated RPM.
- B. Centrifugal Fan Housings: Formed- and reinforced-steel panels to form curved scroll housings with shaped cutoff and spun-metal inlet bell.
 - 1. Bracing: Steel angle or channel supports for mounting and supporting fan scroll, wheel, motor, and accessories.
 - 2. Horizontal-Flanged, Split Housing: Bolted construction.
 - 3. Housing for Supply Fan: Attach housing to fan-section casing with metal-edged flexible duct connector.

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4. Flexible Connector: Factory fabricated with a fabric strip 5-3/4 inches wide attached to 2 strips of 2-3/4-inch- wide, 0.028-inch- thick, galvanized-steel sheet or 0.032-inch- thick aluminum sheets; select metal compatible with casing.
 - a. Flexible Connector Fabric: Glass fabric, double coated with neoprene. Fabrics, coatings, and adhesives shall comply with UL 181, Class 1.
 - 1) Fabric Minimum Weight: 26 oz./sq. yd..
 - 2) Fabric Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
 - 3) Fabric Service Temperature: Minus 40 to plus 200 deg F.
 - C. Plenum Fan Housings: Steel frame and panel; fabricated without fan scroll and volute housing.
 - D. Forward-Curved, Centrifugal Fan Wheels: Inlet flange, backplate, and shallow blades with inlet and tip curved forward in direction of airflow and mechanically fastened to flange and backplate; cast-steel hub swaged to backplate and fastened to shaft with set screws.
 - E. Fan Shaft Bearings:
 1. Prelubricated and Sealed, Ball Bearings: Self-aligning, pillow-block type with a rated life of 120,000 hours according to ABMA 9.
 - F. Discharge Dampers: Heavy-duty steel assembly with channel frame and sealed ball bearings, and opposed blades constructed of two plates formed around and welded to shaft, with blades linked out of air stream to single control lever.
 - G. Internal Vibration Isolation: Fans shall be factory mounted with manufacturer's standard restrained vibration isolation mounting devices having a minimum static deflection of 1 inch.
 - H. Motor:
 1. Enclosure Type: Totally enclosed, fan cooled.
 2. NEMA Premium (TM) efficient motors as defined in NEMA MG 1.
 3. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
 4. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.
 5. Mount unit-mounted disconnect switches on exterior of unit.
 6. Provide adjustable motor base, adjusted with mounting bolts, to provide variation in center distance. Provide locking nuts, or similar devices, to secure base in proper position.
 - I. Variable Frequency Controllers:
 1. Description: NEMA ICS 2, IGBT, PWM, VFC; listed and labeled as a complete unit and arranged to provide variable speed of an NEMA MG 1, Design B, 3-phase induction motor by adjusting output voltage and frequency.
- 2.4 COIL SECTION
- A. General Requirements for Coil Section:
 1. Comply with ARI 410.
 2. Construct coils with copper tubing primary surface and aluminum secondary surface including fins bonded to tubes by method approved by specified manufacturer. For spray coil applications, construct primary and secondary surfaces of copper. Coil tube wall thickness shall be 0.035". Aluminum 0.0095" fins for all coils.

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3. Fabricate coil section to allow removal and replacement of coil for maintenance and to allow in-place access for service and maintenance of coil(s).
 4. Coils shall not act as structural component of unit.
- B. Hydronic Coils
1. Provide chilled water and hot water coils with threaded connections. Provide coils with drain and vent connections.
 - a. Coil headers shall be copper.
 - b. Chilled Water Coils shall be a minimum 6 row coil, maximum 11 fins per inch.
- C. Coil Sections: Provide common or individual casing for heating and cooling coils as required. Coil casing and holding racks shall be 304 Stainless Steel. Design internal structure of coil section to allow for removal of coils, and provide suitable baffles to assure no air bypass around coils. Provide condensate pans and drain connections to cooling coil sections of sufficient size to contain and remove coil condensate. Insulate coil section casings and drain pans as specified in "Insulation" paragraph. For reheat coils, make provisions to allow simultaneous dehumidification and reheating at maximum cooling face velocity catalogued by manufacturer.
- D. Multiple Coils: Provide multiple coils as required by unit manufacturer. All multiple coils shall be piped with a common supply and return header with branch piping to each coil. Each coil connection shall have a union and shutoff. Balancing valve, control valve, and thermostats shall be provided for the header supply and return lines. Verify quantity of coils for each unit and provide piping to each separate coil.
- E. Face Velocity: Maximum velocity across coil shall be 500 fpm unless noted otherwise on schedules.
- F. Control Valves and Damper Actuators: Shall be furnished, installed and wired by Temperature Controls Contractor.
- G. Cooling coil: Provide a fluid coil with Cooney Freeze Block™ Technology. Coil shall be manufactured with an expansion relief header that is brazed into each and every return bend.
1. A combination relief valve that operates by pressure and temperature, (designed to re-seat after activation) shall be affixed to the expansion relief header to protect the coil during freezing conditions.
 - a. The pressure relief set point to be 200 psi.
 - b. The temperature relief set point to be 35 degrees.
 - c. All Freeze Block™ Valves shall be situated above a drain pan.
 2. The coils shall be manufactured utilizing:
 3. » Tubes:
 - 1/2 inch diameter copper tubes – a minimum tube wall thickness of 0.035".
 - 5/8 inch diameter copper tubes – a minimum tube wall thickness of 0.035".
 - Return bend wall thickness to match or exceed tube wall thickness
 - Hairpin return bends not permitted
 4. All coils equipped with Cooney Freeze Block™ Technology to be installed inside of any air handling unit must be equipped with access doors at all relief valve locations. These access doors must be large enough to perform any and all necessary maintenance to the relief valve sections of the coil.
 5. All pressure boundary joints to be brazed by personnel certified to ASME Section IX.
 6. Coils to be cleaned using a solvent degreasing method, either submerged or vapor, using perchloroethylene or similar solvent.
 7. This technology shall be wind tunnel, climate room and field tested with a minimum of 5 years of industry usage.
 8. Provide a thirty, (30) month warranty against any freeze related damages to the entire coil.

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9. Warranty shall cover repair of existing or supply of a replacement coil. Items of note:
 - » All Coil Components, including but not limited to return bends shall be covered under this warranty.
 - » Warranty shall be activated once product is shipped.
 - » No additional activation nor registration shall be required.

An adapter fitting will be attached to the bottom of every Cooney Freeze Block™ relief valve (plain

end or hose barb)

- » Material designed to handle temperatures from -40F to 300F
- » Material must be non-conductive
- » Adapter fitting will house a conductivity sensor designed to sense when the Cooney Freeze Block™ relief valve discharges during a freezing event
- » Must be designed to only sense water from valve discharge and not from environment
- » Must not hold water after valve deployment
- Sensor is wired to the supplied control box terminal strip
- Standard NEMA 4 rated Control box to allow an input voltage range of 24 – 305 VAC single phase
- Output shall be through a relay switch to the Building Automation System and/or Air handling unit controls
- BAS (Building Automation System) to then be programmed to perform, but not limited to, the following sequence of operations:
 - » Send alarm to control center to notify maintenance personnel
 - » Local Audible/Visual Alarm

2.5 AIR FILTRATION SECTION

A. Prefilters:

1. Prefilters shall consist of a pleated media, media support grid, and enclosing frame. The filters shall be labeled by Underwriters Laboratories as Class 2.
2. The media shall be a non-woven cotton fabric and shall have a minimum efficiency (ASHRAE test standard 52 - 76) of 25% with a minimum arrestance of 90%.
3. The media support shall be a welded wire grid with an effective open area of not less than 90%. The grid shall be bonded to the filter media to eliminate media oscillation and pull away.
4. The enclosing frame shall be constructed of rigid, heavy duty, high wet strength beverage board. The frame shall be bonded to the filter pack. Standard sizes shall be 12" x 24" x 2" and 24" x 24" x 2".
5. Filters shall be Cam-Farr 30/30 or equal by American Air Filter, Eco-Air or Airguard.

B. Provide filter holding frames arranged for flat or angular orientation, with access doors on both sides of unit. Filters shall be removable from one side or lifted out from access plenum.

C. Filter Boxes: Provide filter boxes with hinged access doors on both sides of unit (if unit is serviceable from both sides, refer to floor plan drawings). Provide racks to receive filters in either flat or angle type pattern as shown on air handler details.

D. Disposable Panel Filters:

1. Factory-fabricated, viscous-coated, flat-panel type.
2. Thickness: 1 inch.

E. Filter Gage:

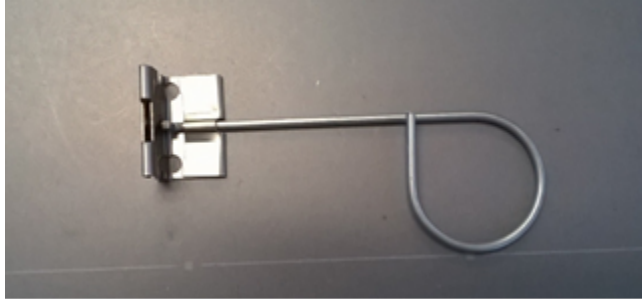
1. 3-1/2-inch- diameter, diaphragm-actuated dial in metal case.
2. Vent valves.

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3. Black figures on white background.
4. Front recalibration adjustment.
5. 3 percent of full-scale accuracy.
6. Range: 0- to 4.0-inch wg.
7. Accessories: Static-pressure tips with integral compression fittings, 1/4-inch aluminum tubing, and 2- or 3-way vent valves.

F. Pre-filters and Final filters

1. For pre-filters and final filters, the Camfil C78 series clip pictured below or approved equal (equivalencies need to be approved during the submittal process and should not be installed until approved.) is required. This clip comes in various lengths and the installed clip must be sized to match the filter being held by the clip.
2. Camfil C78 series



3. INSTALLATION:
4. The frames are to be connected together in such a manner that does not have any protrusions into the filter space which impacts the installation and removal of the filters.

2.6 DAMPERS

- A. General Requirements for Dampers: Leakage rate, according to AMCA 500, "Laboratory Methods for Testing Dampers for Rating," shall not exceed 2 percent of air quantity at 2000-fpm face velocity through damper and 4-inch wg pressure differential.
- B. Electronic Damper Operators:
 1. Direct-coupled type designed for minimum 60,000 full-stroke cycles at rated torque.
 2. Electronic damper position indicator shall have visual scale indicating percent of travel and 2- to 10-V dc, feedback signal.
 3. Operator Motors:
 - a. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 23 05 13 "Common Motor Requirements for HVAC Equipment."
 - b. Size to operate with sufficient reserve power to provide smooth modulating action or two-position action.
 - c. Permanent Split-Capacitor or Shaded-Pole Type: Gear trains completely oil immersed and sealed. Equip spring-return motors with integral spiral-spring mechanism in housings designed for easy removal for service or adjustment of limit switches, auxiliary switches, or feedback potentiometer.
 4. Nonspring-Return Motors for Dampers Larger Than 25 Sq. Ft.: Size for running torque of 150 in. x lbf and breakaway torque of 300 in. x lbf.
 5. Spring-Return Motors for Dampers Larger Than 25 Sq. Ft.: Size for running and breakaway torque of 150 in. x lbf.
 6. Size dampers for running torque calculated as follows:
 - a. Parallel-Blade Damper with Edge Seals: 7 inch-lb/sq. ft. of damper.
 - b. Opposed-Blade Damper with Edge Seals: 5 inch-lb/sq. ft. of damper.

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- c. Parallel-Blade Damper without Edge Seals: 4 inch-lb/sq. ft of damper.
 - d. Opposed-Blade Damper without Edge Seals: 3 inch-lb/sq. ft. of damper.
 - e. Dampers with 2- to 3-Inch wg of Pressure Drop or Face Velocities of 1000 to 2500 fpm: Increase running torque by 1.5.
 - f. Dampers with 3- to 4-Inch wg of Pressure Drop or Face Velocities of 2500 to 3000 fpm: Increase running torque by 2.0.
7. Coupling: V-bolt and V-shaped, toothed cradle.
 8. Overload Protection: Electronic overload or digital rotation-sensing circuitry.
 9. Fail-Safe Operation: Mechanical, spring-return mechanism with external, manual gear release on nonspring-return actuators.
 10. Power Requirements (Two-Position Spring Return): 24-V ac.
 11. Power Requirements (Modulating): Maximum 10 VA at 24-V ac or 8 W at 24-V dc.
 12. Proportional Signal: 2- to 10-V dc or 4 to 20 mA, and 2- to 10-V dc position feedback signal.
 13. Temperature Rating: Minus 22 to plus 122 deg F.
 14. Run Time: 12 seconds open, 5 seconds closed.
- C. Prefilters:
- D. Prefilters shall consist of a pleated media, media support grid, and enclosing frame. The filters shall be labeled by Underwriters Laboratories as Class 2.
- E. The media shall be a non-woven cotton fabric and shall have a minimum efficiency (ASHRAE test standard 52 - 76) of 25% with a minimum arrestance of 90%.
- F. The media support shall be a welded wire grid with an effective open area of not less than 90%. The grid shall be bonded to the filter media to eliminate media oscillation and pull away.
- G. The enclosing frame shall be constructed of rigid, heavy duty, high wet strength beverage board. The frame shall be bonded to the filter pack. Standard sizes shall be 12" x 24" x 2" and 24" x 24" x 2".
- H. Filters shall be Cam-Farr 30/30 or equal by American Air Filter, Eco-Air or Airguard.
- I. Final filters:
1. The final filter shall be a high performance, deep pleated, totally rigid type and shall consist of a glass fiber media, media support frame, contour stabilizers and enclosing frame. The filters shall be labeled by Underwriters Laboratories as Class 2.
 2. The media shall be a high density micro fine glass fiber laminated to a non-woven synthetic backing to form a lofted filter blanket. The media shall have a minimum efficiency (ASHRAE test standard 52 - 76) of 90% with a minimum arrestance of 90%.
 3. The media support shall be a welded wire grid with an effective open area of not less than 96%. The grid shall be bonded to the filter media to eliminate media oscillation and pull away. The grid shall support the media both vertically and horizontally. Contour stabilizers shall be permanently installed on both the air entering and exiting sides of the filter media pack to insure the pleat configuration is maintained throughout the life of the filter.
 4. The enclosing frame shall be constructed of galvanized steel. It shall be constructed and assembled to provide a rigid and durable enclosure for the filter pack. The frame shall be bonded to the filter pack. Standard sizes shall be 12" x 24" x 2" and 24" x 24" x 2".
 5. Filters shall be Cam-Farr Riga-Flo or equal by American Air Filter, Eco-Air or Airguard. Provide Dwyer Instruments Inc Series 2000 Magnahelic gauges across each filter bank.
- J. Outdoor- and Return-Air Mixing Dampers: Parallel-blade, galvanized-steel dampers mechanically fastened to galvanized steel operating rod in reinforced cabinet. Connect

237313.00 Modular Indoor Central Station Air Handling Units

operating rods with common linkage and interconnect linkages so dampers operate simultaneously.

- K. Outdoor- and Return-Air Dampers: Low-leakage, double-skin, airfoil-blade, galvanized-steel dampers with compressible jamb seals and extruded-vinyl blade edge seals in opposed-blade arrangement with steel operating rods rotating in stainless-steel sleeve bearings mounted in a single galvanized-steel frame, and with operating rods connected with a common linkage. Leakage rate shall not exceed 5 cfm/sq. ft. at 1-inch wg and 9 cfm/sq. ft. at 4-inch wg.
- L. Damper actuators shall be selected so that they will handle 25% excess damper area above catalog rating.
- M. Mixing Section: Multiple-blade, air-mixer assembly located immediately downstream of mixing section.
- N. Combination Filter and Mixing Section:
 - 1. Cabinet support members shall hold 2-inch-thick, pleated, flat, permanent or throwaway filters.
 - 2. Multiple-blade, air-mixer assembly shall mix air to prevent stratification, located immediately downstream of mixing box.

2.7 HUMIDIFIERS

- A. Steam humidifiers shall be factory installed by the AHU manufacturer.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Armstrong
 - 2. Carel
 - 3. Carnes
 - 4. Dri-Steem
 - 5. Pure Humidifier Company.
- C. Steam Grid Humidifier:
 - 1. Manifold:
 - a. ASTM A 666, Type 304 stainless steel.
 - b. Steam jacketed.
 - c. Insulated with 1/2-inch fiberglass and stainless-steel jacket.
 - d. Manifold shall extend the full width of unit with mounting brackets at ends.
 - 2. Steam Separator: ASTM A 666, Type 304 stainless steel, with separate humidifier control valve.
 - 3. Humidifier Control Valve: Actuator: Electric modulating with spring return.
 - 4. Steam Trap: Inverted-bucket type, sized for a minimum of three times the maximum rated condensate flow of humidifier at 1/2-psig inlet pressure.
 - 5. Aquastat: For separate mounting on steam condensate, return piping to prevent cold operation of humidifier.
 - 6. Strainer: In-line type.
 - 7. Airflow Switch: To prevent humidifier operation in the absence of airflow.
 - 8. Humidifier section shall include a stainless steel drain pan downstream of the humidifier.

2.8 AIRFLOW MEASURING STATIONS

237313.00 Modular Indoor Central Station Air Handling Units

- A. Provide a 25% Minimum OA and 100% Economizer Airflow Measuring Station for measuring Outside Air. Provide an Airflow Measuring Station for measuring Supply Air and Return Air . Each AMS shall be interfaced with BAS and the airflow setpoint shall be adjustable through the BAS. Unit shall have measuring device separate from damper. See Division 23 for AMS requirements. Provide all necessary controllers, transformers and calibration required to interface damper with BAS.
- B. AMS shall be accurate within +/-5% at a velocity rang of 500 fpm through 3,000 fpm.
- C. The AHU manufacturer may provide factory installed Piezometers for Air Flow Measuring on Supply and Return/Relief fans.
- D. AMS shall be furnished, installed and wired by Temperature Controls Contractor.
- E. AMS probe shall include non-volatile memory option.

2.9 MISCELLANEOUS SECTIONS

- A. Access Sections: Provide access section of same construction as all sections. Access section depth shall be a minimum of 21" unless noted otherwise on air handler details.
- B. Air Blender: Provide section with hinged access doors and interior baffles to mix outdoor air and return air. Section shall prevent stratification.
- C. Diffuser Section: Provide section with hinged access doors. Section shall properly diffuse and distribute air evenly over final filter section.
- D. Discharge Plenum Section: Provide section with hinged access doors and of same construction as the remainder of the unit. Section shall contain turning vanes to create minimum air turbulence at airflow discharge of air handling unit.
 - 1. Discharge plenum section shall be 2" perforated double wall construction.
- E. Mixing Boxes: Provide mixing boxes of physical size to match basic unit, and include equal-sized flanged openings capable of handling full air flow. Arrange openings as indicated on drawing sheets. Provide dual action parallel dampers for return air with sealing edges, arranged to operate automatically with one set of linkage. Provide parallel blade damper for outside air directed towards the return air stream for reduced stratification. Provide dampers of balanced construction, rotating in sintered bronze or nylon bearings.
 - 1. Mixing Box Top Inlet: Where outside air enters top of mixing box, provide baffle made of solid sheet metal which will direct air down towards return air prior to leaving mixing box section to prevent stratification.

2.10 SOURCE QUALITY CONTROL

- A. Fan Sound-Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Fans shall bear AMCA-certified sound ratings seal.
- B. Fan Performance Rating: Factory test fan performance for airflow, pressure, power, air density, rotation speed, and efficiency. Rate performance according to AMCA 210, "Laboratory Methods of Testing Fans for Aerodynamic Performance Rating."

237313.00 Modular Indoor Central Station Air Handling Units

- C. Water Coils: Factory tested to 300 psig according to ARI 410 and ASHRAE 33.

End of Section 237313.00

234300.00 Electronic Air Cleaners

SECTION 234300.00 - ELECTRONIC AIR CLEANERS

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

- A. Product Data
 - 1. Provide for each type of product indicated.
- B. Shop Drawings
 - 1. Coordination Drawings
 - a. For each electronic air cleaner. Include plans, elevations, sections, details and attachments to other work.
 - b. Show filter assembly, dimensions, materials and methods of assembly of components.
 - c. Include setting drawings, templates, and requirements for installing anchor bolts and anchorages.
 - 2. Ventilation calculations
 - a. Manufacturer shall provide ventilation calculations for each space using formulas contained in ASHRAE Standard 62.1 to validate acceptable indoor air quality at the quantity of outdoor air scheduled with the technology submitted.
 - 3. Test data
 - a. Manufacturer shall provide independent test data on a previous installation performed within the past two years and in a similar application that proves compliance to ASHRAE 62 and the accuracy of the calculations.
 - 4. Standards
 - a. Provide documentation stating compliance with:
 - 1) National Electric Code NFPA 70.
 - 2) UL 867 Electrostatic Air Cleaners.
 - 3) UL 2998 Environmental Claim Validation Procedure.
 - 5. Wiring diagrams
 - a. For power, signal and control wiring.

PART 2 - PRODUCTS

2.1 BIPOLAR IONIZATION AIR PURIFICATION SYSTEM

- A. Description: Factory-fabricated bipolar ionization air purification system using bipolar ionization.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Plasma Air International
 - 2. Global Plasma Solutions, Inc.
 - 3. AtmosAir Solutions
 - 4. Phenomenal Aire
- C. Brush Needlepoint Ionizers

234300.00 Electronic Air Cleaners

1. Needlepoint ionizers shall be designed to be mounted at the fan inlet or at the discharge grille/coil if fan is not accessible.
 2. Unit shall contain an LED ionization output indicator and inline fuse.
 3. Provide integral dry contacts which indicate ionizer functionality to a Building Automation System (BAS).
 4. All components shall be self-contained in one enclosure. For units that are mounted inside an air handling unit or plenum, separate ionization units and associated power generators will not be accepted due to safety concerns and penetrating the air handling unit casing with line voltage power.
- D. The ion generators shall be UL 867 and UL 2998 certified and specifically tested and passed UL 2043 to insure a plenum rating. Products with UL certifications for residential applications only shall not be accepted. Product nameplates must match the UL certified manufacturer's name.

PART 3 - EXECUTION

3.1 INSTALLATION OF IONIZATION AIR PURIFICATION SYSTEMS

- A. Install ionizing system downstream of pre-filters filters and upstream of chilled water coil.
- B. Ion generators shall connect to the fan and common terminals of the air handling unit served and integrate to the BAS.
- C. All single- and two-tube duct mounted applications shall include a mounting frame with integral pressure differential switch permanently attached to the duct with sheet metal screws. Ionization units shall be attached to the mounting frame with machine screws. These units shall be so designed that power must be disconnected prior to removal of the unit. Loose pressure differential switches will not be acceptable for single- and two-tube applications.
- D. For AHUs that contain two (2) ion generators or more, a remote monitoring panel shall be provided at each air-handling unit and shall include: 16 gauge galvanized steel, NEMA 3R enclosure, and permanently attached engraved name plates. All internal components shall be UL recognized. For each ion generator within the air handling unit provide: on/off switch, "trouble" and "normal" indicating lamp, form C contacts to interface with BAS to alert service required.
- E. Ion generators shall be installed on stationary front service racks. The rack assemblies shall be factory fabricated and painted or powder coated. Interconnecting wiring shall carry voltage no higher than the primary source to the remote panel.

End of Section 234300.00

DATE: 1/19/2002

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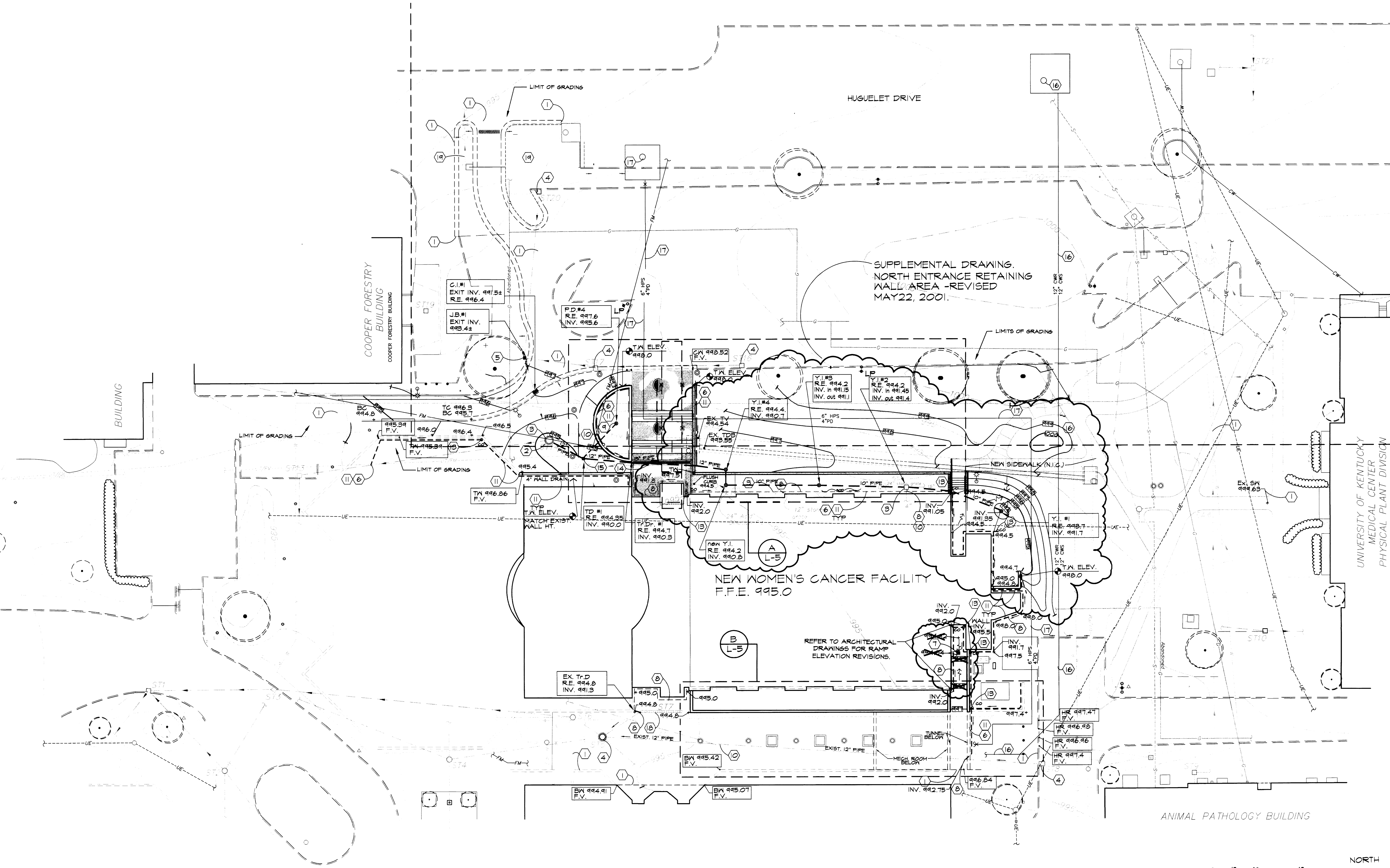
UNIVERSITY OF KENTUCKY
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Omni
Architects

Job No.: 9816.00 Date: 2/19/00 Drawn By: DOKAL/ahsnet PC1 Revisor: RECORD DRAWING FEBRUARY 21, 2002

These drawings are prepared by the author or under the supervision of the author. The author is responsible for the accuracy of the information shown hereon. The author's name and title shall be printed on these drawings. The author's name and title shall be printed on these drawings. The author's name and title shall be printed on these drawings.



GENERAL GRADING NOTES:

- The existing topographic and site information shown has been prepared from a survey by Fuller Mossberger Scott & May Engineers, dated February 2000. Refer to attached survey for additional site information. This information is provided for the convenience of the contractor and the Landscape Architect shall not be responsible for the accuracy of the information shown thereon.
- The Contract Drawings show the approximate location of existing and proposed utility lines. These lines have been identified and located as accurately as possible using available information. The Contractor is responsible for verifying all actual locations.
- Surround all drainage inlet structures with straw bales or temporary silt fence for silt control. Maintain in good condition throughout the construction period. See details F/L-7 and H/L-7. Refer to Sheet L-1 for Silt Fence Location.
- Elevations shown for tops of site drainage structures are approximate and must be set to match finish grades.
- Seed topsoil stockpile areas with a temporary vegetative cover sufficient to prevent erosion.
- Temporary access driveways for construction vehicles shall be gravelled or rocked for a distance of 50 feet into the site and maintained in good condition through the construction period. The existing access drive to the site shall be maintained by the Contractor to minimize the accumulation of mud, dirt, dust and other debris caused by the Contractor's operations.
- The drive shall be checked daily and cleaned by the Contractor as required to maintain this condition throughout the construction period.
- ALL BACKFILL and other work over the existing tunnel and mechanical room must be accomplished with bobcat size equipment and compaction done with walk-behind compactors. At no time shall concrete trucks or dump trucks be used to cross the tunnel or mechanical room, or be closer than 10' from the outside face of the walls of either structure.
- Refer to the Site Survey for TM datum and locations.
- The Limits of Contract extend to include all mechanical and electrical site work. Refer to Sheet L-3 for graphic delineation of the Limits of Contract.

GRADING KEYNOTES:

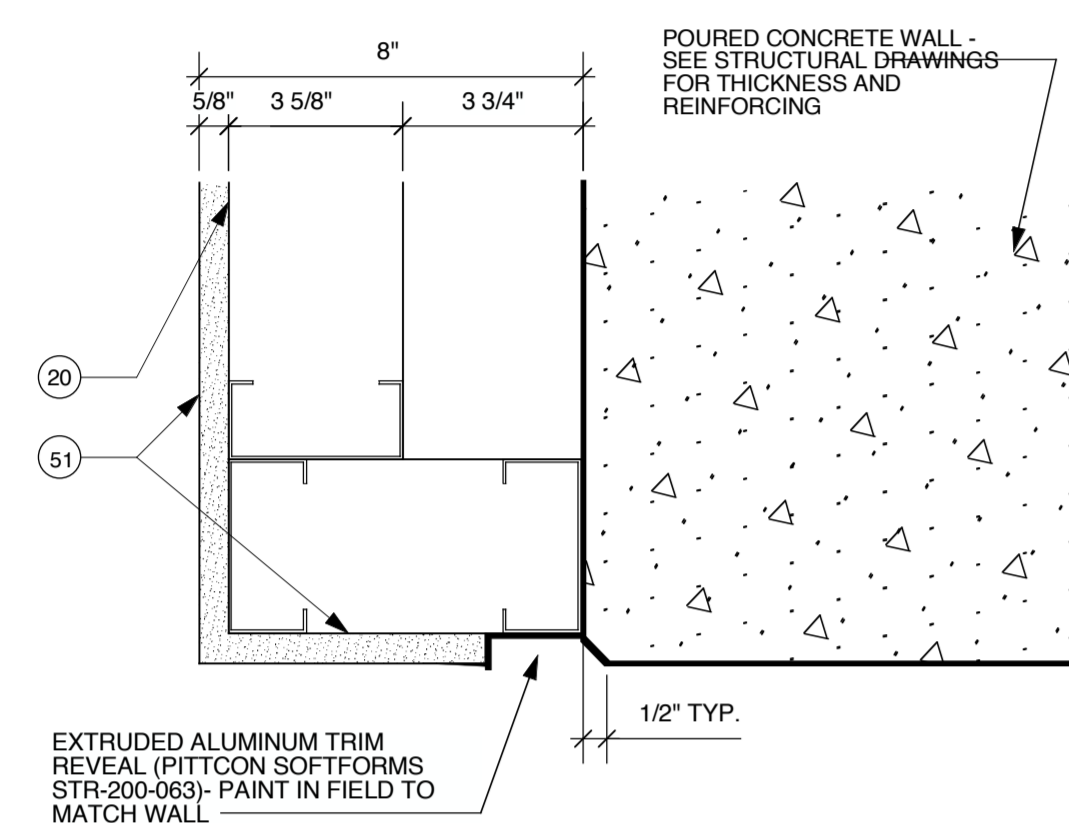
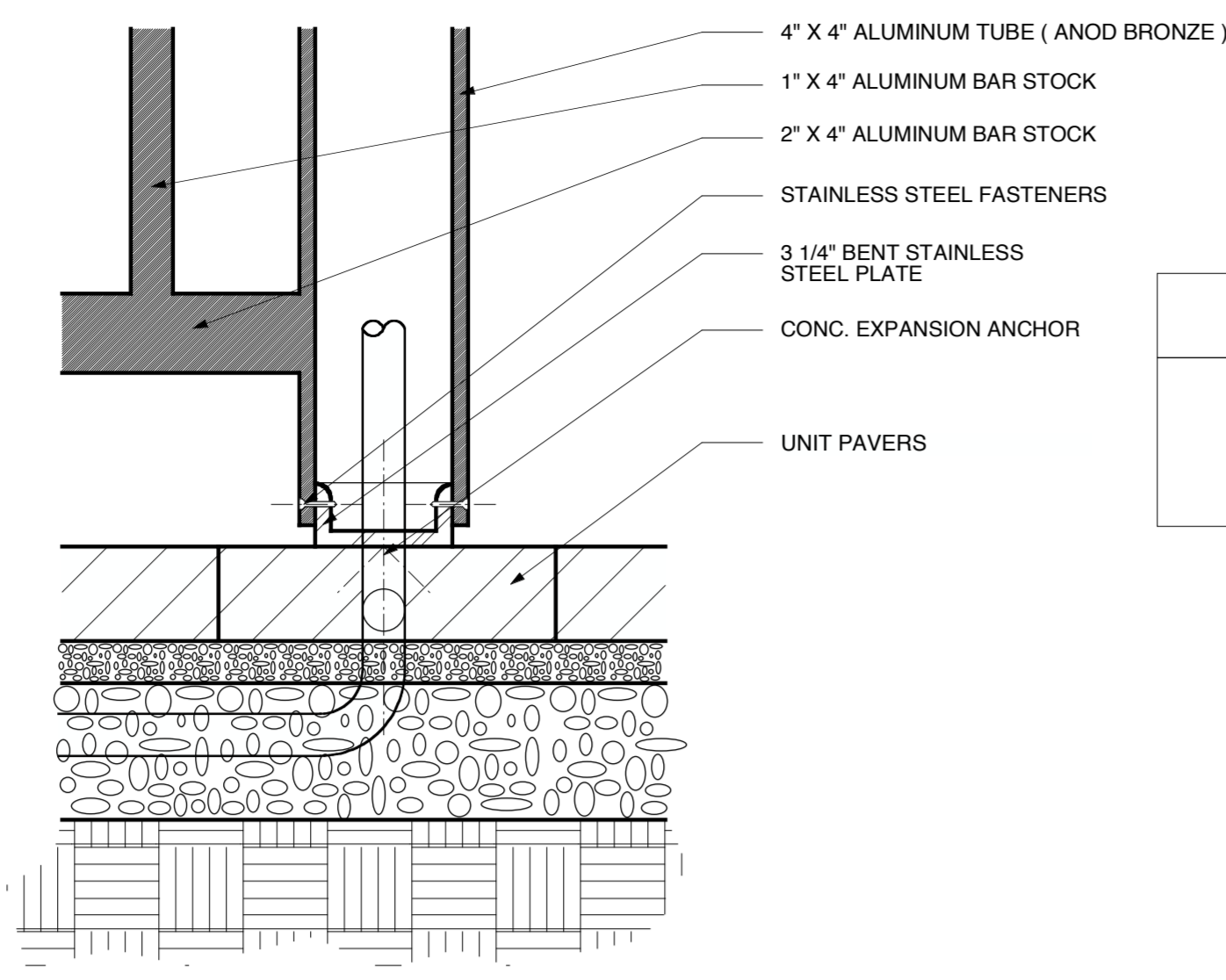
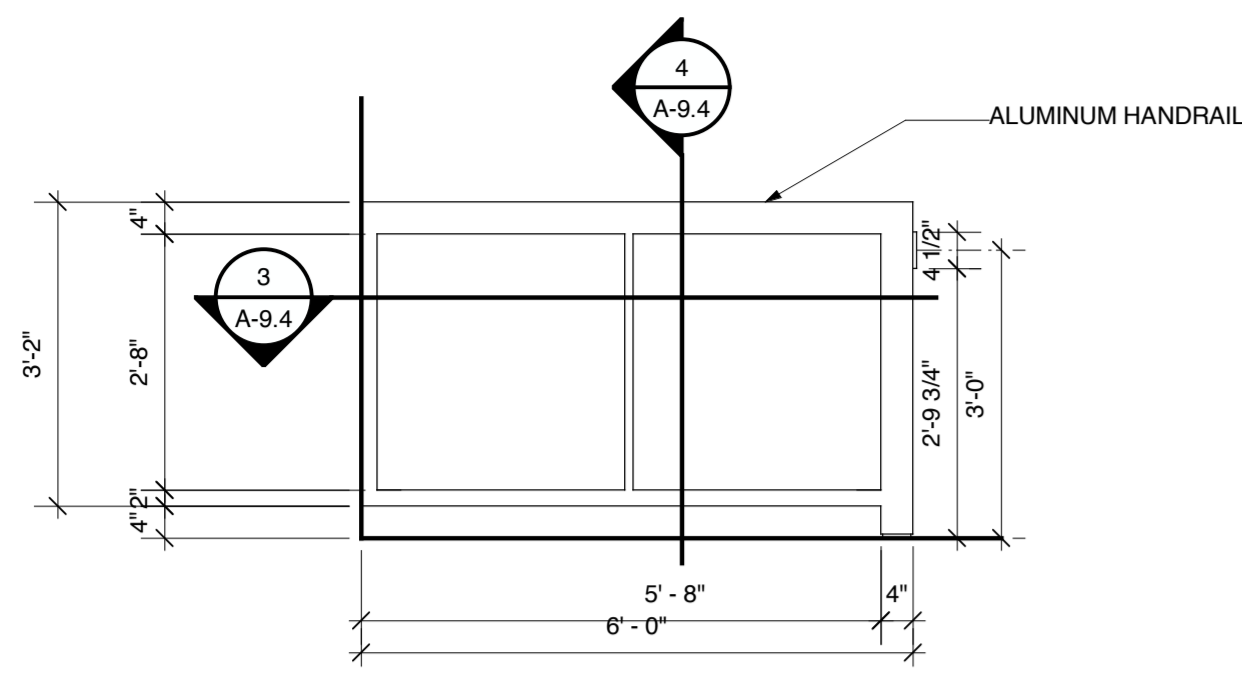
- Match existing grades at pavement and/or curb edges.
- Remove existing catch basin and replace, reconnect existing drain lines and new line as indicated.
- Adjust top of existing catch basin/inlet rim to match finish grade.
- Existing drain basin to remain.
- Remove existing curb inlet and replace with junction box as indicated. Connect to existing drain line.
- 4" perforated drain. Connect to existing drain line.
- Terrace Drain #3, R.E. 444.7. Refer to Mech. and Elec. drawings for invert elevations, details and additional requirements.
- Foundation drain. See Architectural drawings for details. Connect to drain line as indicated on the plan.
- Planter drain. See Detail J/L-7 (similar). Connect to drain line as indicated on the plan.
- Connect to drain with sub-branch connector. See Spec. Section 02630 additional requirements.
- All wall and foundation drains shall be sloped 1/8" per LF min. with 12" min. cover.
- 4" drain. Connect to drain line as indicated.
- Cleanout. Refer to Detail J/L-7.
- Trench Detail. Refer to Detail F/L-8.
- Terrace Drain. See Detail J/L-7.
- New Chilled Water line/manhole. To be installed by others. N.L.C.
- New Cleanout (CO). To be installed by others. N.L.C.
- Existing trench drain to remain.
- Backfill with topsoil to top of curb elevations and slope to middle of islands to provide a minimum 1/2" slope per foot to drain.

LEGEND

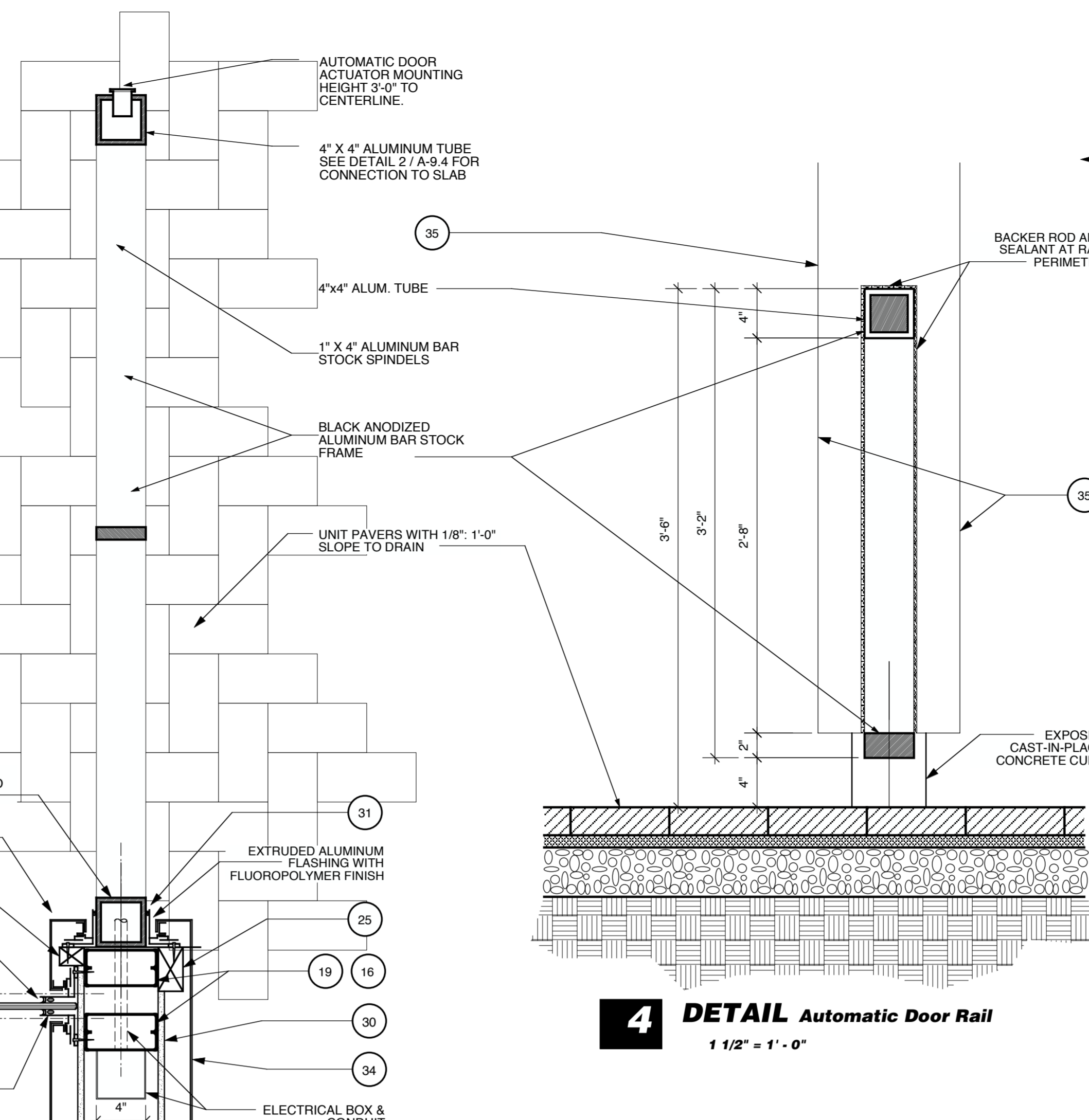
- EXISTING TREE
- EXISTING CONTOUR
- EXISTING CATCH BASIN
- NEW CONTOUR
- EXISTING SPOT ELEVATION
- SPOT ELEVATION (FIELD VERIFY)
- TOP OF CURB
- BOTTOM OF CURB
- TOP OF RISER
- BOTTOM OF RISER
- EXISTING STORM DRAIN
- NEW DRAINAGE PIPE
- NEW TRENCH DRAIN (T/D)
- NEW TERRACE DRAIN (T/D)
- NEW CURB INLET (C.I.)
- NEW YARD INLET (Y.I.)
- NEW PLANTER DRAIN (P.D.)
- NEW CLEANOUT (CO)
- EXISTING CATCH BASIN
- INVERT ELEVATION
- RIM ELEVATION
- SURFACE DRAINAGE DIRECTION
- FOUNDATION DRAIN
- FLOW LINE ELEV.
- LIMIT OF GRADING
- Handicap Ramp
- Bottom of Vault
- Top of Duct Bank
- Top of Vault

BEST MANAGEMENT PRACTICES

- GENERAL NOTES**
- EROSION CONTROL**
- The contractor shall be entirely responsible for implementation and maintenance of erosion and sediment control measures. The approved erosion and sediment control plan shall govern the overall erosion control effort. The Contractor shall devise and implement such additional measures as deemed necessary to effectively prevent erosion and sedimentation from occurring.
- Any permits required for erosion and sediment control are the sole responsibility of the Contractor.
- The Contractor shall manage the project to minimize the accumulation of mud or dirt to be deposited on any adjacent street or walk. All streets and walks in the vicinity of the work shall be inspected daily by the Contractor and, if necessary, cleaned.
- PROJECT NOTES**
- 1. PROJECT DESCRIPTION**
This project consists of construction of a new Women's Cancer Center building and associated walkways, structures and utility systems for the McDowell Cancer Foundation. Grading, drainage and paving are included in the site improvement work.
The total area to be graded is approx. 2.5 acres. Since the total area to be graded is less than 5 acres, an NPDES storm water discharge permit may not be required for the construction work.
- 2. ADJACENT AREAS**
This project is located on the University of Kentucky campus. The development is surrounded by similar projects within the area. There should be no adverse impact on any adjacent development due to this project.
- 3. SOILS**
Soils on this site are predominantly clay soils with a layer of topsoil overlying the clay. From an erosion control standpoint, the Contractor should be aware of the tendency of the type of soil to erode once the existing vegetation is removed. The Contractor shall protect these soils and re-vegetate as soon as possible.
- 4. CRITICAL AREAS**
The area of the site which will require the most attention during construction is at the area of depression north of the proposed building and along the edges of the site adjacent to other campus areas and roadways. The Contractor's construction sequence shall be designed to protect the area. Great care must be taken to avoid problems.
- 5. EROSION AND SEDIMENT CONTROL MEASURES**
The following measures shall be utilized to minimize erosion problems during construction:
1. Silt fence shall be installed along the perimeter of the property.
2. Areas to be graded shall be stripped of topsoil only as necessary to complete the grading.
3. Areas graded shall be re-vegetated with seed and mulch or sod as soon as practical after grading operations are completed.
6. Paving areas shall be stabilized with crushed stone as soon as practical after grading is completed.



7 NOT USED
3" = 1'-0"

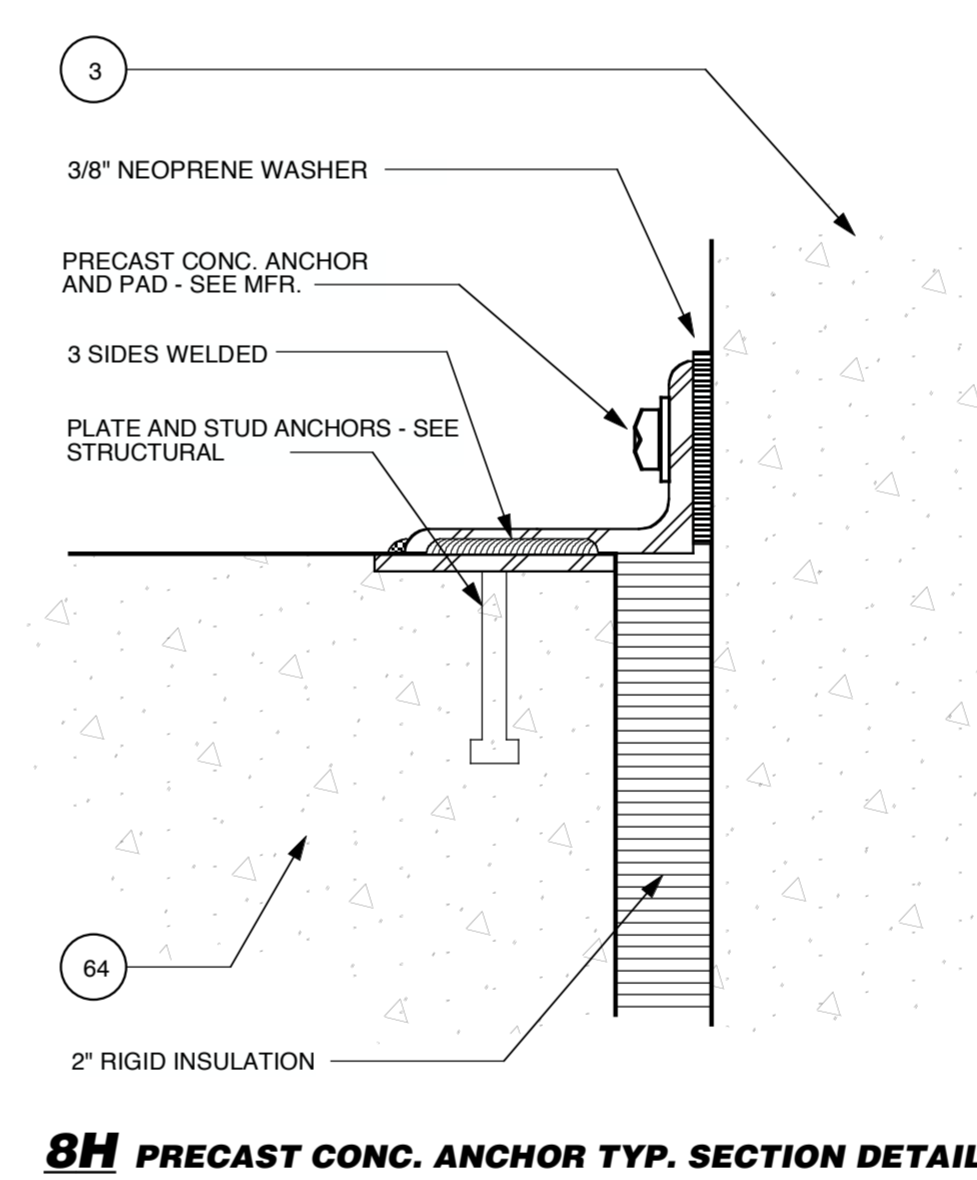
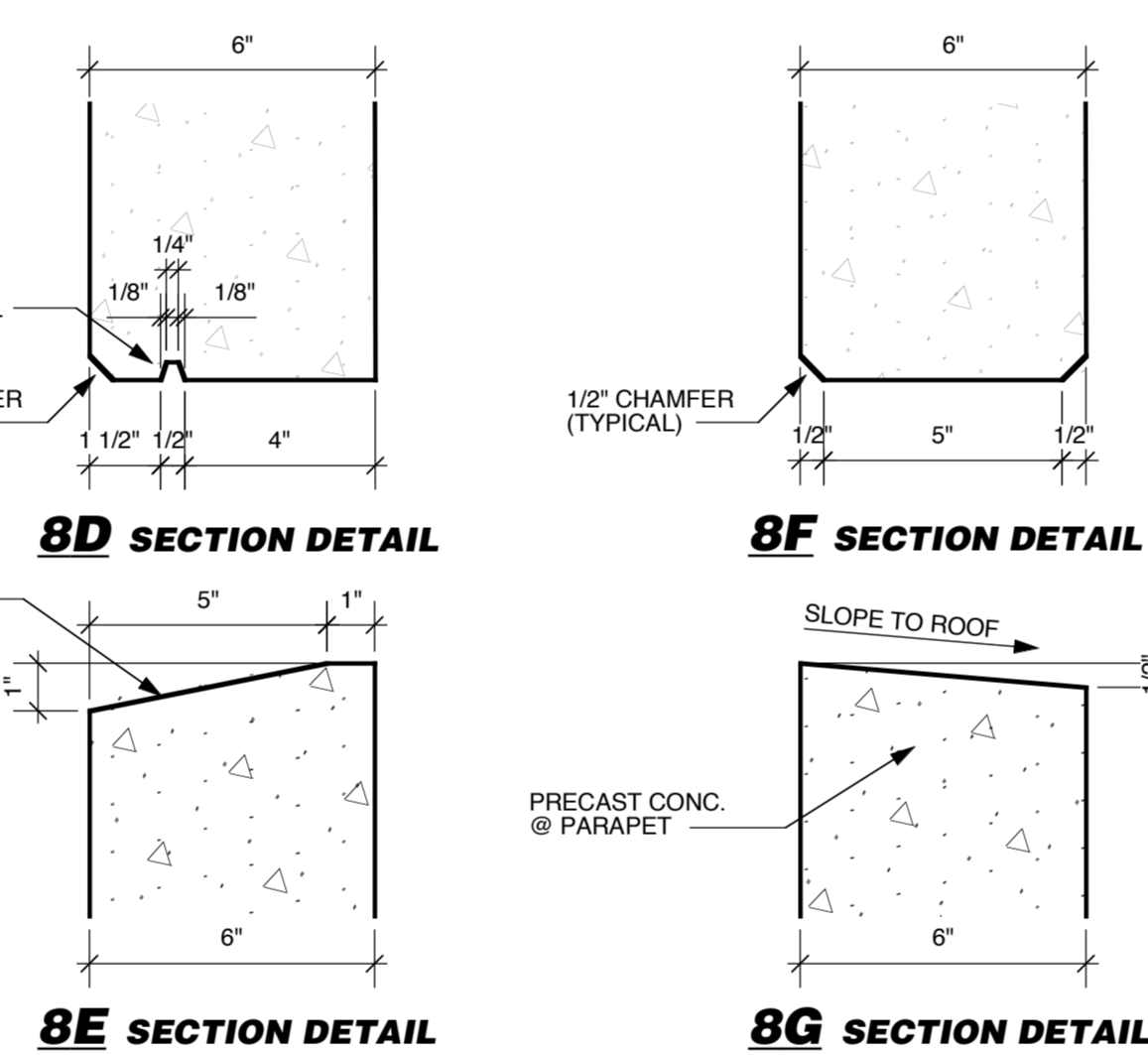
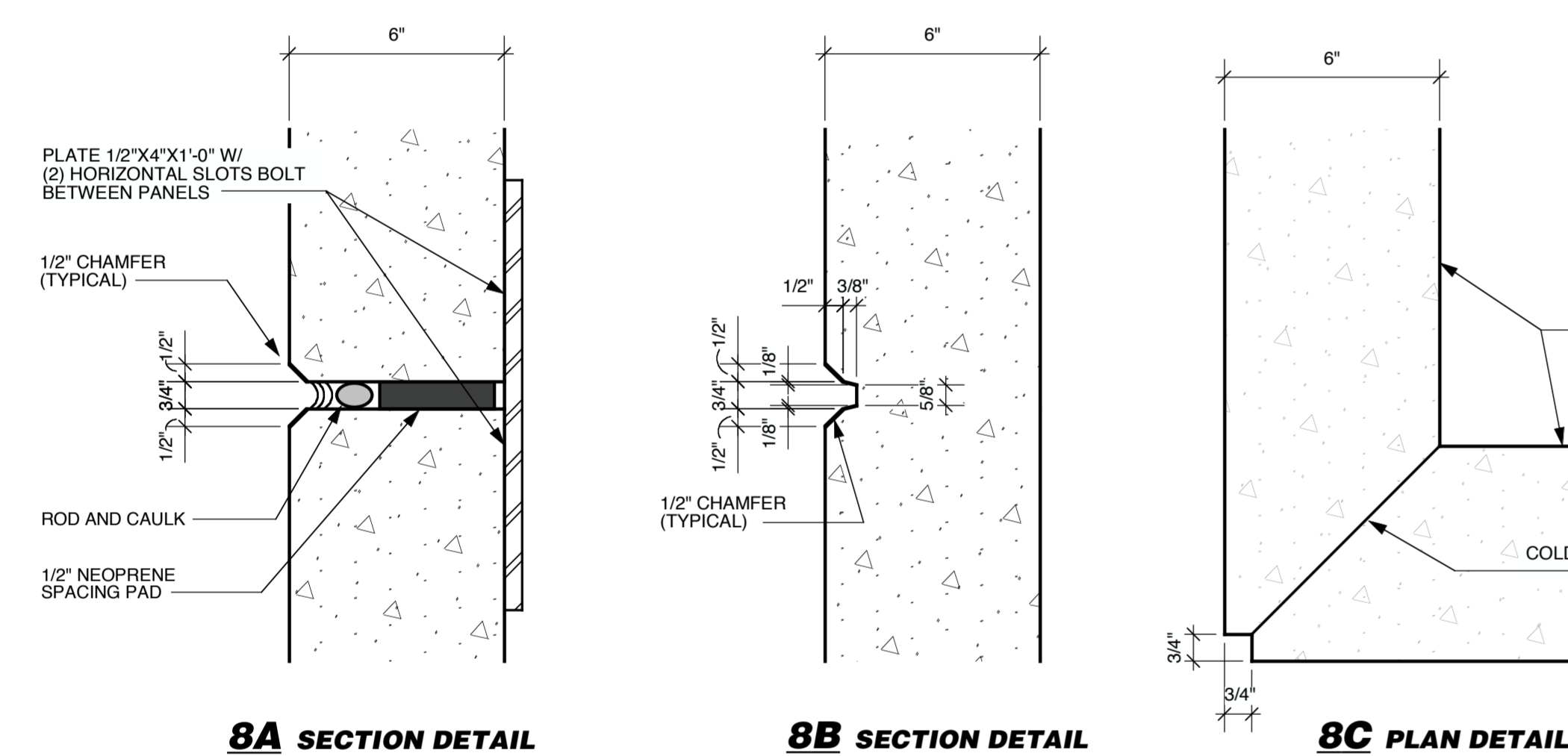


5B JAMB @ LOUVER, TYPICAL

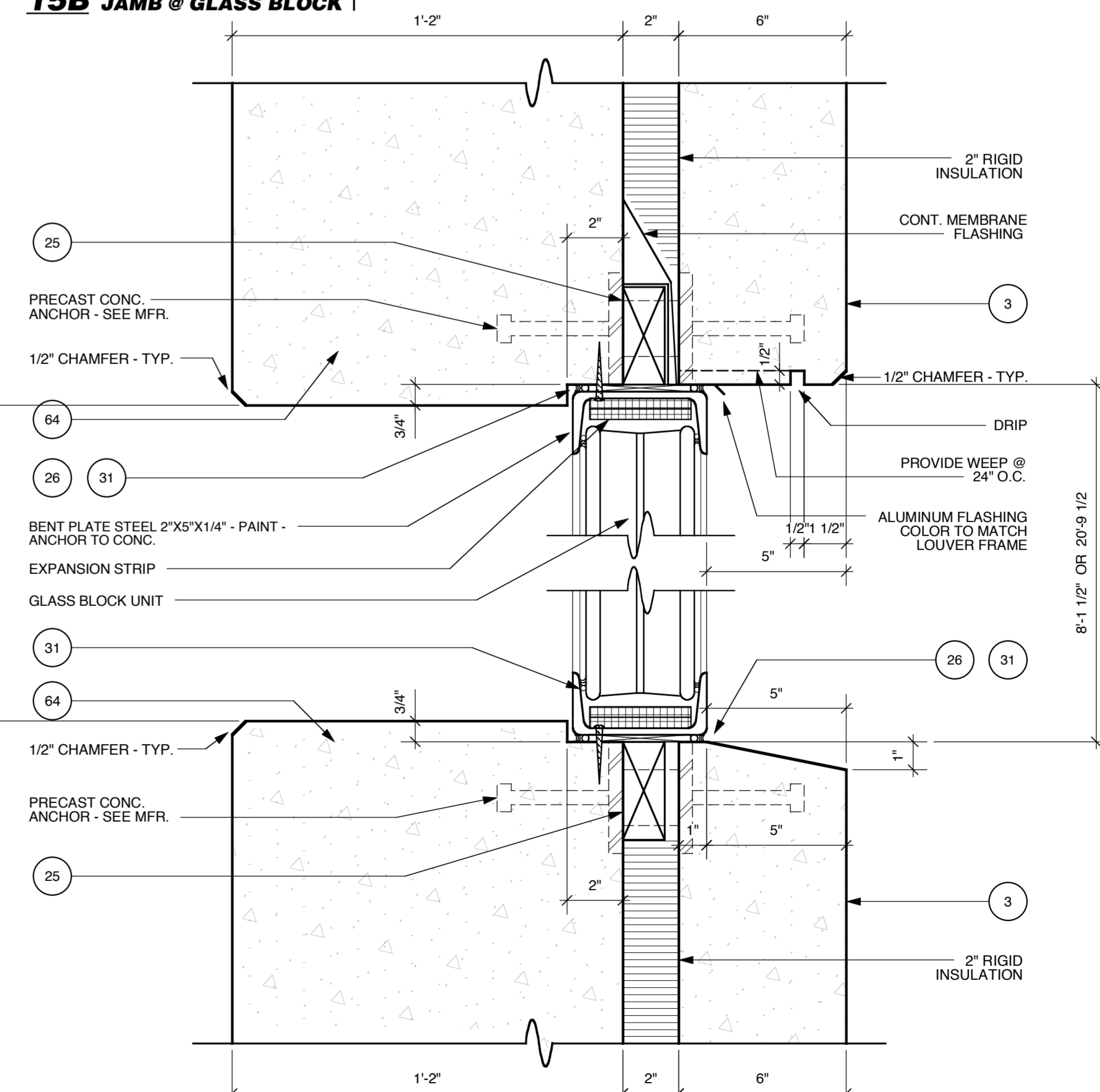
SEE SHOP DRAWINGS FOR REVISED LOUVER SIZES.

5A HEAD / SILL @ LOUVER, TYPICAL

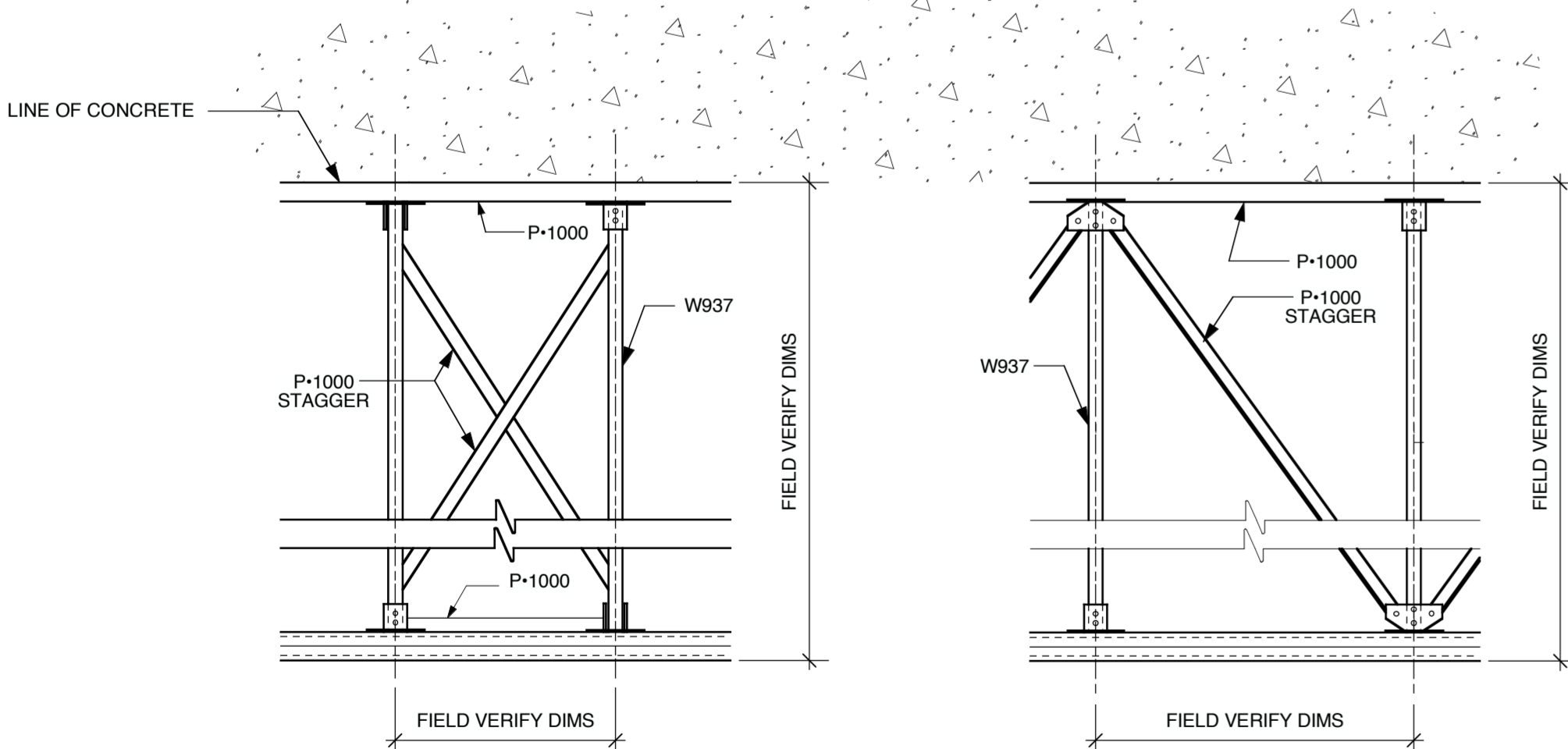
5 DETAIL Louver
1 1/2" = 1'-0"



15B JAMB @ GLASS BLOCK



8 PRECAST JOINT DETAILS
3" = 1'-0"



SEE ONE LOCATED IN LOBBY

HEADER COPY TO BE CENTERED ON DIRECTORY STRIP, ALL CAPS, 1/2" COPY, BOLD.

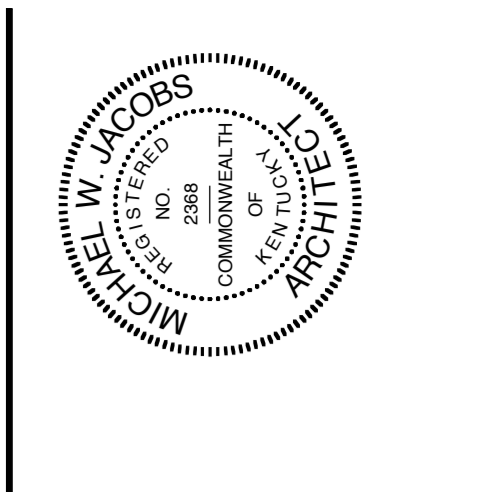
FIRST FLOOR		SECOND FLOOR		THIRD FLOOR	
DESTINATION	ROOM NUMBER	DESTINATION	ROOM NUMBER	DESTINATION	ROOM NUMBER
WOMEN'S CANCER FACILITY		WOMEN'S CANCER FACILITY		WOMEN'S CANCER FACILITY	
CAFE	127	COMPREHENSIVE BREAST CARE CENTER	220	GYNECOLOGIC/ONCOLOGY	322
INTERNAL MEDICINE	131				
MULTI-DISCIPLINARY CLINIC	139				
WOMEN'S HEALTH INITIATIVE	121				
DAVIS MILLS MRISC		DAVIS MILLS MRISC		DAVIS MILLS MRISC	

ALL DEPARTMENTS IN EXISTING DAVIS MILLS MRISC BUILDINGS TO BE VERIFIED.

THE DIRECTORY IS TO BE DIVIDED INTO THREE EQUAL COLUMNS, SHOWN IN SEPARATE COLORS. EACH COLUMN CONSISTS OF 34 1" X 13" DIRECTORY STRIPS WITH 3/8" WHITE DIE-CUT VINYL COPY. ALL COPY TO BE REGULAR TYPE WITH TITLE CAPS (EXCEPT WHERE NOTED). COPY TO BE 1/4" FROM EACH SIDE OF DIRECTORY STRIP. CLINICS AND DEPARTMENTS ARE TO BE LISTED IN ALPHABETICAL ORDER.

3'-6" LOCATE DIRECTORY STRIP 3/8" AFF

14 BUILDING DIRECTORY
3" = 1'-0"



LEX KY ARCHITECTS
8816.00

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McDowell Cancer Foundation

UKCMC WOMEN'S CANCER FACILITY

MISC. DETAILS

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Designer: **as.j**

Checked: **MJU** Revised:
Date: **12/20/12**

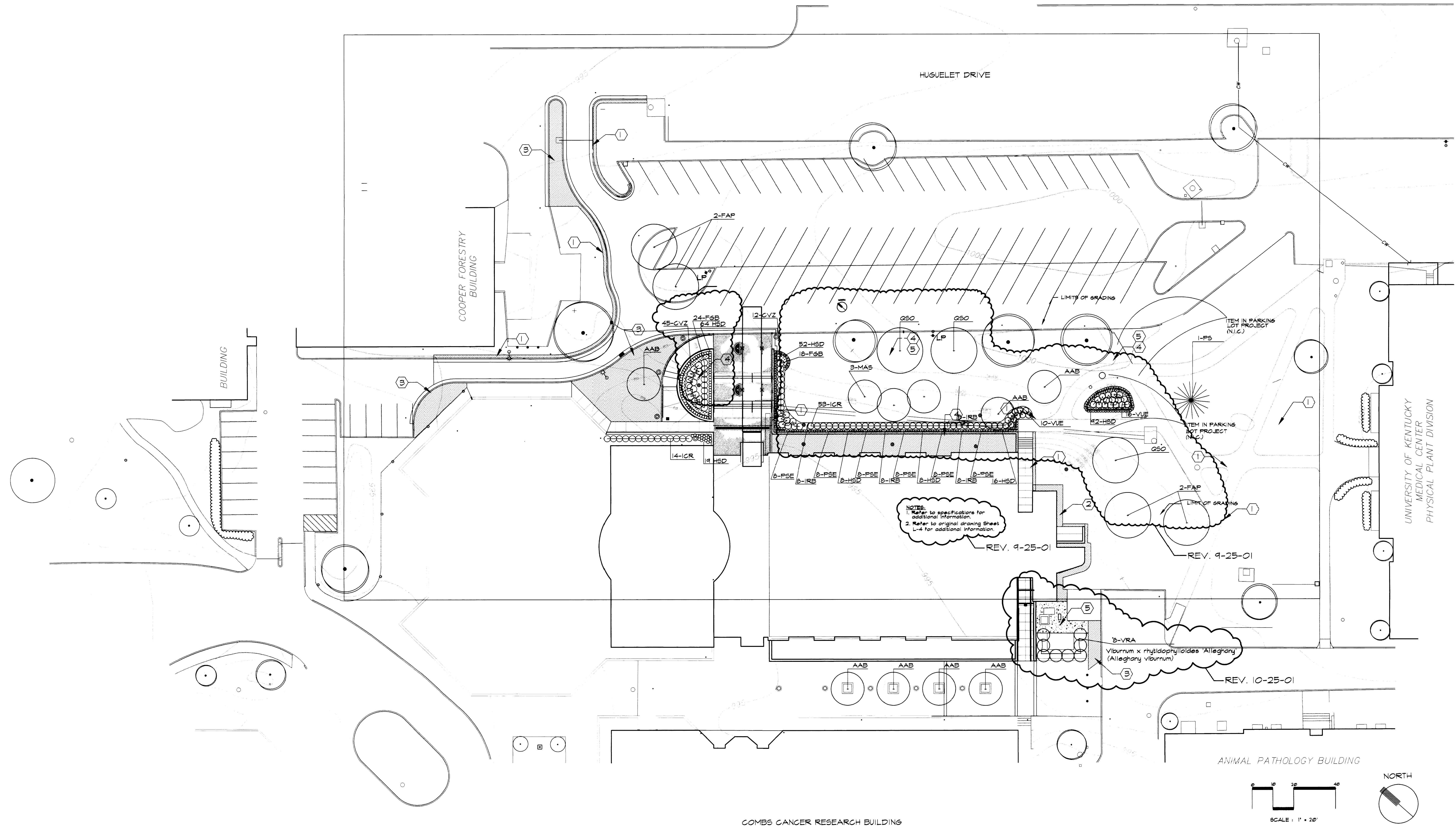
RECORD DRAWINGS
This drawing is to be used in conjunction with the main drawings. It is the responsibility of the user to ensure that all necessary information has been incorporated into this document as a result of any changes or updates.
DATE: 2-25-02

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DATE: May, 2002



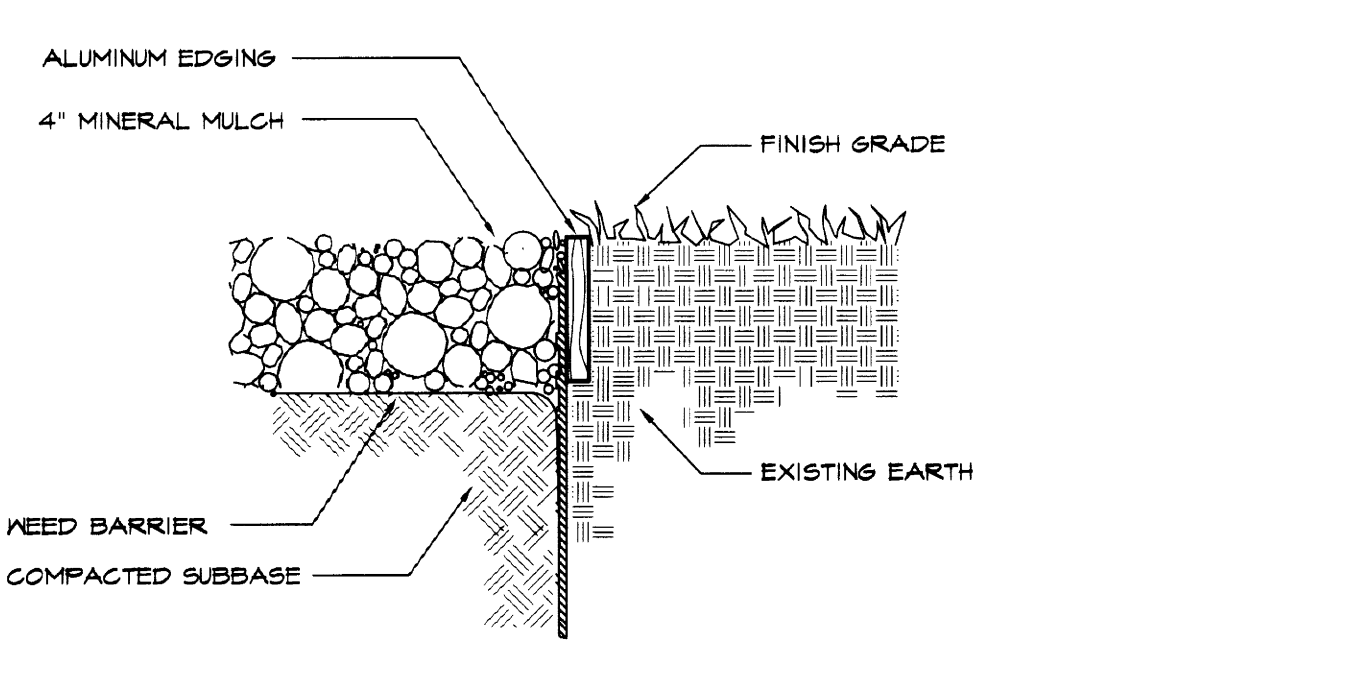
PLANT SCHEDULE

KEY	Botanical Name	Common Name	Caliper	Ball Size	Height	Spread	Canes	Notes
AAB	Amelanchier x grand 'Autumn Brilliance'	Autumn Brilliance Serviceberry	1-3/4-2"	26"	8-10'	N/A	N/A	B4B, 3' clear trunk
MAS	Malus 'Bargentii'	Bargent Crabapple	1-1/2-2"	24"	9-7'	N/A	N/A	B4B, clump form
FAP	Fraxinus americana 'Autumn Purple'	Autumn Purple White Ash	2-2-1/2"	26"	10-12'	N/A	N/A	B4B, 4' clear trunk
GSO	Quercus shumardii	Shumard Oak	2-1/2-3"	28"	12-15'	N/A	N/A	B4B, 4' clear trunk
PS	Pinus strobus	Eastern White Pine	N/A	22"	5'	9-4'	N/A	B4B
VPS	Viburnum plicatum tom. 'Shasta'	Shasta Doublefile Viburnum	N/A	# 5 Cont.	24-36"	24-36"	4 or >	24" oc, n/triangular sp.
FGB	Fothergilla gardenii 'Blue Mist'	Blue Mist Dwarf Fothergilla	N/A	#5 Cont.	20-24"	N/A	4 or >	36" oc, n/triang. sp. where grouped
ICR	Illex cornuta 'Rustica'	Dwarf Chinese Holly	N/A	18"	20-24"	N/A	4 or >	36" oc, n/triang. sp. where grouped
YUE	Viburnum ulmifolium 'Eskimo'	Eskimo Viburnum	N/A	24"	20-24"	24-30"	3 or >	36" oc, n/triang. sp. where grouped
CVZ	Coreopsis verticillata 'Zagreb'	Zagreb Tickseed	N/A	# 1 Cont.	12-15"	12-15"	4 or >	18" oc, n/triangular sp.
IRB	Imperata cylindrica 'Red Baron'	Japanese Blood Grass	N/A	clump/# 1 Cont.	N/A	N/A	N/A	18" oc, n/triangular sp.
PSE	Phlox subulata 'White Delight'	White Delight Creep Phlox	N/A	clump/# 1 Cont.	4-6"	8-10"	N/A	12" oc, n/triang. sp. where grouped
HSD	Hemerocallis 'Stella D'Or'	Stella D'Or Daylily	N/A	clump/# 2 Cont.	4-6"	8-10"	N/A	15" oc, n/triang. sp. where grouped

- GENERAL PLANTING NOTES:**
- The Contractor is hereby notified of the existence of underground utilities. The Contractor shall verify the location and protect all utilities prior to the commencement of digging. Notify the Landscape Architect of any conflicts.
 - The Contractor shall be responsible for staking and layout of the plantings on this project. Secure approval of the planting layout in the field with the Landscape Architect prior to opening any planting pits or beds.
 - See Specifications 02900 for additional requirements.
 - The Contractor shall prepare a cultivated bed around each group of shrubs 4/or ground cover beds, the same shape and size as shown on the plan. The entire bed shall be mulched per General Planting Note No. 6. A crisp well defined edge shall be developed between any shrub and/or ground cover bed and the adjoining lawn area.
 - Only nursery grown plant material shall be used. Collected plant material is not acceptable and will be rejected by the Landscape Architect.
 - Unless otherwise indicated, non-organic mulch shall be used in all shrub and/or ground cover beds and around all trees planted within or beyond the confines of the planting beds.
 - The Contractor shall be responsible for the complete removal of all binding cords and ropes from the trunks of all shade and ornamental trees immediately after planting. Identification tags and ribbons shall be removed from all plant material at the time of planting. Tree baskets shall be cut from the top 1/4 of the root ball prior to planting.
 - All lawn areas disturbed by construction are to be seeded unless otherwise indicated.
 - All plant material shall be approved by the Landscape Architect prior to delivery to the site.
 - Unless otherwise authorized by the Landscape Architect, medium spreading shrubs shall be planted no closer than 30' to any adjoining wall or paved area. Large spreading shrubs shall be planted no closer than 36' to any adjoining wall or paved area.
 - Provide a minimum 36" wide sod strip adjacent to all building and site walls. Provide an 18" wide strip adjacent to all walks, drives, curbs and other paving.
 - Limits of seeding extend to include all areas of mechanical and electrical work. Refer to M&E drawings for additional information.

- LEGEND:**
- EXISTING TREE
 - SOD STRIP AND SODDED AREAS
 - MINERAL MULCH SEE DETAIL A/L-4
 - NEW SHRUB MASS SEE DETAIL E/L-7
 - NEW PERENNIAL MASS/GRASSES SEE DETAIL D/L-7
 - NEW ORNAMENTAL TREE SEE DETAIL B/L-7
 - NEW SHADE TREE SEE DETAIL A/L-7
 - NEW EVERGREEN TREE SEE DETAIL C/L-7
 - NEW EVERGREEN SHRUB SEE DETAIL E/L-7

- KEYNOTES:**
- 18" Sod Strip
 - 36" Sod Strip
 - Sodded Area
 - Group shrubs together in mulched planting bed. See General Note #4 and #6 for mulch bed requirements.
 - Mineral Mulch. See Detail A/L-4.



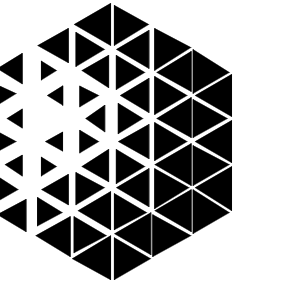
MINERAL MULCH AND EDGING DETAIL
SCALE: 1-1/2" = 1'-0"

REV. 9-25-01

A
L-4

McDowell Cancer Foundation

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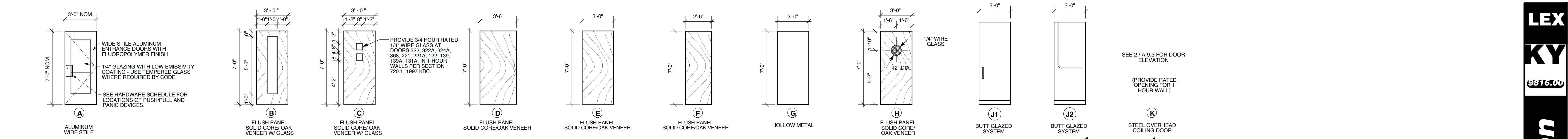


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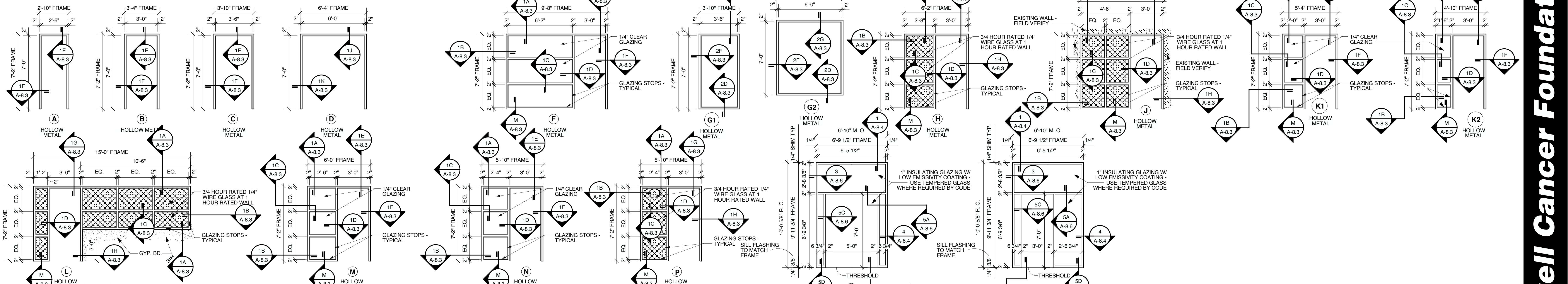
Job No: 8816.00 Date: MARCH 2020 Drawn By: TRB, JB Checked: MMU Revisions:

RECORD DRAWINGS
This drawing is for record purposes only. It is not to be used for construction or other purposes without the written consent of the architect. The architect's responsibility is limited to the design and construction of the building and its systems. The contractor is responsible for the proper installation and maintenance of the building and its systems.

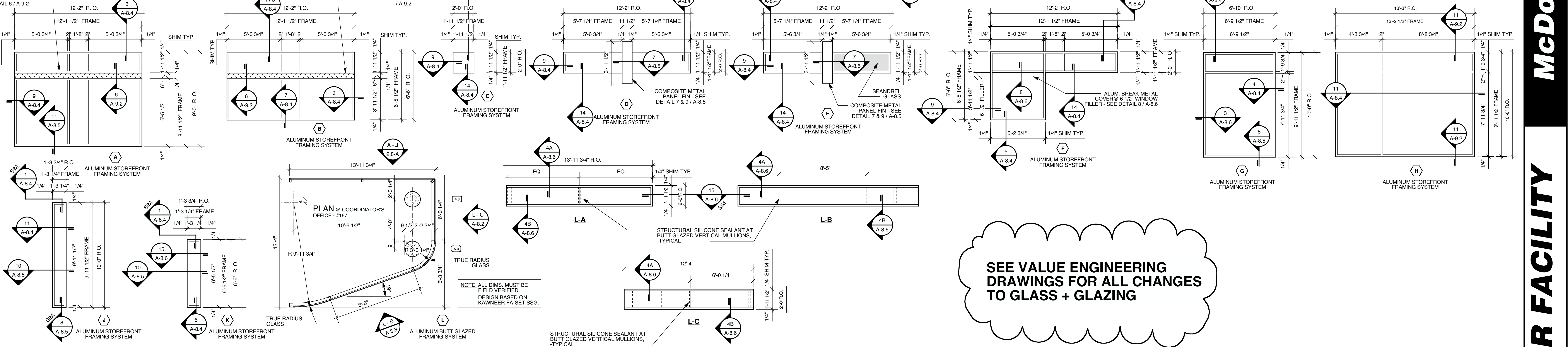
8816.00



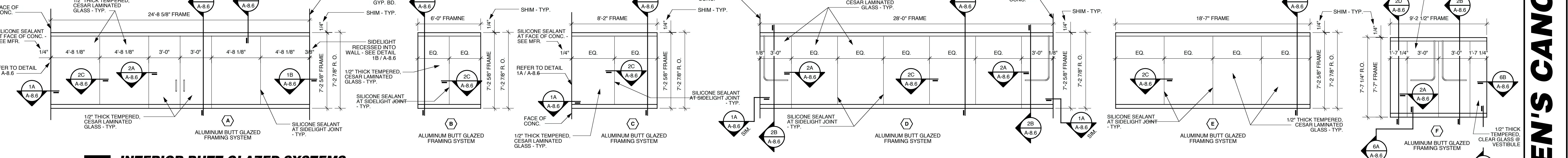
1 DOOR TYPES
1/4" = 1'-0"



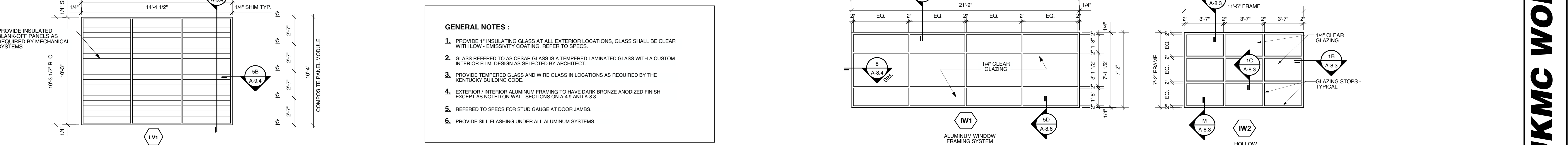
2 FRAME TYPES
1/4" = 1'-0"



3 EXTERIOR WINDOW TYPES
1/4" = 1'-0"



4 INTERIOR BUTT GLAZED SYSTEMS
1/4" = 1'-0"



5 LOUVER TYPES
1/4" = 1'-0"

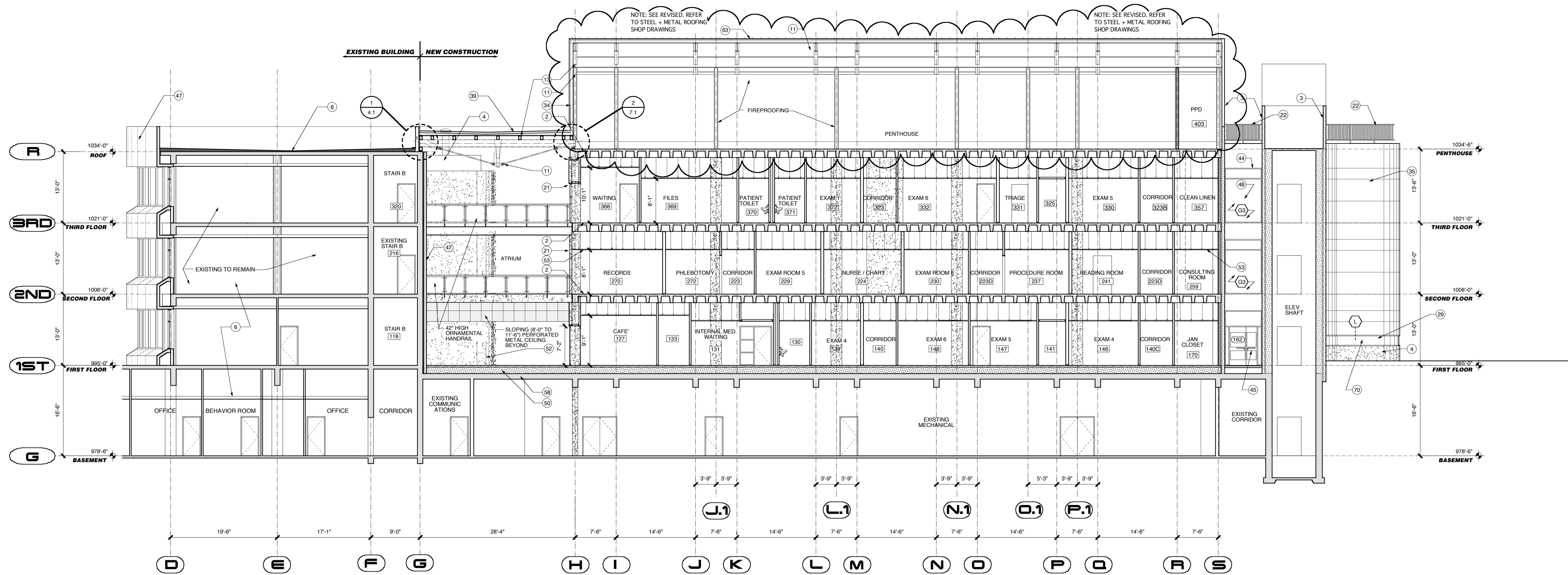


6 INTERIOR WINDOW TYPES
1/4" = 1'-0"

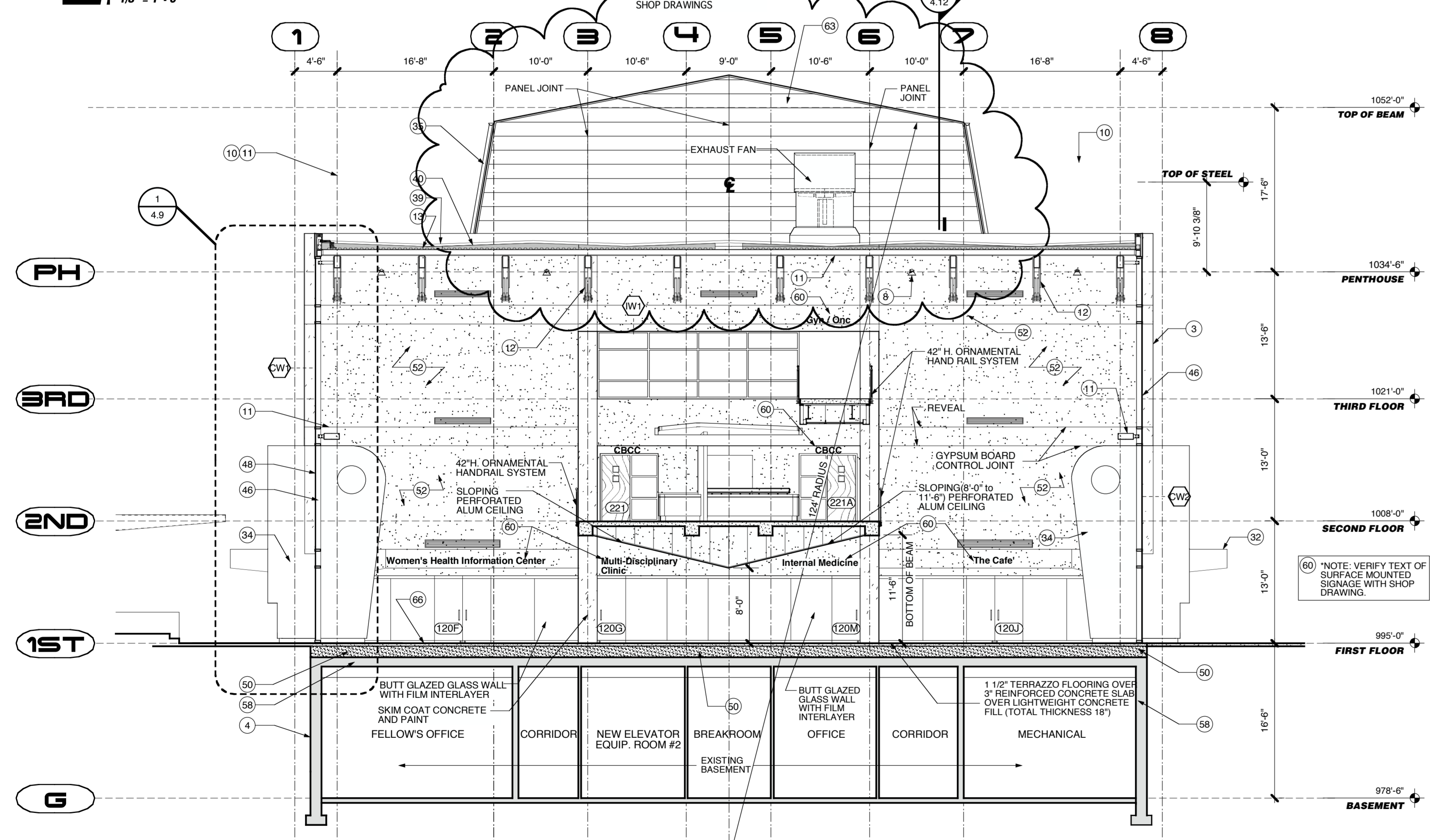
GENERAL NOTES:

1. PROVIDE 1" INSULATING GLASS AT ALL EXTERIOR LOCATIONS, GLASS SHALL BE CLEAR WITH LOW-EMISSIVITY COATING. REFER TO SPECS.
2. GLASS REFERRED TO AS CESAR GLASS IS A TEMPERED LAMINATED GLASS WITH A CUSTOM INTERIOR FILM. DESIGN AS SELECTED BY ARCHITECT.
3. PROVIDE TEMPERED GLASS AND WIRE GLASS IN LOCATIONS AS REQUIRED BY THE KENTUCKY BUILDING CODE.
4. EXTERIOR / INTERIOR ALUMINUM FRAMING TO HAVE DARK BRONZE ANODIZED FINISH EXCEPT AS NOTED ON WALL SECTIONS ON A-4.3 AND A-8.3.
5. REFERRED TO SPECS FOR STUD GAUGE AT DOOR JAMBS.
6. PROVIDE SILL FLASHING UNDER ALL ALUMINUM SYSTEMS.

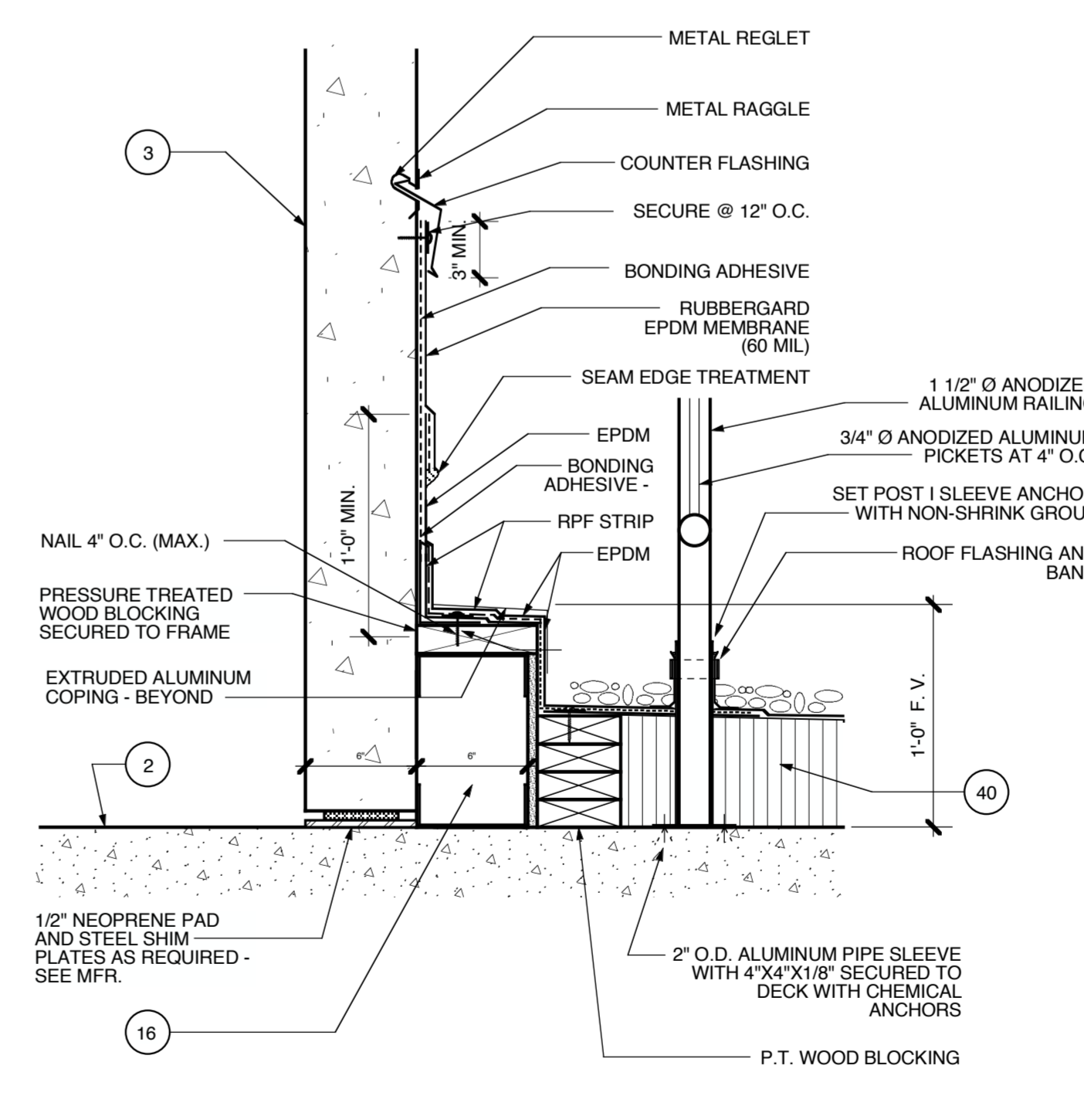
SEE VALUE ENGINEERING DRAWINGS FOR ALL CHANGES TO GLASS + GLAZING



1 EAST-WEST BUILDING SECTION
1/8" = 1'-0"



2 NORTH-SOUTH BUILDING SECTION
1/8" = 1'-0"



3 SECTION DETAIL @ PARAPET / PRECAST CONC. PANEL
3" = 1'-0"

- | | | | | | | | | |
|---|--|---|---|--|--|--|--|--|
| 1 STRUCTURAL CONCRETE FOUNDATION - SEE STRUCTURAL DRAWINGS FOR DIMENSIONS, BEARING POINTS AND REINFORCING | 7 EXPOSED CAST-IN-PLACE CONCRETE WITH ARCHITECTURAL FINISH AND RUSTICATION JOINTS | 14 STEEL EDGE ANGLE | 22 EXTERIOR ALUMINUM GUARDRAIL WITH FLUOROPOLYMER FINISH - 42" HIGH | 30 AIR INFILTRATION BARRIER WITH TAPED JOINTS OVER 1/2" GLASSMATT-FACED EXTERIOR GYPSUM SHEATHING ON COMPOSITE ALUMINUM PANEL COLOR | 47 SLOPE RIGID INSULATION BOARD AT 14" PER FOOT TO DRAIN AS SHOWN ON ROOF PLAN - R-20 AVERAGE | 53 SUSPENDED ACOUSTIC CEILING SYSTEM WITH 2"x2" PANELS - SEE FINISH SCHEDULE FOR PANEL TYPES | 60 EXPOSED REINFORCED CONCRETE FLOOR SLAB WITH TROWEL FINISH AND CLEAR HARDENER / SEALER | 65 EXPOSED STEEL STAIR SYSTEM WITH PAINTED FINISH - FULL STEEL TREAD PANS WITH CONCRETE AND PROVIDE 1 1/2" DIAMETER PIPE HANDRAILS AND GUARDRAILS AT 42" ABOVE FLOOR |
| 2 STRUCTURAL CONCRETE SLAB - SEE STRUCTURAL DRAWINGS FOR DIMENSIONS, REINFORCING, AND ENGINEERED FILL | 8 LIGHT FIXTURE | 15 1/2" GAUGE COLD-FORMED METAL STUDS AT 16" ON CENTER | 23 METAL HANDRAIL / GUARDRAIL WITH PAINTED FINISH | 31 VAPOR BARRIER ON INTERIOR FACE OF WALL - FULL WALL CAVITY WITH 8" IT INSULATION | 48 1" INSULATING CLEAR GLAZING WITH LOW-EMISSION COATING | 54 6 1/2" TAPERED RESILIENT BASE - SEE SCHEDULE FOR TYPE | 61 8" HIGH SURFACE MOUNTED CAST ALUMINUM LETTERS - NUMBERS | 66 2" FINISH INSULATION: STYROFOAM PLAZAMATE OR BETTER |
| 3 6" THICK ARCHITECTURAL PRECAST CONCRETE PANELS | 9 BRICK RETAINING WALL | 16 1/2" GAUGE COLD-FORMED METAL FRAMING AT 16" ON CENTER | 24 HOLLOW METAL DOOR AND FRAME WITH PAINTED FINISH | 32 BACKER ROD AND SEALANT IN COMPOSITE ALUMINUM PANEL JOINTS IN THIS LOCATION ONLY | 49 1" INSULATING CLEAR GLAZING WITH LOW-EMISSION COATING | 55 WALL BASE - SEE SCHEDULE FOR TYPE | 62 6" METAL STUDS WITH BATT INSULATION, VAPOR BARRIER, AND PAINTED 5/8" GYPSUM BOARD | 67 2" FINISH INSULATION: STYROFOAM PLAZAMATE OR BETTER |
| 4 EXPOSED CAST-IN-PLACE CONCRETE SURFACE BEYOND | 10 EXPOSED STEEL STRUCTURE WITH INTUMESCENT PAINTED FINISH - SEE STRUCTURAL DRAWINGS FOR SIZE AND DIMENSIONS | 17 SECURE EACH COLD-FORMED FRAMING MEMBER TO STEEL STRUCTURE WITH SLIP JOINT FOR DEFLECTION | 25 FIRE-TREATED WOOD BLOCKING | 33 OPAQUE GLASS SPANDREL PANEL | 50 NEW LIGHTWEIGHT CONCRETE TOPPING | 56 METAL ACOUSTIC COVER WITH FLUOROPOLYMER FINISH TO MATCH ALUMINUM COMPOSITE PANEL COLOR | 63 6" METAL STUDS WITH BATT INSULATION, VAPOR BARRIER, AND PAINTED 5/8" GYPSUM BOARD | 68 COMPOSITE DRAINAGE PROTECTION BOARD FOR HORIZONTAL SURFACES WITH INTEGRAL FILTER FABRIC |
| 5 8"x8"x4" GLASS BLOCK WITH STEEL FRAME | 11 STEEL STRUCTURE - SEE STRUCTURAL DRAWINGS FOR SIZE AND DIMENSIONS | 18 SLOPED CONCRETE SURFACE | 26 SHIM AS REQUIRED AT PERIMETER | 34 COMPOSITE ALUMINUM PANEL SYSTEM WITH FLUOROPOLYMER FINISH COLOR SELECTED TO MATCH ALUMINUM COMPOSITE PANEL COLOR | 51 5/8" GYPSUM BOARD - SEE FINISH SCHEDULE FOR FINISHES AND WALL TYPE SCHEDULE FOR RATED MATERIALS | 57 CASWORK - SEE ENLARGED PLANS AND ELEVATIONS FOR CONFIGURATION AND DIMENSIONS | 64 2" HIGH STANDING SEAM METAL ROOF WITH FLUOROPOLYMER FINISH | 69 RUBBERIZED ASPHALT WATER-PROOFING MEMBRANE |
| 6 EXISTING CONSTRUCTION TO REMAIN (PROJECT) | 12 EXPOSED STEEL STRUCTURE WITH PAINTED FINISH - SEE STRUCTURAL DRAWINGS FOR SIZE AND DIMENSIONS | 19 PROVIDE DOUBLE STUDS AT THIS LOCATION TYPICAL | 27 SILD SURFACING WINDOW SILL | 35 60 MIL BALLASTED EPDM ROOFING SYSTEM OVER POLYISOCYANURATE INSULATION BOARD - INSULATION TO BE APPROVED BY ROOFING MANUFACTURER - PROVIDE PROTECTION BOARD WHERE REQUIRED BY CODE OR MANUFACTURER | 52 5/8" GYPSUM BOARD BEYOND | 58 EXISTING POST TENSIONED CONCRETE SLAB | 66 STRUCTURAL CONCRETE FRAME AND SLAB - SEE STRUCTURAL DRAWINGS FOR DIMENSIONS AND REINFORCING | 70 PROVIDE BUTT-GLAZED SYSTEM. REFER TO DETAILS. |
| | 13 METAL ROOF DECK - SEE STRUCTURAL DRAWINGS FOR DEPTH AND GAUGE | 20 METAL STUDS AT 16" ON CENTER | 28 KAWNEER FA-SET SYSTEM | | | | | |

LEX

9816.00

McDowell Cancer Foundation

UKCMC WOMEN'S CANCER FACILITY

EAST-WEST BUILDING SECTION

2-25-02

1

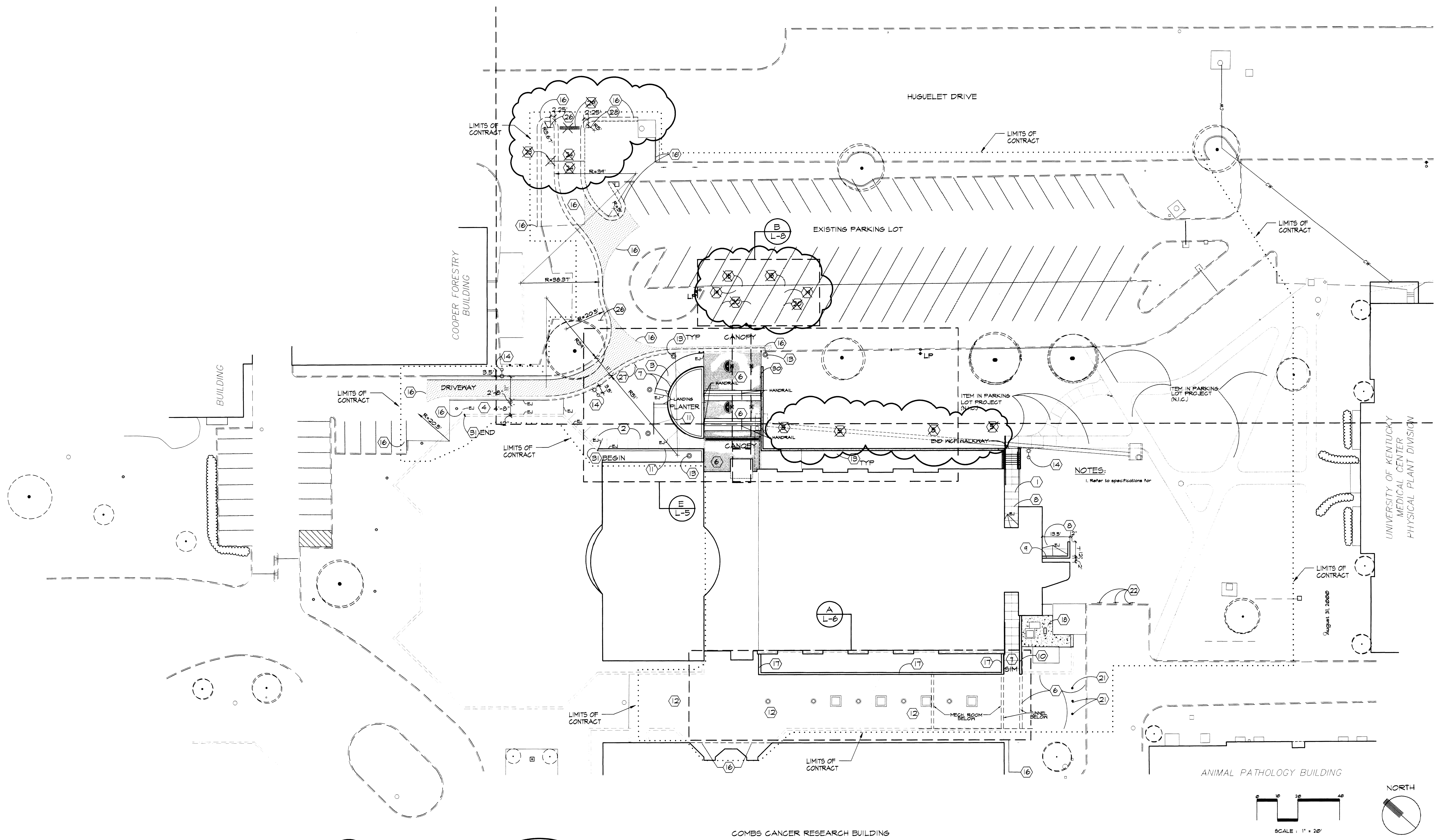
Job No: 9816.00 Date: 10/21/02 Drawn By: AEB, JB Checked: MMJ Revisions:

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Interior
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Omni
Architects

RECORD DRAWINGS
This set of drawings has been prepared in accordance with the provisions of the Kentucky Building Code and the International Building Code. It is the responsibility of the architect to ensure that all drawings have been incorporated into this document as a result of any changes or corrections which have been made.

DATE



GENERAL LAYOUT NOTES:

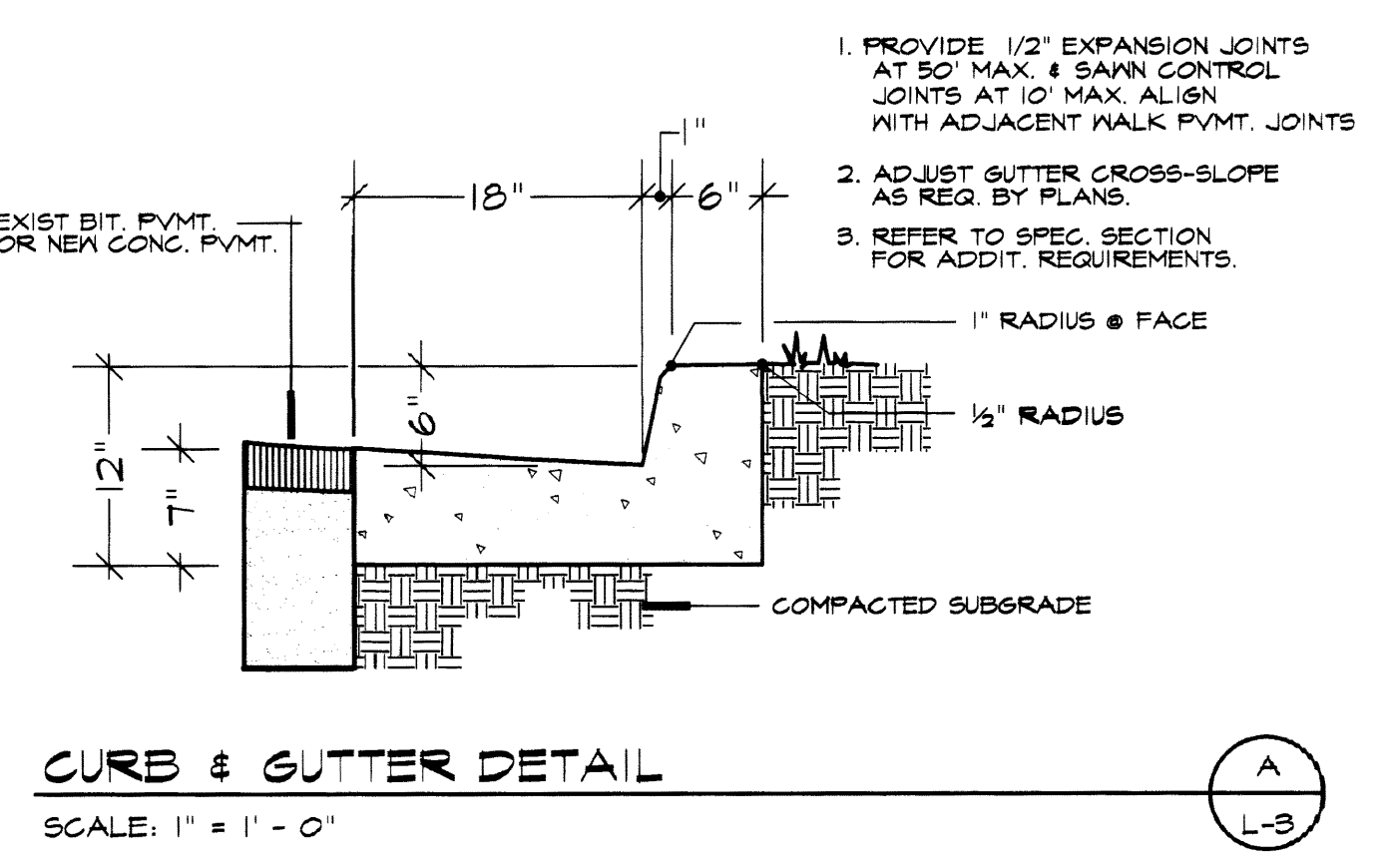
- For building layout and dimensions see Architectural plans.
- Dimensions given in relationship to buildings or other site elements are measured perpendicular from the outside face of brick, stone or concrete unless otherwise indicated.
- Dimensions are referenced at 40° angles unless otherwise indicated.
- Coordinate placement of expansion and control joints in curbs with adjacent walk or service drive pavement.
- Unless otherwise indicated, all curb radii are 5' measured at the outside face of curb.
- Unless otherwise indicated, all radii at the intersection of walks are 5'.
- Unless otherwise indicated, all walks connecting to the proposed building shall align with the center of doorway or opening and flush with finish grade as indicated on the Architectural plans.
- Refer to Specifications for additional requirements.

SITE LAYOUT KEYNOTES:

- 4" walk paving w/ 3.5' x 3.5' tool joints. Score grid in equal sections. See detail M/L-7 (Sim).
- Walk paving w/ 5' x 5' tool joints. Score grid in equal squares. See detail M/L-7 (Sim).
- Walk paving w/ radial scoring as indicated. Align joints @ 7' intervals with E rampway. See detail M/L-7 (Sim).
- Walk paving w/ 6.0' x 6.0' tool joints. Score grid equally through walkway section. See detail M/L-7.
- ~~Construct and install transformed concrete pavers. Refer to plan for spacing. Dimensions shall be approximately 9'-0" x 24" x 2" thick. Provide compacted subbase and fill between sub-topsoil. Refer to specs for seeding and additional requirements.~~
- Salvage and re-install Type I conc. pavers in herringbone pattern with single edger course. Use salvaged pavers as needed. Match existing pattern. Refer to Detail E/L-5 and A/L-6 Enlarged Plan Views and specs. ~~2019 for add'l requirements.~~
- Construct ramp. Refer to detail D/L-5. REFER TO ARCH. DRAWINGS FOR RECORDED DRAWING REVISIONS.
- Construct 4" conc. pad with 3.4' x 3.5' scoring max. Refer to detail M/L-7 and specs O27B).
- Construct brick retaining wall. Refer to detail D/L-8 and Specs. O2440.
- Construct brick wall. Refer to detail C/L-6. Refer to Arch. details for connection to existing tunnel wall/ramp.
- Construct brick planter wall. Refer to detail D/L-8 and specs. O2440.
- Concrete Pavers to Remain.
- Provide and install light bollard. Refer to M&E drawings for additional requirements.
- Provide and install light pole. Refer to M&E drawings for additional requirements.
- Provide and install accessible parking stall sign. Refer to detail M/L-7 and specs for additional requirements.
- Match edge of existing pavement or curb.
- New building structural wall. Refer to Architectural drawings for construction details.
- Provide and install mineral mulch (provide edging at open North) end. Refer to detail Sheet L-4 and specs. for additional requirements.
- Provide and install 6" concrete wheelchair ramps. Refer to detail C/L-1 and specs for additional requirements.
- Provide international blue striping. Refer to detail E/L-8 and specs. for additional requirements.
- Install salvaged bollards as indicated. Refer to detail A/L-8.
- Install salvaged accessible parking signs. Refer to detail P/L-7.
- Provide and install automatic gate and opener with access panel and anchor bolts per manufacturer. Refer to M&E drawings for electrical connections. Refer to specifications for additional requirements.
- Provide and install Solid State Electronic Vehicle Detector Unit for gate and opener, each side of gate. Refer to M&E drawings and spec. section IIS0-5 for additional information.
- NOTE DELETED.
- Provide and install DO NOT ENTER sign. Refer to detail P/L-7 and specs for additional requirements.
- Provide and install YIELD sign. Refer to detail P/L-7 and specs for additional requirements.
- Provide and install STOP sign. Refer to detail P/L-7 and specs for additional requirements.
- Provide and install STOP bar, painted 12" wide x 10' long. Refer to spec. section O251 for additional requirements.
- Provide and install wall lights. Refer to M&E drawings for additional requirements.
- Rebuild top of brick wall to match elev. of adjacent new wall. Match existing coursing and capping.

LEGEND:

	PROPOSED ASPHALT PAVING SEE DETAIL L/L-7
	PROPOSED MINERAL MULCH SEE SHEET L-4
	PROPOSED CONCRETE WALK SEE DETAIL M/L-7
	PROPOSED CURB & GUTTER SEE DETAIL A/L-8
	PROPOSED TYPE I CONCRETE UNIT PAVERS HERRINGBONE PATTERN. SEE DETAIL A/L-5
	PROPOSED WALL LIGHTS
	MINERAL MULCH
	EXPANSION JOINT. SEE DETAIL C/L-7
	POLE LIGHT. SEE M&E DRAWINGS. BOLLARD. SEE M&E DRAWINGS.



AIR HANDLING UNIT SCHEDULE

EQUIPMENT MARK	DESCRIPTION	WEIGHT (lbs)	MANUFACTURER	SA CFM (cfm)	ESP SA (in)	ESP RA (in)	OACFM (cfm)	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG (mbh)	CLG SENS (mbh)	COIL LAT CLG DB (Deg F)	COIL LAT CLG WB (Deg F)	CHW EWT (Deg F)	CHW LWT (Deg F)	CHWC AIR PD (in)	CHW PD (in)	CLG GPM (gpm)	MAT HTG (Deg F)	PREHEAT HTG MBH (mbh)	HTG LAT (Deg F)	HW EWT (Deg F)	HW AIR PD (in)	HW FLUID PD (in)	HW LWT (Deg F)	PREHEAT HTG GPM (gpm)	HUMIDIFIER LOAD (LBS)	HUMIDIFIER PRESSURE (PSI)
AHU-3	CUSTOM OUTDOOR CENTRAL STATION AIR HANDLER	15000	NORTEK	25000	3	2	5000	78	66	1165	770	50	50	44	56	0.88	16	193	45	662	69	180	0.1	5	180	67	230	110

CHILLED WATER COIL TO BE SMART COONEY FREEZE BLOCK COIL.
 AHU CONSTRUCTION SHALL BE 1" DOUBLE WALL FOAM INSULATED. ALL INTERIOR LINER TO BE STAINLESS STEEL.
 FAN WALL SHALL BE DESIGNED FOR N-1 WITH A MINIMUM OF 4 FANS PER ARRAY.
 BIPOLAR IONIZATION TO BE INSTALLED UPSTREAM OF COOLING COIL. SPACE SHALL BE PROVIDED AFTER HUMIDIFIER.
 UNIT SHALL BE SPLIT INTO 15' MAX SECTIONS FOR INSTALL WITH A TOTAL MAX LENGTH OF 46'.
 BASE SHALL BE 8" TALL MINIMUM.

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE	
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMELOCK
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	OPT	CONTROL POWER TRANSFORMER
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	MANUAL
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS			FA	FIRE ALARM
MCA	MINIMUM CIRCUIT AMPACITY					CO	CARBON MONOXIDE SENSOR
CP	CORD AND PLUG CONNECTION					INT	INTEGRAL TO EQUIPMENT
						ASD	AREA SMOKE DETECTOR
						DSD	DUCT SMOKE DETECTOR

EQUIPMENT MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA	MCA	OCF	FED FROM	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	FA SHUTDOWN	AVAILABLE FAULT CURRENT
AHU-3-L	CUSTOM OUTDOOR CENTRAL STATION AIR HANDLER	120 V	1			260						EC	EC	EC	--	--	--	--	MAN	MFR	MFR	EC	NA	1108
AHU-3-NPBI	CUSTOM OUTDOOR CENTRAL STATION AIR HANDLER	120 V	1			15						EC	EC	EC	--	--	--	--	BAS	MFR	MFR	EC	NA	1049
AHU-3-RF	CUSTOM OUTDOOR CENTRAL STATION AIR HANDLER	480 V	3		30							EC	EC	EC	VFD	HC	EC	EC	BAS	HC	HC	EC	NA	15308
AHU-3-SF	CUSTOM OUTDOOR CENTRAL STATION AIR HANDLER	480 V	3		60							EC	EC	EC	VFD	HC	EC	EC	BAS	HC	HC	EC	NA	16096
CHWP-3	CHILLED WATER BOOSTER PUMP	480 V	3		7.5							EC	EC	EC	VFD	HC	EC	EC	BAS	HC	HC	EC	NA	2095
BAS-PANEL	BAS PANEL	120 V	1						20			EC	EC	EC	--	--	--	--	BAS	HC	HC	EC	NA	971
HWP-3	FREEZE PROTECTION PUMP	120 V	1		0.4							EC	EC	EC	MG	MFR	MFR	EC	BAS	HC	HC	EC	NA	1229
PT-3-B	WATER PRETREATMENT - DECHLORINATOR AND SOFTENER	120 V	1				5					EC	EC	EC	--	--	--	--	BAS	HC	HC	EC	NA	856
PT-3-A	WATER PRETREATMENT - DECHLORINATOR AND SOFTENER	120 V	1				5					EC	EC	EC	--	--	--	--	BAS	HC	HC	EC	NA	848
HU-3	STEAM TO STEAM GENERATOR	120 V	1				3					EC	EC	EC	MG	MFR	MFR	MFR	BAS	HC	HC	EC	NA	644
RO-3	REVERSE OSMOSIS WATER TREATMENT SYSTEM	120 V	1					19.2		30		EC	EC	EC	MG	MFR	MFR	MFR	BAS	HC	HC	EC	NA	1604

HVAC HUMIDIFIER SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	MANUFACTURER	MODEL	STATUS	EMERGENCY	LAT DB	LAT WB	MAX VAPOR TRAIL (FT)	HW EWT (Deg F)	HW GPM (gpm)	INPUT STEAM PRESSURE (psi)	STEAM CAPACITY (LBS/HR)	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
HU-3	STEAM TO STEAM GENERATOR	DRI-STEEM	STS 400	NEW	NO	55	52	1	77	1	10	330	HU-3 - 120V/1PH, 3A FLA	644

HVAC GRAVITY VENTILATOR SCHEDULE

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	LENGTH (in)	WIDTH (in)	HEIGHT (in)	WEIGHT (lbs)	MANUFACTURER	MODEL	DUCT CONN (in)	CFM (cfm)	ESP (in WC)
GV-1	INTAKE GRAVITY VENTILATOR	PENTHOUSE ROOF	NEW	120	103	26	500	GREENHECK	FGI-54-76	54X76	25000	0.1

HYDRONIC PUMPS SCHEDULE

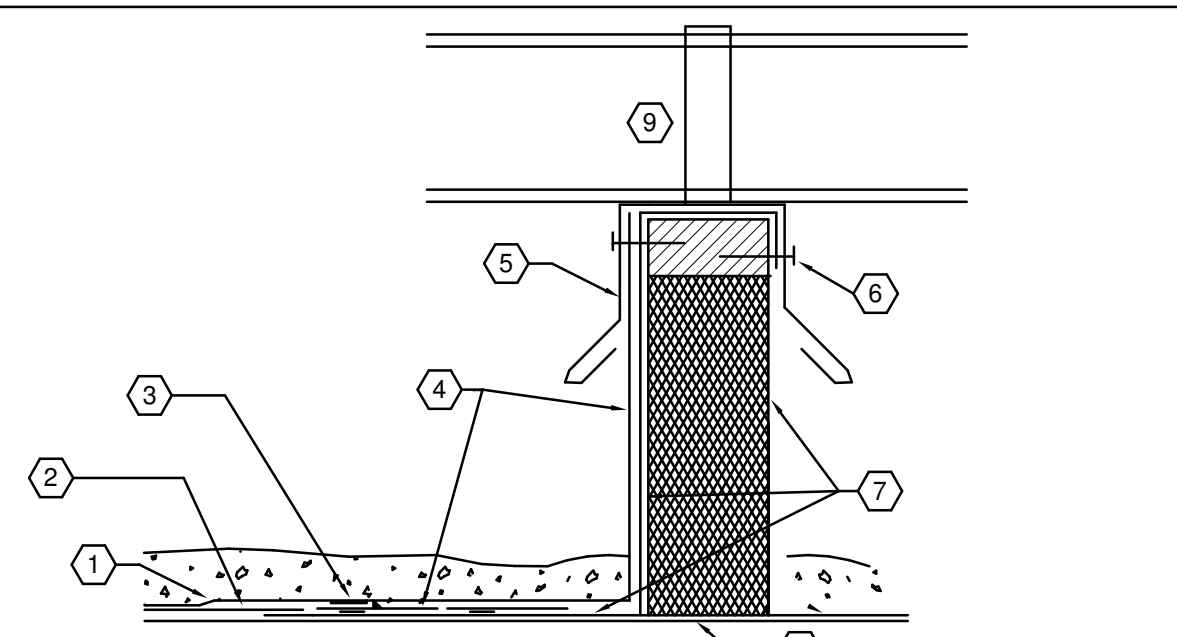
Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	STATUS	MANUFACTURER	MODEL	HEAD (ft)	FLOW (gpm)	PUMP (rpm)	HP	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
CHWP-3	CHILLED WATER BOOSTER PUMP	NEW	BELL & GOSSETT	E-80 3X39 5C	50	240	1800	7.5	NO	CHWP-3 - 480V/3PH, 7.5 HP	2095
HWP-3	FREEZE PROTECTION PUMP	NEW	BELL & GOSSETT	PL-55	10	30	3250	2/5	NO	HWP-3 - 120V/1PH, 0.4 HP	1229

HUMIDIFIER WATER TREATMENT SCHEDULE

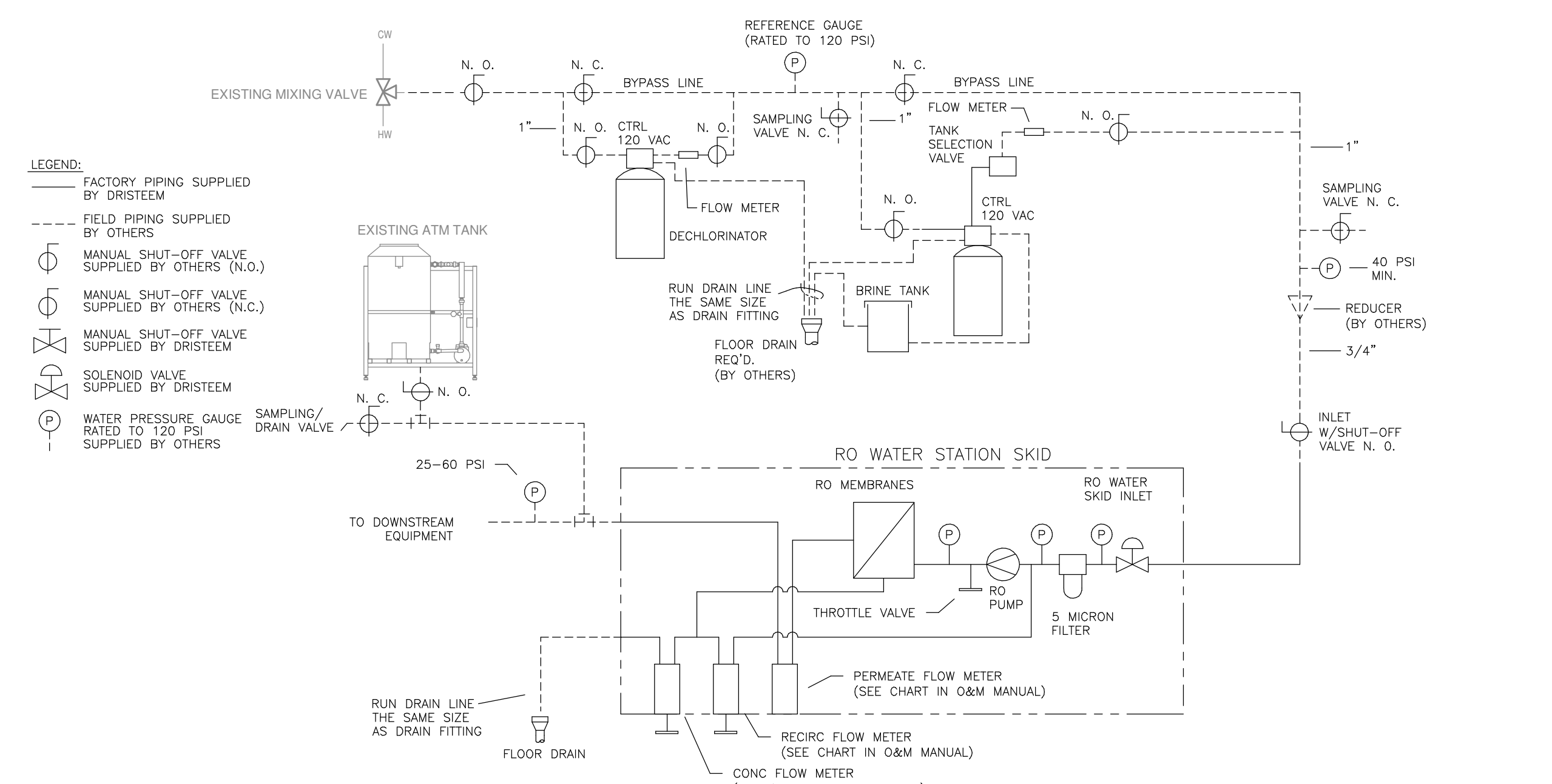
Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	MANUFACTURER	MODEL	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
PT-3	WATER PRETREATMENT - DECHLORINATOR AND SOFTENER	DRI-STEEM	DC-948 AND WS-948	NO	PT-3-A - 120V/1PH, 5A FLA PT-3-B - 120V/1PH, 5A FLA	848
RO-3	REVERSE OSMOSIS WATER TREATMENT SYSTEM	DRI-STEEM	RO-402	NO	RO-3 - 120V/1PH, 19.2A FLA, 30A OCF	1604



- KEYED NOTES:**
- ROOFING MEMBRANE AND BALLAST SUPSHEET (SEE ROOFING SPECS)
 - SOLVENT WELD (SEE ROOFING SPECS)
 - FLASHING TO EXTEND UP AND UNDER CURB CAP
 - SHEET METAL CURB COVER AND COUNTER FLASHING
 - FASTENER WITH ONE 1/4" Ø NEOPRENE WASHER
 - PREFABRICATED ROOF CURB - TYPE AND FLASHING PER ROOFING MANUFACTURER'S REQUIREMENTS.
 - SECURE TO DECK
 - HEAVY GAUGE STRAP - SECURE TO DUCT AND CURB AND SEAL WATERTIGHT
- GENERAL NOTES:**
- ALLOW FOR SUFFICIENT HEIGHT FOR CURB TO EXTEND FROM ROOF STRUCTURE, THROUGH ROOF INSULATION (IF ANY - V.I.F.) TO A HEIGHT OF 18" ABOVE FINISHED ROOF SURFACE
 - PROVIDE 2" LINED DUCTWORK OR 2" WEATHERWRAP INSULATION
 - PITCH TOP OF DUCT TO SHED RAINWATER
 - PROVIDE CURBS EVER 10 FEET AND AT CHANGES IN DIRECTION

233113.00-04 - DUCTWORK ON ROOF CURB
 SCALE: NONE



232500.00-01 - DRISTEEM REVERSE OSMOSIS WATER TREATMENT SYSTEM
 SCALE: NONE

KLH ENGINEERS
 MECHANICAL/ELECTRICAL ENGINEERS
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 KOHRS LONNEMANN HEIL ENGINEERS, INC.
 1538 ALEXANDRIA PIKE, SUITE 11
 FT. THOMAS, KENTUCKY 41075
 800-354-9783 859-442-8050
 859-442-8058 FAX
 KLH Project Number: 25130

REVISIONS	
NO.	DESCRIPTION
	DATE:
FINAL REVIEW	07.24.23
BID AND PERMIT	08.04.23
ADDENDUM	10.06.23

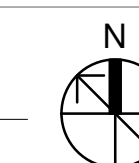
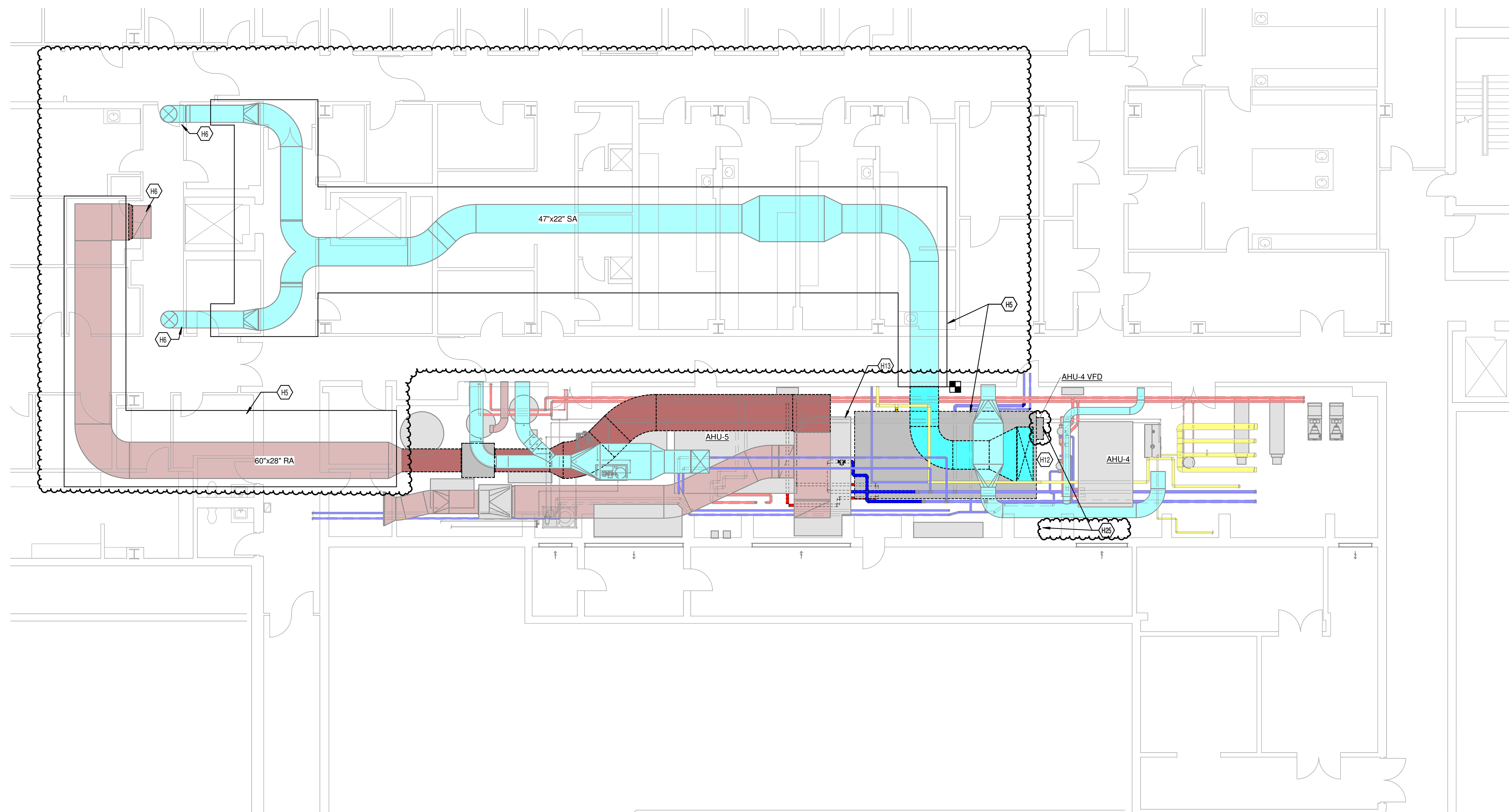
UK
 UNIVERSITY OF KENTUCKY
 Facilities Management - Medical Center

UK Pav WH - AHU-3 Replacement 11289
 SCALE: BLDG NAME: WH DRAWN BY: MSN PROJ # 11289
 DATE: 07/28/23 BLDG # 0098 PROJ URG: TA

SHEET #
M-601

KEYED NOTES

- H5 AFTER INSTALLATION AND STARTUP OF NEW AHU-3, DEMOLISH EXISTING UNIT AND ASSOCIATED PIPING BACK TO MAINS. RELOCATE AHU-4 VFD MOUNTED ON EXISTING AHU-3. FIELD VERIFY THERE ARE NO TAPS OFF AHU-3 DUCTWORK ON GROUND FLOOR AND LABEL EXISTING DUCTWORK MAINS AS ABANDONED. DECOMMISSION LIFE SAFETY DAMPERS ON ABANDONED DUCTWORK. BID ALTERNATE: DEMOLISH EXISTING GROUND FLOOR AHU-3 DUCTWORK MAINS.
- H6 INSTALL DAMPER TO BE NORMALLY CLOSED AT GROUND FLOOR.
- H12 RETURN SIEMENS PXC CONTROLLER TO FOME.
- H13 AFTER DEMOLITION OF EXISTING AHU-3 CAP AND INSULATE SHARED OUTSIDE AIR PLENUM THAT SERVED AHU-3.
- H25 RELOCATE CONTROLS EQUIPMENT SERVING NEIGHBORING AHU TO WALL AS SHOWN.



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LEXINGTON, KENTUCKY
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REVISIONS		
NO.	DESCRIPTION	DATE
FINAL REVIEW		07.24.23
BID AND PERMIT		08.04.23
ADDENDUM		10.06.23

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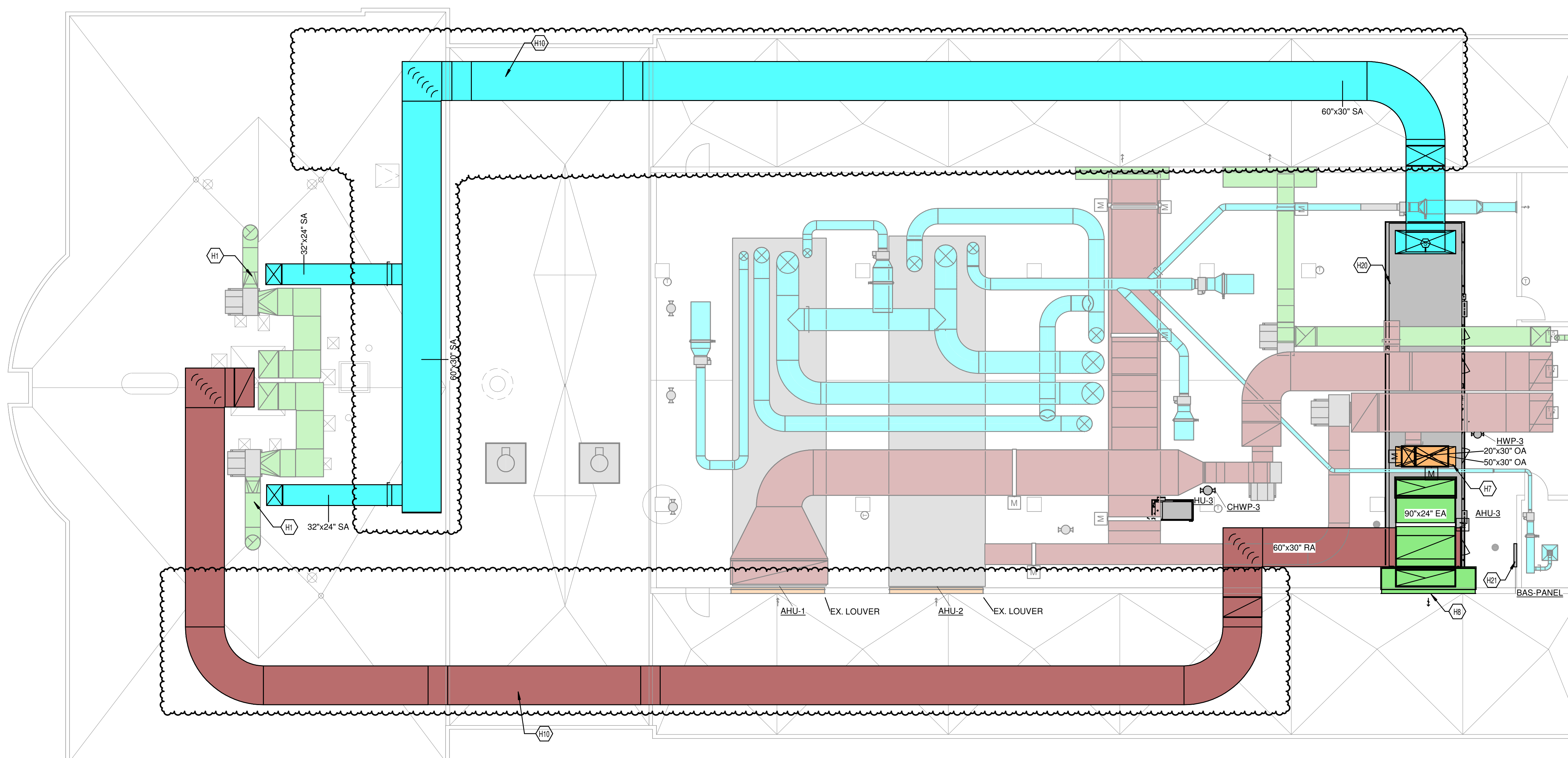
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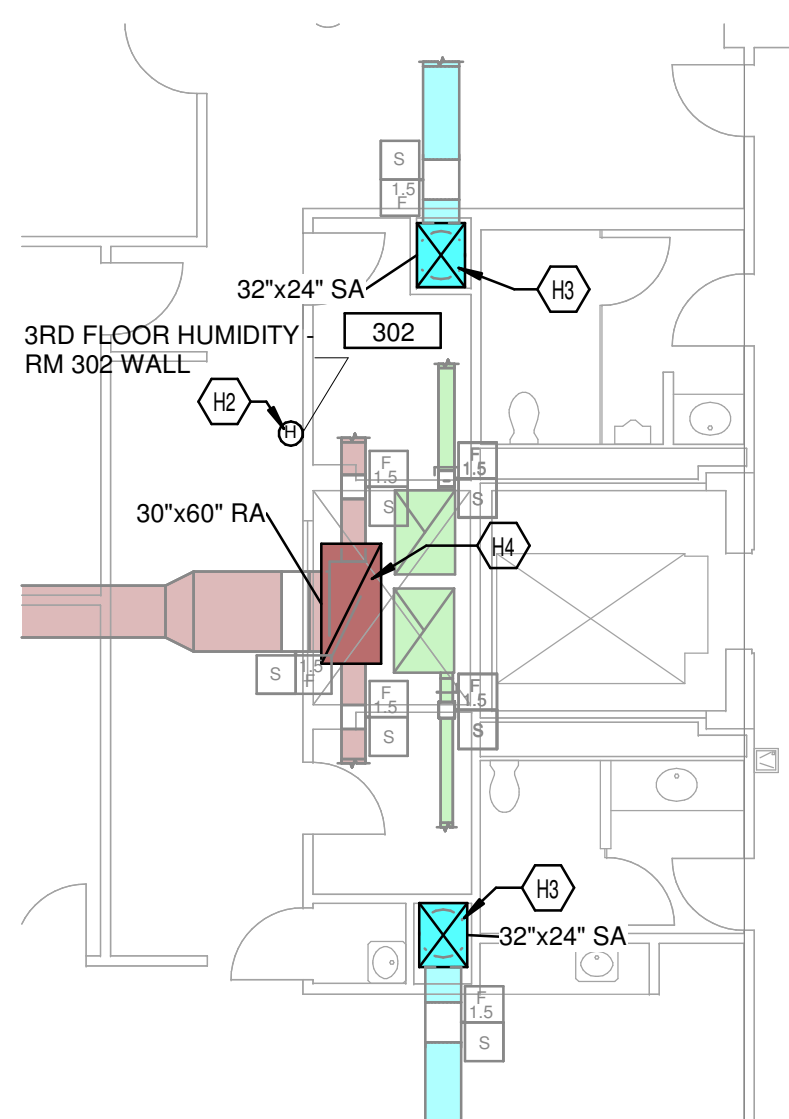
SHEET #
MD100

KEYED NOTES

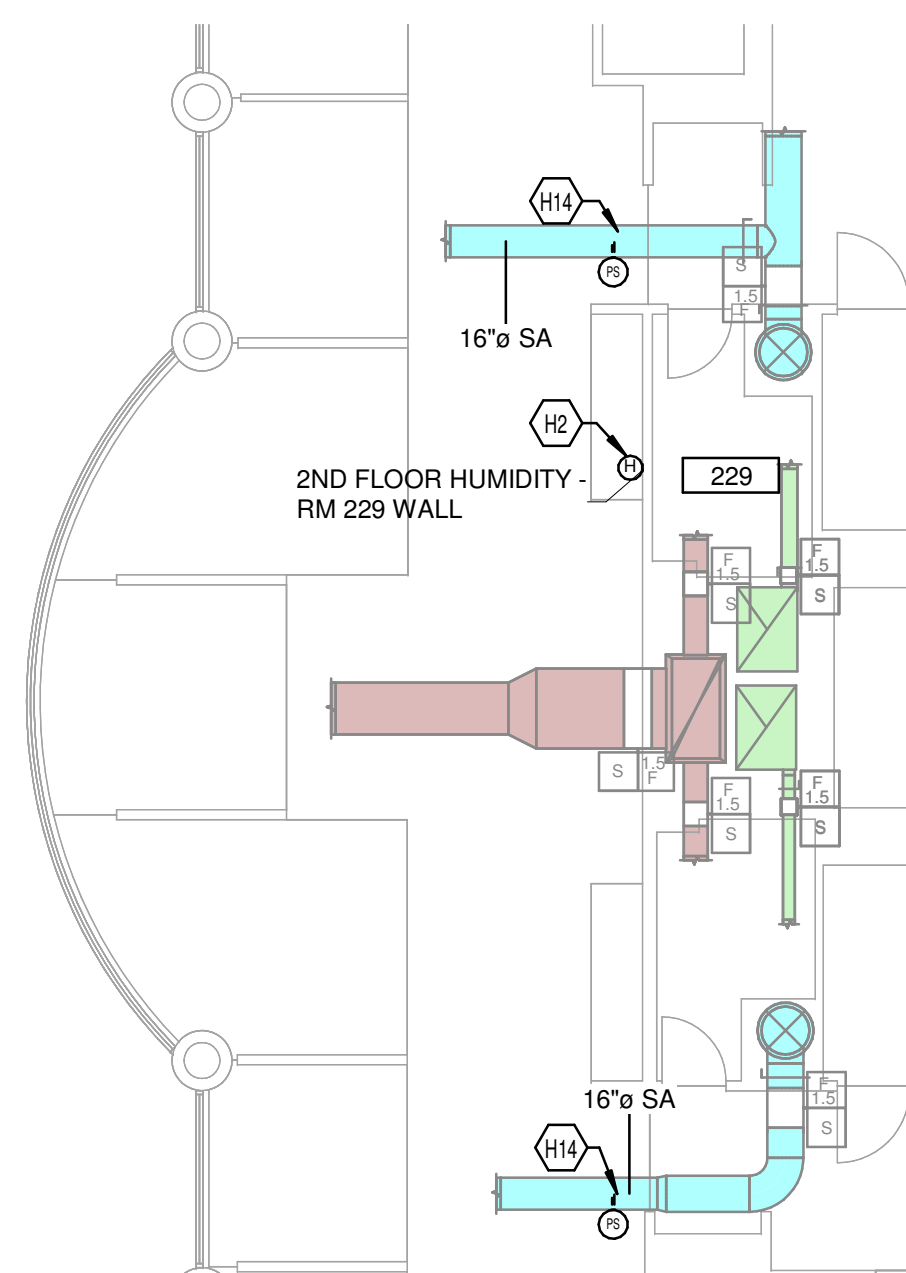
H1	REWORK EXHAUST DUCTWORK AS REQUIRED FOR NEW SUPPLY AIR DUCT PENETRATIONS. BID ALTERNATE: COMBINE AND REPLACE WITH NEW EXHAUST FAN EQUAL TO GREENLOCK VECTOR.
H2	PROVIDE NEW HUMIDITY SENSOR IN SPACE.
H3	UPSIZED SUPPLY DUCTWORK IN CHASE TO 32"x24" DOWN TO 2ND FLOOR TRANSITION. PATCH AND PAINT CHASE WALL TO MATCH EXISTING CONDITIONS.
H4	UPSIZED RETURN DUCTWORK IN CHASE TO 60"x30" DOWN TO 2ND FLOOR TRANSITION. PATCH AND PAINT CHASE WALL TO MATCH EXISTING CONDITIONS.
H7	PROVIDE 20"x30" MINIMUM OUTSIDE AIR DUCTWORK AND DAMPER. PROVIDE 50"x30" ECONOMIZER DUCT AND DAMPER. TRANSITION FROM AHU TO OA DUCTS AND THEN TO GRAVITY VENTILATOR CONNECTION.
H8	PROVIDE NEW LOUVER TO MATCH EXISTING ADJACENT LOUVER. FIELD VERIFY EXACT DIMENSIONS. PRIOR TO INSTALLATION, UTILIZE NEW OPENING TO BRING NEW EQUIPMENT INTO EXISTING PENTHOUSE.
H10	PROVIDE PREFABRICATED PRO-R DUCT OR EQUIVALENT FOR EXTERIOR DUCTWORK.
H14	PROVIDE NEW 2/3 DOWNSTREAM STATIC PRESSURE SENSOR IN DUCTWORK MAIN ON 2ND FLOOR.
H20	BID ALTERNATE: PROVIDE NEW ACCESS HATCH AND NEW HOIST AND TROLLEY SYSTEM FOR MOTOR REPLACEMENT. SEAL EXISTING PENTHOUSE FLOOR.
H21	PROVIDE DRISTEEM VAPORLOGIC CONTROLLER TO INTEGRATE RO TREATMENT SYSTEM AND HUMIDIFIER.
H22	PROVIDE NEW DUCTWORK STATIC PRESSURE SENSOR.



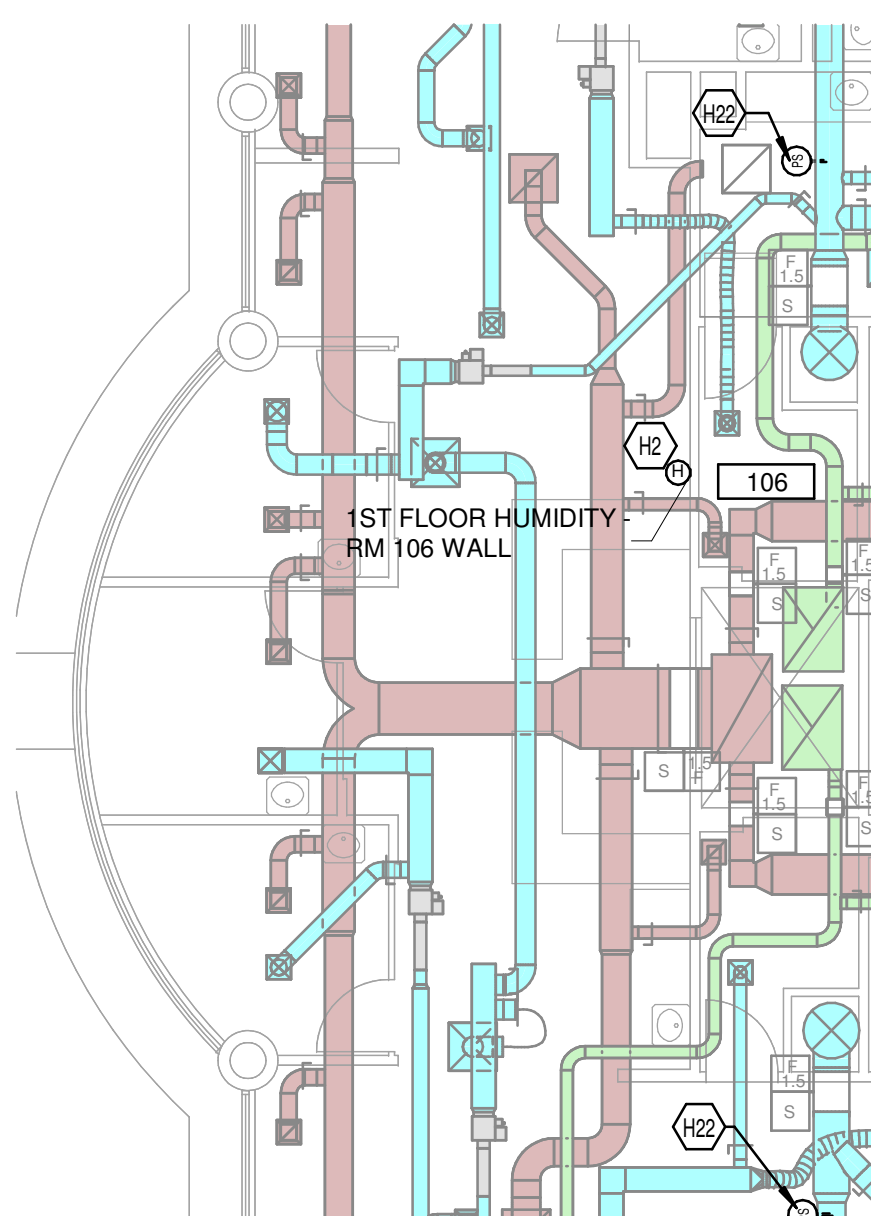
① MECHANICAL PLAN - LEVEL 4 - OVERALL
1/8" = 1'-0"



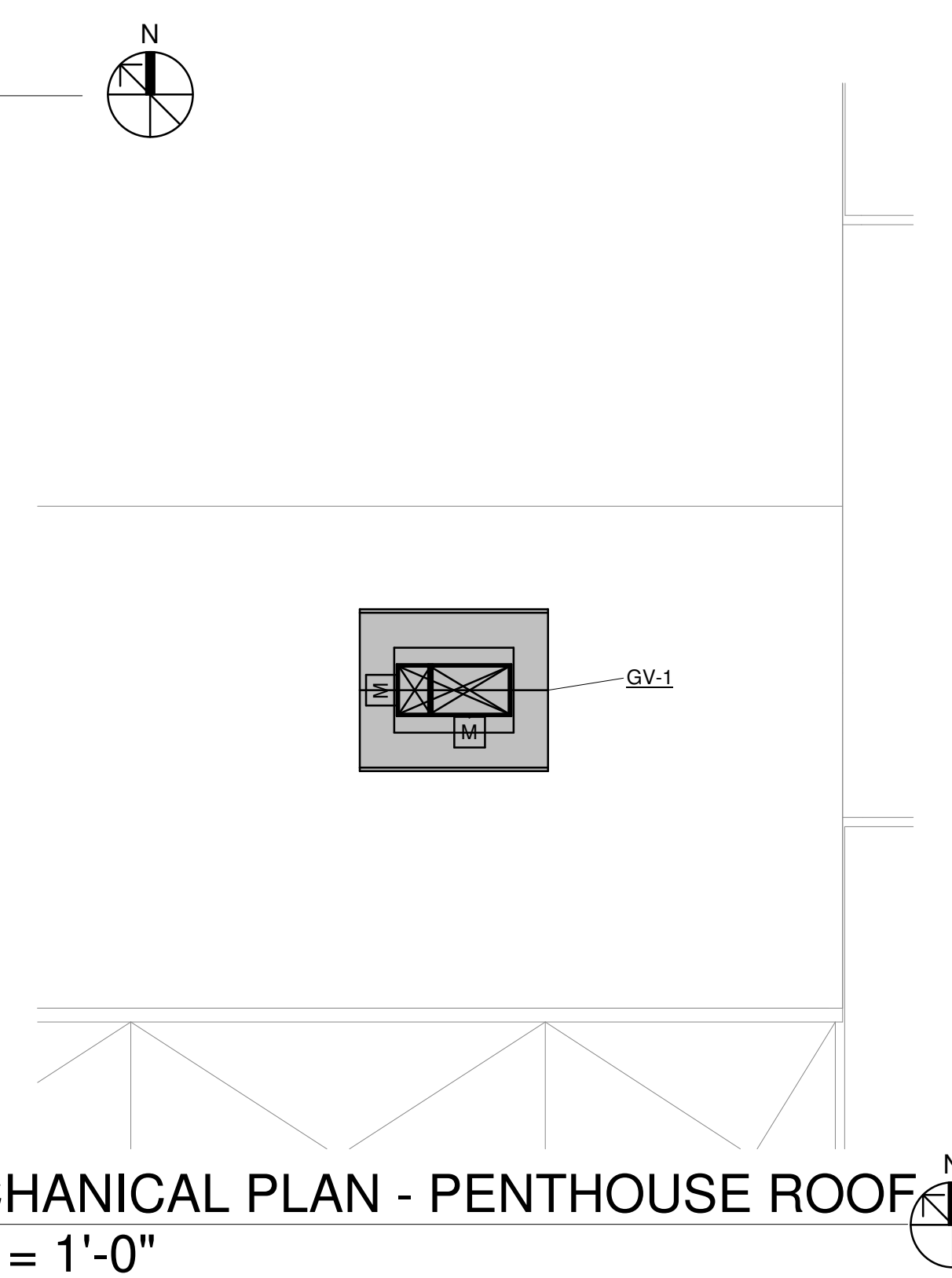
② MECHANICAL PLAN - LEVEL 3
1/8" = 1'-0"



④ MECHANICAL PLAN - LEVEL 2
1/8" = 1'-0"



⑤ MECHANICAL PLAN - LEVEL 1
1/8" = 1'-0"



③ MECHANICAL PLAN - PENTHOUSE ROOF
1/8" = 1'-0"

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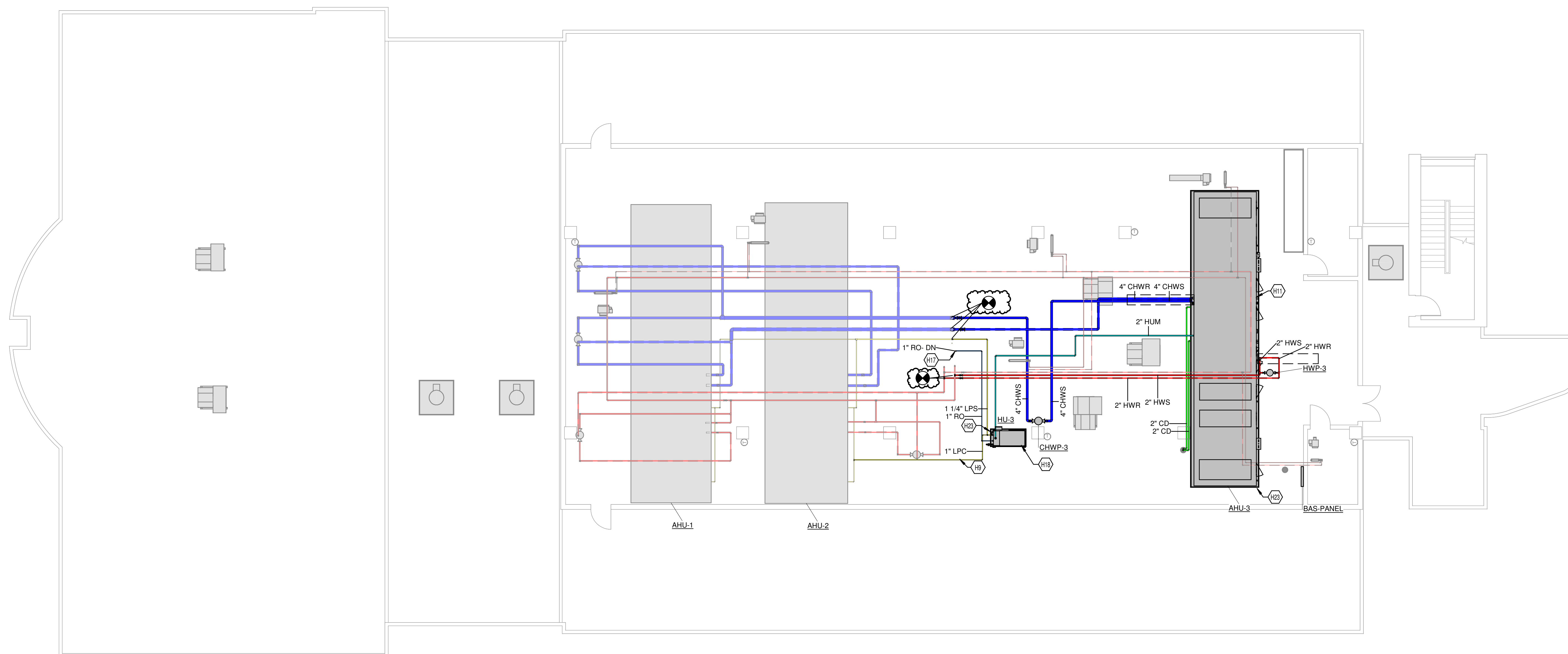
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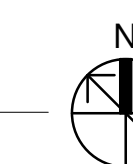
SHEET #
M-104

KEYED NOTES

H9	ROUTE CONDENSATE RETURN LOW ALONG DUCTWORK AND CONNECT INTO EXISTING LINE SERVING ADJACENT AHU-1.
H11	PROVIDE NEEDLEPOINT BIPOLAR ION GENERATOR GPS-MOD UPSTREAM OF COOLING COIL.
H17	NEW RO WATER UP THROUGH EXISTING CHASE TO HUMIDIFIER IN PENTHOUSE FROM GROUND FLOOR.
H18	BID ALTERNATE: EXTEND HUMIDIFIER WARRANTY TO 5 YEARS.
H23	PROVIDE CONCRETE HOUSEKEEPING PAD UNDER NEW EQUIPMENT.



① MECHANICAL PIPING PLAN - LEVEL 4 - OVERALL
1/8" = 1'-0"



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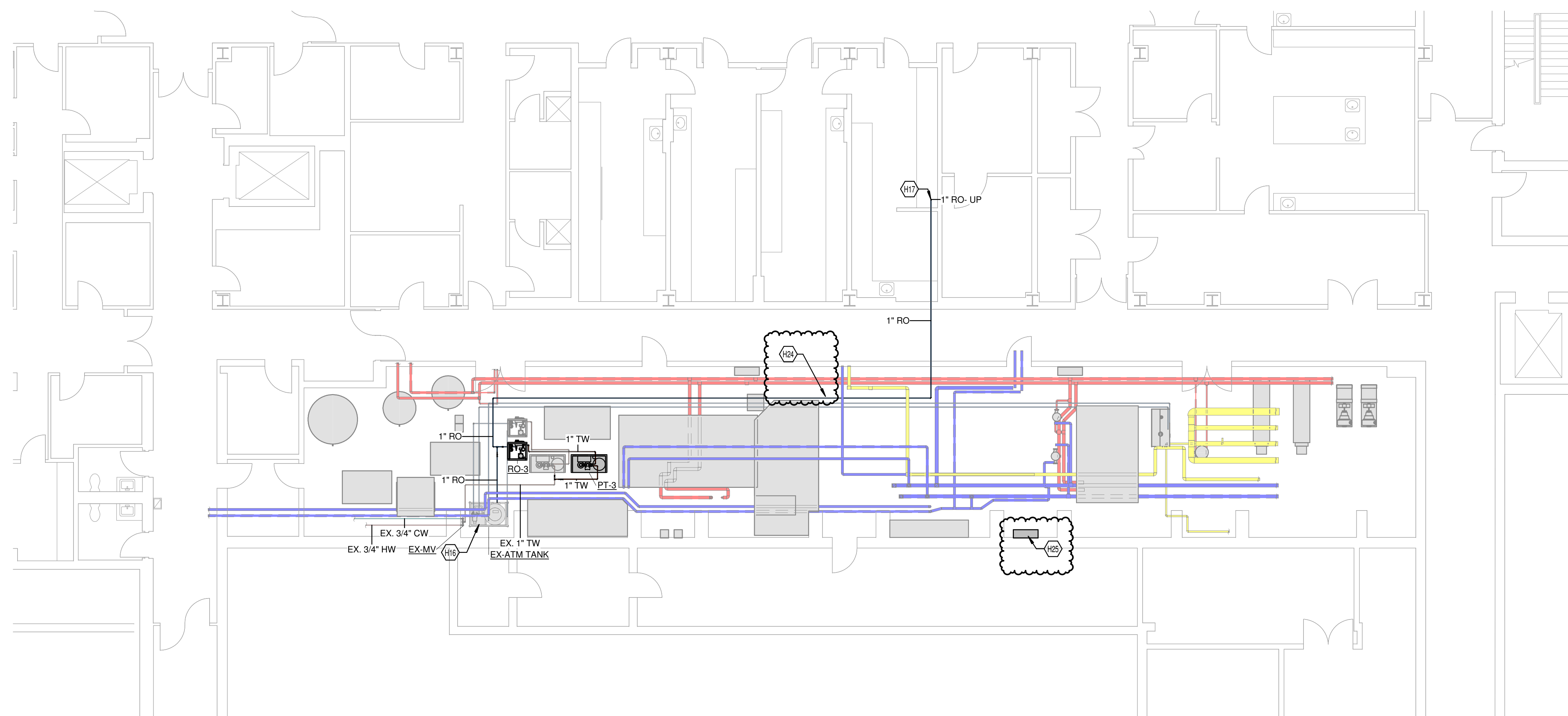


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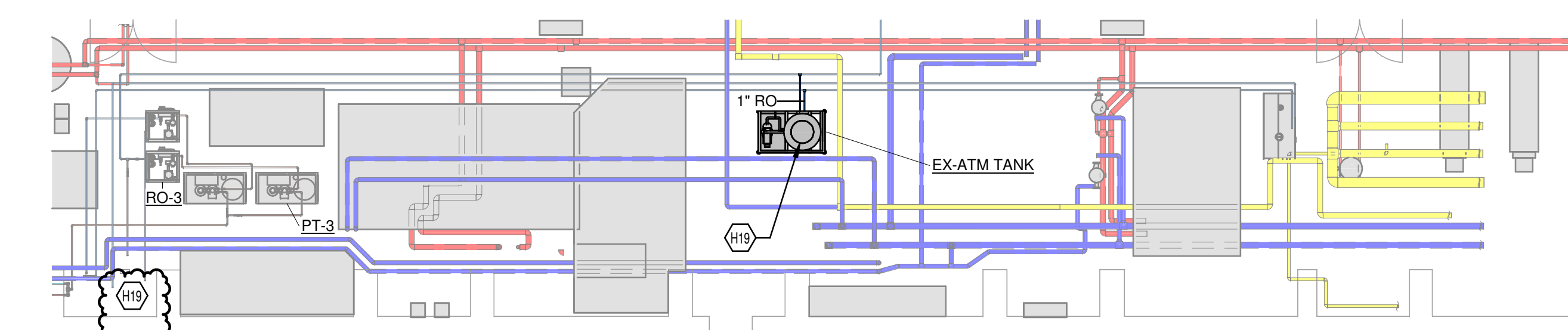
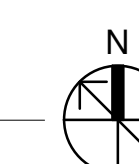
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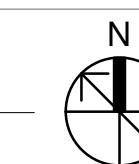
H16	DRISTEEM TO PROVIDE A RELAY IN NEW RO-402 CONTROL CABINET TO TAKE THE FLOAT SWITCH WIRES FROM EXISTING AT-165 STORAGE TANK AND SPLIT SIGNAL BETWEEN EXISTING AND NEW RO-402 SYSTEMS. BOTH NEW AND EXISTING RO SYSTEMS WILL FILL EXISTING ATMOSPHERIC TANK SIMULTANEOUSLY.
H17	NEW RO WATER UP THROUGH EXISTING CHASE TO HUMIDIFIER IN PENTHOUSE FROM GROUND FLOOR.
H19	BID ALTERNATE: PROVIDE TEMPORARY PIPING FROM NEW RO SYSTEM TO EXISTING ATMOSPHERIC TANK. AFTER INSTALLATION OF NEW AHU-3 AND DEMOLITION OF EXISTING UNIT, RELOCATE THE ATMOSPHERIC RO TANK TO PREVIOUS AHU-3 LOCATION. ROUTE NEW PIPING CONNECTING BOTH RO SYSTEMS TO NEW TANK LOCATION.
H24	REVERSE OSMOSIS PIPING SHALL BE POLYVINYLIDENE FLUORIDE (PVDF) SCHEDULE 80, ASTM D3222. FITTINGS: PVDF FITTINGS, SCHEDULE 80 JOINED BY SOCKET FUSION METHOD CONFORMING TO ASTM 2657.
H25	RELOCATE CONTROLS EQUIPMENT SERVING NEIGHBORING AHU TO WALL AS SHOWN.



① MECHANICAL PIPING PLAN - GROUND FLOOR
1/8" = 1'-0"



② MECHANICAL PIPING PLAN - GROUND FLOOR - BID ALTERNATE
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