



# University of Kentucky<sup>®</sup>

Procurement Services

## INVITATION FOR BIDS

CCK-2563.30-4-24

CTC + AAC BP07 Core & Shell Group 1

ADDENDUM #1

June 6, 2024

**IMPORTANT: BID AND ADDENDUM MUST BE RECEIVED BY: 06/27/2024 @ 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

- Please refer to and incorporate within the offer the enclosed additional information from the project team.

**OFFICIAL APPROVAL**  
**UNIVERSITY OF KENTUCKY**

**SIGNATURE**

*Ken Scott* 06/06/2024

\_\_\_\_\_

Contracting Officer / (859) 257-9102

\_\_\_\_\_  
Typed or Printed Name

University of Kentucky  
Purchasing Division  
322 Peterson Service Building  
Lexington, KY 40506-0005

**Addendum #01**

Client	University of Kentucky Healthcare	Date	5/28/2024
Project	BP-07 Core & Shell CTC+AAC	UK Project #	2563.3
		Champlin Project #	514-6926

*This addendum provides information to clarify or adjust construction items which may affect any or all trade contractors. The original documents for the referenced project are amended as noted in this addendum and made part of said documents and shall govern the work covered by the Form of Proposal. All work to be in strict accordance with the terms, stipulations and conditions of contract documents.*

**CLARIFICATION:**

Drawings with revision clouds have changes as described below.

**SUMMARY OF ATTACHMENTS**

**PART A - DRAWINGS:**

**G-001.7-1 – DRAWING INDEX**

1. Structural sheet S406 added to drawing set.
2. Architectural sheets A459.D, A459.E, A459.F, and A459.G added to drawing set.

**G-001.7-2 – DRAWING INDEX**

1. Forty electrical sheets added to drawing set.

**L100.1 – SITE PLAN – AREA 1**

1. The sidewalk along Elizabeth Street has been realigned to accommodate a pad mount transformer for the parking structure. In addition to the sidewalk, this impacts the soils and plantings.

**L100.2 – SITE PLAN – AREA 2**

1. Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.

**L200.1 LAYOUT PLAN – AREA 1**

1. The sidewalk along Elizabeth Street has been realigned to accommodate a pad mount transformer for the parking structure. In addition to the sidewalk, this impacts the soils and plantings.

**L200.2 LAYOUT PLAN – AREA 2**

1. Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets

**L300.1 MATERIALS PLAN – AREA 1**

1. *The sidewalk along Elizabeth Street has been realigned to accommodate a pad mount transformer for the parking structure. In addition to the sidewalk, this impacts the soils and plantings.*

#### **L300.2 MATERIALS PLAN – AREA 2**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*

#### **L350.1 PAVING AND JOINTING PLAN – AREA 1**

1. *The sidewalk along Elizabeth Street has been realigned to accommodate a pad mount transformer for the parking structure. In addition to the sidewalk, this impacts the soils and plantings*

#### **L350.2 PAVING AND JOINTING PLAN – AREA 2**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*

#### **L360.3 PAVING PLAN**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*

#### **L400.1 GRADING PLAN – AREA 1**

1. *The sidewalk along Elizabeth Street has been realigned to accommodate a pad mount transformer for the parking structure. In addition to the sidewalk, this impacts the soils and plantings.*

#### **L400.2 GRADING PLAN – AREA 2**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*

#### **L500.1 SOILS PLAN – AREA 1**

1. *The sidewalk along Elizabeth Street has been realigned to accommodate a pad mount transformer for the parking structure. In addition to the sidewalk, this impacts the soils and plantings.*

#### **L500.2 SOILS PLAN – AREA 2**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*

#### **L804 SITE DETAILS – FURNISHINGS**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*



**L910.1 PLANTING PLAN – SHRUBS & GROUND COVER**

1. *The sidewalk along Elizabeth Street has been realigned to accommodate a pad mount transformer for the parking structure. In addition to the sidewalk, this impacts the soils and plantings.*

**L1000.3 IRRIGATION PLAN – DETAILS - 2**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*

**L1000.7 IRRIGATION PLAN – DETAILS - 2**

1. *Four raised garden bed planters at the café patio have been added to the site plans and details. In addition to the planters, this impacts the pavers on pedestals and irrigation depicted on these sheets.*

**S104 - TYPICAL DETAILS**

1. *Revised beam to embed plate detail.*

**S200D LEVEL 00 FOUNDATION PLAN - AREAS D AND E**

1. *Shifted bridge location.*
2. *Indicated electric duct bank and culvert information.*

**S201B LEVEL 01 FRAMING PLAN - AREA B**

1. *Added floor opening in bay I-J-5-6.*
2. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S201D LEVEL 01 FRAMING PLAN - AREAS D AND E**

1. *Shifted bridge location.*
2. *Revised bridge cantilever lengths and framing.*
3. *Added lateral tie at west end of bridge and concrete beam embed.*
4. *Indicated steel connection design forces.*
5. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S202A LEVEL 02 FRAMING PLAN - AREA A**

1. *Added steel beams at floor openings in bay A-B along line 4.*
2. *Revised embed plates at steel beams to concrete on line B.*
3. *Added steel girts bay E-F-G along line 9.*
4. *Indicated roof angle frames for roof drains on canopy roof.*
5. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S202B LEVEL 02 FRAMING PLAN - AREA B**

1. *Added floor opening in bay I-J-5-6.*
2. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S202D LEVEL 02 FRAMING PLAN - AREAS D AND E**

1. *Shifted bridge location.*
2. *Revised bridge cantilever lengths and framing.*
3. *Indicated steel connection design forces.*



**S202E LEVEL 02 PARTIAL FRAMING PLANS**

1. *Indicated roof angle frames for roof drains on vestibule roofs.*

**S203A LEVEL 03 FRAMING PLAN - AREA A**

1. *Revised embed plates at steel beams to concrete on line 8.*
2. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*
3. *Revised steel beam size on line 8.*

**S203B LEVEL 03 FRAMING PLAN - AREA B**

1. *Added floor opening in bay I-J-5-6.*
2. *Revised embed plates at steel beams to concrete on line 8.*
3. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S204A LEVEL 04 FRAMING PLAN - AREA A**

1. *Revised embed plates at steel beams to concrete on line 8.*
2. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*
3. *Revised steel beam size on line 8.*

**S204B LEVEL 04 FRAMING PLAN - AREA B**

1. *Added floor opening in bay I-J-5-6.*
2. *Revised embed plates at steel beams to concrete on line 8.*
3. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S205A LEVEL 05 FRAMING PLAN - AREA A**

1. *Revised steel beam sizes indicated on plan.*
2. *Revised embed plates at steel beams to concrete on lines B and 8.*
3. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S205B LEVEL 05 FRAMING PLAN - AREA B**

1. *Added floor opening in bay I-J-5-6.*
2. *Revised steel beam size indicated on plan.*
3. *Revised embed plates at steel beams to concrete on line 8.*
4. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S206B LEVEL 06 FRAMING PLAN - AREA B**

1. *Added floor opening in bay I-J-5-6.*
2. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S207B LEVEL 07 FRAMING PLAN - AREA B**

1. *Added floor opening in bay I-J-5-6.*
2. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S208A LEVEL 08 FRAMING PLAN - AREA A**

1. *Added floor openings and revised concrete framing in bay C-D-3-6.*
2. *Added concrete curb for walls above in bay C-D-3-6.*
3. *Added anchor bolts and steel posts above in bay C-D-3-6.*
4. *Revised slab thickness for brace embed at column F-7.*
5. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*



**S208B LEVEL 08 FRAMING PLAN - AREA B**

1. *Misc revisions to concrete beams, girders and joists indicated on the drawing.*

**S209A LEVEL 09 FRAMING PLAN - AREA A**

1. *Added steel girts for louvers in wall on line D.6, bay 3.5-4 and 5.3-6*
2. *Added steel girts with lintel for brick support in wall on line D.6 bay 3-3.5.*

**S210 ELEVATOR MACHINE ROOM AND ROOF PLANS**

1. *Added overbuild roof and screen wall framing plan.*
2. *Revised steel beam sizes indicated on machine room plans.*
3. *Indicated roof angle frames for roof drains on low roof.*

**S402 FRAMING DETAILS**

1. *Revised detail 13.*

**S405 FRAMING DETAILS**

1. *Revised detail 62.*

**S406 FRAMING DETAILS**

1. *New drawing with details.*

**S511 BRIDGE FRAMING ELEVATIONS AND DETAILS**

1. *Shifted bridge location.*
2. *Revised bridge cantilever lengths and framing.*
3. *Indicated steel connection design forces on truss elevation.*
4. *Indicated camber on truss elevation.*

**S512 BRIDGE DETAILS**

1. *Added detail for lateral tie at west end of bridge and concrete beam embed.*
2. *Revised dimension to west expansion joint.*

**S602 CONCRETE GIRDER SCHEDULE**

1. *Revised concrete girders indicated on the drawing.*

**S603 CONCRETE GIRDER SCHEDULE**

1. *Revised concrete girders indicated on the drawing.*

**S604 CONCRETE BEAM SCHEDULE**

1. *Revised concrete beams indicated on the drawing.*

**S605 CONCRETE BEAM SCHEDULE**

1. *Revised concrete beams indicated on the drawing.*

**A011 MATERIAL IDENTIFICATION CODES**

1. *Add LVR-3 to Mat ID list.*
2. *Add RF-ACC to Mat ID list*

**A201 OVERALL SHELL & CORE FLOOR PLAN LEVEL 01**

1. *Revise door type into garage*
2. *Add/Remove shafts where indicated.*



**A201.A SHELL & CORE FLOOR PLAN – LEVEL 01 – AREA A**

1. *Remove raised planters.*

**A201.B SHELL & CORE FLOOR PLAN – LEVEL 01 – AREA B**

1. *Extend fin tube enclosure along the curtain wall adjacent to the stairs.*
2. *Add/Remove shafts where indicated.*

**A201.C SHELL & CORE FLOOR PLAN – LEVEL 01 – AREA C**

1. *Revise door type into garage.*

**A202 OVERALL SHELL & CORE FLOOR PLAN LEVEL 02**

1. *Revise door type into garage.*

**A202.A SHELL & CORE FLOOR PLAN – LEVEL 02 – AREA A**

1. *Revise shape and dimensions of mechanical shaft*

**A208.A SHELL & CORE FLOOR PLAN – LEVEL 08 – AREA A**

1. *Add Mechanical penthouses, screen wall, and reference to enlarged plan view.*

**A300 REFLECTED SOFFIT PLANS**

1. *Add lighting to soffit plan*

**A402 ELARGED EXTERIOR SOUTH ELEVATION**

1. *Revise size and location of penthouse louvers as indicated.*
2. *Add mechanical penthouse and screen wall.*

**A409 ENLARGED EXTERIOR NORTH LINK ELEVATIONS**

1. *Revised metal panel type above windows.*
2. *Add metal panel type to material legend.*
3. *Add additional louver type to material legend.*

**A421 PEDESTRIAN WALKWAY PLANS**

1. *Revise curtain wall mullion layout.*
2. *Revise location of expansion joints*
3. *Revise metal panel soffit layout.*

**A423 PEDESTRIAN WALKWAY SECTIONS**

1. *Revise curtain wall mullion layout.*

**A425 PEDESTRIAN WALKWAY ELARGED PLANS**

1. *Adjust expansion joint location*
2. *Revise curtain wall mullion layout.*
3. *Revise soffit panel joint layout.*

**A430 PEDESTRIAN WALKWAY CONNECTION PLAN DETAILS**

1. *Adjust expansion joint location*

**A452 WALL SECTIONS**

1. *Remove raised planters.*



**A453.A WALL SECTIONS**

1. *Revise detail view reference.*

**A456 WALL SECTIONS**

1. *Revise detail view reference.*
2. *Sections 9, 10, 11, revise floor fire rating to 2 hours to match code review.*

**A459.D PENTHOUSE PLAN AND ELEVATIONS**

1. *New sheet added with mechanical penthouse plan and elevations.*

**A459.E PENTHOUSE SECTIONS**

1. *New sheet added with mechanical penthouse and screen wall sections*

**A459.G PENTHOUSE DETAILS**

1. *New sheet added with mechanical penthouse details*

**A466 FOUNDATION DETAILS**

1. *Fin tube enclosure added to section detail.*

**A469 FOUNDATION DETAILS**

1. *New section details added for revised curtain wall curb condition at sunken garden wall and connector curtain wall.*

**A492 EXTERIOR WINDOW, CURTAINWALL & LOUVER TYPES**

1. *Revise L12 and L18 Louver elevation dimensions.*

**A494 EXTERIOR WINDOW & CURTAINWALL TYPES**

1. *Revise pedway curtain wall elevations.*

**F108.S SHELL & CORE OVERALL FIRE PROTECTION PLAN – LEVEL 08**

1. *Provide additional stand pipe hose valve connections in the Penthouse.*

**P010.S SHELL & CORE PLUMBING LEGEND**

1. *Add floor drain FD-3 selection to the Plumbing Fixture Schedule.*

**P100U.A SHELL & CORE PLUMBING PLAN – LEVEL 00 UNDERSLAB – AREA A**

1. *Change floor drain type.*
2. *Provide added 2" sanitary stub ups.*

**P100U.B SHELL & CORE PLUMBING PLAN – LEVEL 00 UNDERSLAB – AREA B**

1. *Revise underslab condensate piping.*
2. *Provide added 2" sanitary stub ups.*

**P100.A SHELL & CORE PLUMBING PLAN – LEVEL 00 – AREA A**

1. *Provide added 2" sanitary stub ups.*

**P100.B SHELL & CORE PLUMBING PLAN – LEVEL 00 – AREA B**

1. *Provide water supply to FPWH.*
2. *Provide added ball valves in domestic water piping.*





3. *Provide added 2" sanitary stub ups.*

*P100.C SHELL & CORE PLUMBING PLAN – LEVEL 00 – AREA C*

1. *Provide water supply to FPWH.*

*P101.A SHELL & CORE PLUMBING PLAN – LEVEL 01 – AREA A*

1. *Provide water supply to FPWH.*

*P101.B SHELL & CORE PLUMBING PLAN – LEVEL 01 – AREA B*

1. *Revise vent piping.*

*P102.A – SHELL & CORE PLUMBING PLAN – LEVEL 02 – AREA A*

1. *Revise sanitary and vent piping.*

*P102.B – SHELL & CORE PLUMBING PLAN – LEVEL 02 – AREA B*

1. *Revise vent piping.*

*P103.A – SHELL & CORE PLUMBING PLAN – LEVEL 03 – AREA A*

1. *Revise sanitary and vent piping.*

*P103.B – SHELL & CORE PLUMBING PLAN – LEVEL 03 – AREA B*

1. *Revise sanitary and vent piping.*

*P104.A – SHELL & CORE PLUMBING PLAN – LEVEL 04 – AREA A*

1. *Revise sanitary and vent piping.*

*P104.B – SHELL & CORE PLUMBING PLAN – LEVEL 04 – AREA B*

1. *Revise sanitary and vent piping.*

*P105.A – SHELL & CORE PLUMBING PLAN – LEVEL 05 – AREA A*

1. *Revise sanitary and vent piping.*

*P105.B – SHELL & CORE PLUMBING PLAN – LEVEL 05 – AREA B*

1. *Revise sanitary and vent piping.*

*P106.A – SHELL & CORE PLUMBING PLAN – LEVEL 06 – AREA A*

1. *Revise sanitary and vent piping.*

*P106.B – SHELL & CORE PLUMBING PLAN – LEVEL 06 – AREA B*

1. *Revise sanitary and vent piping.*

*P107.A – SHELL & CORE PLUMBING PLAN – LEVEL 07 – AREA A*

1. *Revise sanitary and vent piping.*
2. *Provide added trap primer piping for floor drains above*

*P107.B – SHELL & CORE PLUMBING PLAN – LEVEL 07 – AREA B*

1. *Revise sanitary and vent piping.*
2. *Provide added trap primer piping for floor drains above.*



*P108.A – SHELL & CORE PLUMBING PLAN – LEVEL 08 – AREA A*

- 1. Revise vent piping.*
- 2. Provide added floor drains.*
- 3. Provide added roof drains.*
- 4. Provide added Freeze Proof Wall Hydrants.*

*P108.B – SHELL & CORE PLUMBING PLAN – LEVEL 08 – AREA B*

- 1. Revise vent piping.*
- 2. Provide added floor drains and water supply to mechanical equipment.*

*P200.S – SHELL & CORE ENLARGED PLUMBING PLANS.*

- 1. Provide gas regulator at water heaters.*

*P201.S – SHELL & CORE ENLARGED PLUMBING PLANS.*

- 1. Provide added water supply to irrigation point of connection and FPWH above.*

*P202.S – SHELL & CORE ENLARGED PLUMBING PLANS.*

- 1. Provide cold water supplies to Trap Primer manifolds.*

*P503.S – SHELL & CORE PLUMBING RISERS.*

- 1. Refer to revised risers.*

*P504.S – SHELL & CORE PLUMBING RISERS.*

- 1. Refer to revised risers.*

*MG100.S – SHELL & CORE MEDICAL GAS PLAN*

- 1. Provide emergency oxygen and liquid nitrogen fill boxes.*
- 2. Extend Air intake pipe up through roof.*

*M100.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 00 – AREA A*

- 1. Revise chilled water supply and return piping to 12”*
- 2. Revise FSD location for EF2\_HTE\_05S.*
- 3. Provide and install ductwork for new EF22\_LAB\_0S and associated FD.*
- 4. Revise baseboard heating water supply/return piping as shown.*

*M100.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 00 – AREA B*

- 1. Revise condensate piping drop from first floor.*
- 2. Revise AHU3\_LAB\_12N return air ductwork to new shaft location.*

*M100.C – SHELL & CORE – MECHANICAL PLAN – LEVEL 00 – AREA C*

- 1. Revise baseboard heating water supply/return piping as shown.*

*M101.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 01 – AREA A*

- 1. Revise ductwork for EF2\_HTE\_05S as shown.*
- 2. Provide and install new ductwork for EF22\_LAB\_0S as shown.*
- 3. Revise chilled water supply and return piping to 12”.*
- 4. Revise baseboard heating water supply/return piping as shown.*

*M101.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 01 – AREA B*

- 1. Revise condensate piping and drop to lower level as shown.*



2. *Revise AHU3\_LAB\_12N return air ductwork to new shaft and provide FSD as shown.*

**M101.C – SHELL & CORE – MECHANICAL PLAN – LEVEL 01 – AREA C**

1. *Revise baseboard heating water supply/return piping as shown.*

**M102.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 02 – AREA A**

1. *Revise ductwork for EF2\_HTE\_05S as shown.*
2. *Provide and install new ductwork for EF22\_LAB\_0S as shown.*
3. *Revise AHU14\_SUR\_2N supply air ductwork and associated FD as shown.*
4. *Revise chilled water supply and return piping to 12”.*

**M102.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 02 – AREA B**

1. *Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork and associated FD as shown.*
2. *Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork and associated FD as shown.*

**M103.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 03 – AREA A**

1. *Revise ductwork for EF2\_HTE\_05S as shown.*
2. *Provide and install new ductwork for EF22\_LAB\_0S as shown.*
3. *Revise chilled water supply and return piping to 12”.*

**M103.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 03 – AREA B**

1. *Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork as shown.*
2. *Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork as shown.*

**M104.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 04 – AREA A**

1. *Revise ductwork for EF2\_HTE\_05S as shown.*
2. *Provide and install new ductwork for EF22\_LAB\_0S as shown.*
3. *Revise chilled water supply and return piping to 12”.*

**M104.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 04 – AREA B**

1. *Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork as shown.*
2. *Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork as shown.*

**M105.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 05 – AREA A**

1. *Revise ductwork for EF2\_HTE\_05S and associated FSD as shown.*
2. *Provide and install new ductwork for EF22\_LAB\_0S as shown.*
3. *Revise chilled water supply and return piping to 12”.*

**M105.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 05 – AREA B**

1. *Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork as shown.*
2. *Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork as shown.*

**M106.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 06 – AREA A**

1. *Revise ductwork for EF2\_HTE\_05S as shown.*
2. *Provide and install new ductwork for EF22\_LAB\_0S as shown.*
3. *Revise chilled water supply and return piping to 12”.*

**M106.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 06 – AREA B**

1. *Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork as shown.*



2. Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork as shown.

**M107.A – SHELL & CORE – MECHANICAL PLAN – LEVEL 07 – AREA A**

1. Revise ductwork for EF2\_HTE\_05S as shown.
2. Provide and install new ductwork for EF22\_LAB\_0S as shown.
3. Revise chilled water supply and return piping to 12”.
4. Revise stairwell pressurization ductwork as shown.

**M107.B – SHELL & CORE – MECHANICAL PLAN – LEVEL 07 – AREA B**

1. Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork as shown.
2. Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork as shown.

**M108.1.A – SHELL & CORE – AIR DISTRIBUTION LOW DUCT PLAN – LEVEL 08 – AREA A**

1. Refer to ductwork changes in relation to new mechanical doghouse design.
2. Provide and install new ductwork for EF22\_LAB\_0S.

**M108.1.B – SHELL & CORE – AIR DISTRIBUTION LOW DUCT PLAN – LEVEL 08 – AREA B**

1. Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork as shown.
2. Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork as shown.

**M108.2.A – SHELL & CORE – AIR DISTRIBUTION HIGH DUCT PLAN – LEVEL 08 – AREA A**

1. Provide and install new ductwork for EF22\_LAB\_0S.
2. Refer to new exhaust fan ductwork roof penetrations.
3. Revise roof penetration note for AHU11\_CLIN\_6S.
4. Revise roof penetration locations per the bubbled changes.

**M108.2.B – SHELL & CORE – AIR DISTRIBUTION HIGH DUCT PLAN – LEVEL 08 – AREA B**

1. Provide and install new ductwork for EF24\_ISO\_2N exhaust ductwork as shown.
2. Provide and install new ductwork for EF25\_MED\_2N exhaust ductwork as shown.
3. Refer to new exhaust fan ductwork roof penetrations.
4. Revise generator exhaust ductwork penetration through roof as shown.
5. Revise roof penetration locations per the bubbled changes

**M108.3.A – SHELL & CORE – HYDRONIC PLAN – LEVEL 08 – AREA A**

1. Provide and install new glycol chilled water loop and all associated systems.
2. Revise chilled water supply and return piping to 12” as shown.

**M108.3.B – SHELL & CORE – HYDRONIC PLAN – LEVEL 08 – AREA B**

1. Provide and install new glycol chilled water system and all associated systems.

**M109.A – SHELL & CORE – MECHANICAL PLAN – ROOF – AREA A**

1. Provide and install new EF22\_LAB\_0S.
2. Revise rooftop equipment locations per the bubbled changes.

**M109.B – SHELL & CORE – MECHANICAL PLAN – ROOF – AREA B**

1. Provide and install new EF24\_ISO\_2N.
2. Provide and install new EF25\_MED\_2N.
3. Provide and install roof curb for stairwell pressurization duct roof penetration as noted.
4. Revise generator exhaust ductwork penetration through roof as shown.



**M201 – SHELL & CORE – MECHANICAL ACCESS PLAN – LEVEL 08**

1. Refer to changes in mechanical access plan in association with new glycol chilled water system.

**M302 – SHELL & CORE – MECHANICAL ENLARGED PLANS**

1. Refer to location for LFP-1 and LFP-2 as shown.

**M303 – SHELL & CORE – MECHANICAL ENLARGED PLANS**

1. Remove all equipment, ductwork and all other appurtenances associated with EF12\_MER\_0S.

**M304 – SHELL & CORE – MECHANICAL ENLARGED PLANS**

1. Remove all equipment, ductwork and all other appurtenances associated with EF12\_MER\_0S.

**M307 – SHELL & CORE – MECHANICAL ENLARGED PLANS**

1. Revise AHU3\_LAB\_12N return air ductwork and associated FSD as shown.

**M308 – SHELL & CORE – MECHANICAL ENLARGED PLANS**

1. Revise condensate pipe routing as shown.

**M309 – SHELL & CORE – MECHANICAL ENLARGED PLANS**

1. Provide and install new FSD for AHU4\_AUX\_012N return air ductwork as shown.
2. Revise generator exhaust ductwork and silencer as shown.

**M401 – SHELL & CORE – AIR HANDLING UNIT DETAILS**

1. Revise AHU6\_SUR\_2N name as shown.

**M403 – SHELL & CORE – AIR HANDLING UNIT DETAILS**

1. Revise AHU14\_SUR\_2S name as shown.
2. Revise AHU14\_SUR\_2S detail as shown.

**M405 – SHELL & CORE – MECHANICAL DETAILS**

1. Remove low exhaust detail.
2. Refer to new “BASE MOUNTED PUMP PIPING DETAIL – TYPE B” detail as shown.
3. Refer to bubbled changes on “BASE MOUNTED PUMP PIPING DETAIL – TYPE A” as shown.

**M407 – SHELL & CORE – MECHANICAL DETAILS**

1. Refer to new “MANUAL AIR VENT DETAIL – PIPES 3” AND SMALLER” detail as shown.
2. Revise “AUTOMATIC AIR VENT DETAILS – 4” AND LARGER” to “MANUAL AIR VENT DETAIL -4” AND LARGER” refer to changes on detail.

**M503 – SHELL & CORE – MECHANICAL SECTIONS**

1. Remove all equipment, ductwork and all other appurtenances associated with EF12\_MER\_0S.

**M507 – SHELL & CORE – MECHANICAL SECTIONS**

1. Remove all equipment, ductwork and all other appurtenances associated with EF12\_MER\_0S.

**M508 – SHELL & CORE – MECHANICAL SECTIONS**

1. Remove all equipment, ductwork and all other appurtenances associated with EF12\_MER\_0S.

**M600 – SHELL & CORE – MECHANICAL PIPING SCHEMATIC**



1. *Revise LFP-2 selection.*
2. *Revise all automatic air vents to manual air vents as shown.*

**M603 – SHELL & CORE – MECHANICAL PIPING SCHEMATIC**

1. *Refer to bubbled changes on “HOT WATER COIL PIPING SCHEMATIC – 2 COIL”.*
2. *Refer to bubbled changes on “HOT WATER COIL PIPING SCHEMATIC – 3 COIL”.*
3. *Refer to bubbled changes on “CHILLED WATER COIL PIPING SCHEMATIC – 3 COIL”.*
4. *Refer to bubbled changes on “CHILLED WATER COIL PIPING SCHEMATIC – 2 COIL”.*
5. *Refer to bubbled changes on “AHU-15 CHILLED WATER COIL PIPING SCHEMATIC”.*

**M604 – SHELL & CORE – MECHANICAL PIPING SCHEMATIC**

1. *Refer to new “GLYCOL CHILLED WATER SYSTEM PIPING SCHEMATIC” on new sheet.*

**M700 – SHELL & CORE – MECHANICAL SCHEDULES**

1. *Revise name to AHU6\_SUR\_2N and AHU14\_SUR\_2S as shown.*
2. *Refer to bubbled changes on “C&S – HYDRONIC PUMP SCHEDULE” CWP-1/2, GWP-1/2/3 and LFP-1/2/3 added to schedule.*
3. *Refer to bubbled changes on “C&S – EXHAUST FAN SCHEDULE” EF22\_LAB\_0S, EF24\_ISO\_2N and EF25\_MED\_2N added to schedule. EF11\_LAB\_2N revised to 7150CFM and \_MER\_0S removed from schedule.*
4. *Remove note 9 from AHU15\_MER\_0S schedule remark.*
5. *Refer to bubbled changes of Remark 1 on “C&S – HEAT RECOVERY CHILLER” schedule.*

**M701 – SHELL & CORE – MECHANICAL SCHEDULES**

1. *Refer to bubbled changes on “C&S – AIR/DIRT SEPARATOR SCHEDULE” ADS-3 added to schedule.*
2. *Refer to bubbled changes on “C&S – EXPANSION TANK SCHEDULE” ET-4 added to schedule.*
3. *Refer to bubbled changes on “C&S – LOOP FILTER SCHEDULE” LF-3 added to schedule.*
4. *Revise GPM to GAL on “C&S – FUEL OIL TANK SCHEDULE”*
5. *Remove remark 3 from “C&S – FREEZE PROTECTION PUMP SCHEDULE”*

**M702 – SHELL & CORE – MECHANICAL SCHEDULES**

1. *Refer to new schedule “C&S – CHILLER – WATER COOLED SCHEDULE”.*
2. *Refer to new schedule “C&S – BUFFER TANK SCHEDULE”.*

**E208-A – SHELL & CORE LIGHTING PLAN – LEVEL 08 – AREA A**

1. *Revised fixture type for three (3) L9A fixtures to new fixture type L9B.*

**E300-A – SHELL & CORE POWER PLAN – LEVEL 00 – AREA A**

1. *Added new sheet showing FSD’s*

**E300-B – SHELL & CORE POWER PLAN – LEVEL 00 – AREA B**

1. *Added new sheet showing FSD’s*

**E300-C – SHELL & CORE POWER PLAN – LEVEL 00 – AREA C**

1. *Added new sheet showing dock equipment power*

**E301-A – SHELL & CORE POWER PLAN – LEVEL 01 – AREA A**

1. *Added new sheet showing FSD’s*



*E301-B – SHELL & CORE POWER PLAN – LEVEL 01 – AREA B*

- 1. Added new sheet showing FSD's*

*E302-A – SHELL & CORE POWER PLAN – LEVEL 02 – AREA A*

- 1. Added new sheet showing FSD's*

*E302-B – SHELL & CORE POWER PLAN – LEVEL 02 – AREA B*

- 1. Added new sheet showing FSD's*

*E302-C – SHELL & CORE POWER PLAN – LEVEL 02 – AREA C*

- 1. Added new sheet showing WP/GF receptacles*

*E302-D – SHELL & CORE POWER PLAN – LEVEL 02 – AREA D*

- 1. Added new sheet showing WP/GF receptacles*

*E302-E – SHELL & CORE POWER PLAN – LEVEL 02 – AREA E*

- 1. Added new sheet showing WP/GF receptacles*

*E303-A – SHELL & CORE POWER PLAN – LEVEL 03 – AREA A*

- 1. Added new sheet showing FSD's*

*E303-B – SHELL & CORE POWER PLAN – LEVEL 03 – AREA B*

- 1. Added new sheet showing FSD's*

*E304-A – SHELL & CORE POWER PLAN – LEVEL 04 – AREA A*

- 1. Added new sheet showing FSD's*

*E304-B – SHELL & CORE POWER PLAN – LEVEL 04 – AREA B*

- 1. Added new sheet showing FSD's*

*E305-A – SHELL & CORE POWER PLAN – LEVEL 05 – AREA A*

- 1. Added new sheet showing FSD's*

*E305-B – SHELL & CORE POWER PLAN – LEVEL 05 – AREA B*

- 1. Added new sheet showing FSD's*

*E306-A – SHELL & CORE POWER PLAN – LEVEL 06 – AREA A*

- 1. Added new sheet showing FSD's*

*E306-B – SHELL & CORE POWER PLAN – LEVEL 06 – AREA B*

- 1. Added new sheet showing FSD's*

*E307-A – SHELL & CORE POWER PLAN – LEVEL 07 – AREA A*

- 1. Added new sheet showing FSD's*

*E307-B – SHELL & CORE POWER PLAN – LEVEL 07 – AREA B*

- 1. Added new sheet showing FSD's*

*E309-A - SHELL & CORE POWER PLAN - ROOF - AREA A*

- 1. Added EF-22*



2. *Added WP,GF maintenance receptacles.*

**E309-B - SHELL & CORE POWER PLAN - ROOF - AREA B**

1. *Added EF-24*
2. *Added EF-25*
3. *Added WP, GF maintenance receptacles.*

**E500 - ENLARGED PLANS**

1. *Add HMI locations to plans.*
2. *Add FSD power connections.*

**E501 - ENLARGED PLANS**

1. *Add FSD power connections.*

**E504 - ENLARGED PLANS**

1. *Revise LFP-1 locations.*
2. *Add GFP-1*
3. *Add FSD power connections.*

**E505 - ENLARGED PLANS**

1. *Add HMI locations to plans.*
2. *Add FSD power connections.*

**E507 - ENLARGED PLANS**

1. *Add CWP-1*
2. *Add CWP-2*
3. *Add CH-1*
4. *Add CH-2*
5. *Added WP/GF receptacles on roof.*

**E508 - ENLARGED PLANS**

1. *Add LFP-3*
2. *Add GWP-1*
3. *Add GWP-2*
4. *Add GWP-3*
5. *Add CFT-1*
6. *Add GFP-1*
7. *Added WP/GF receptacles on roof*
8. *Added power connections for FSD's*

**E509 - ENLARGED PLANS**

1. *Added WP/GF receptacles on roof*
2. *Added power connections for FSD's*

**E510 - ENLARGED PLANS**

1. *Added WP/GF receptacles on roof*

**E700 - ONE-LINE DIAGRAM - NORMAL POWER**





1. *Show/Revise HMI Locations*

*E703 - ONE-LINE DIAGRAM - NORMAL POWER*

1. *Show/Revise HMI Locations*
2. *Revise breaker and feeder sizes*

*E900 - SCHEDULES*

1. *Revise types L1, L1A, L2, L2A, L9 on luminaire schedule.*
2. *Add new fixture types L2B, L7, L9B to luminaire schedule.*

*EM700 - ONE-LINE DIAGRAM - ESSENTIAL POWER*

1. *Show/Revise HMI Locations*
2. *Revise feeder tags*

*EM703 - ONE-LINE DIAGRAM - ESSENTIAL POWER*

1. *Show/Revise HMI Location*
2. *Revise equipment locations/names*

*ESP-101 - POWER PLAN - SITE AREA 1*

1. *Add/revise keynotes.*

*ESP-201 - LIGHTING PLAN - SITE AREA 1*

1. *Revise fixture type for two (2) L2A fixtures to new fixture type L2B.*

*ESP-202 - LIGHTING PLAN - SITE AREA 2*

1. *Add eight (8) L7 Fixtures.*
2. *Revise circuiting for one (1) L8A fixture.*

*ESP-204 - LIGHTING PLAN - SITE AREA 4*

1. *Add four (4) C5 Fixtures.*
2. *Shift location of one (1) L2 Fixture.*
3. *Add/Revise keynotes.*

**PART B - SPECIFICATIONS:**

*Revised Table of Contents*

*Section 019113 – Building Systems Commissioning*

1. *New Section.*

*Section 019115 – Building Enclosure Commissioning*

1. *New Section.*

*Section 019117 – Building Enclosure Functional Performance Testing*

1. *New Section.*



*Section 064013 – Exterior Architectural Woodwork*

1. *New Section.*

*Section 074213.13 – Formed Metal Wall Panels*

1. *New Section.*

*Section 074213.23 – Metal Composite Material Wall Panels*

1. *Revised to include color name for MP-3.*

*Section 077100 – Roof Specialties*

1. *Revised to include roof-edge drainage systems at Penthouse.*

*Section 077200 – Roof Accessories*

1. *Revised to add Roof Curbs.*

*Section 088000 – Glazing*

1. *Revised to add coating color to Glass Types (GL-41) & (GL-42).*

*Section 089119 – Fixed Louvers*

1. *Revised to add Louver Type LVR-3 at Penthouse.*

*Section 111310 Hydraulic Dock Leveler*

1. *Paragraph 2.1.I.3, revised motor and starter supplied voltage.*
2. *Paragraph 2.2.B.3, revised voltage.*

*Section 220500 – Compressed Air*

1. *Delete entire section.*

*Section 226700 – Reverse Osmosis Water.*

1. *Delete entire section.*

*Section 231200*

1. *Updated fire damper requirements for horizontal assembly penetration locations.*
2. *Added requirements for Central Sterile Exhaust Ductwork.*
3. *Updated requirements for Lab/Pharmacy Exhaust Ductwork.*
4. *Added requirements for Stairwell Pressurization Duct Systems, including duct pressure testing*

*Section 231213*

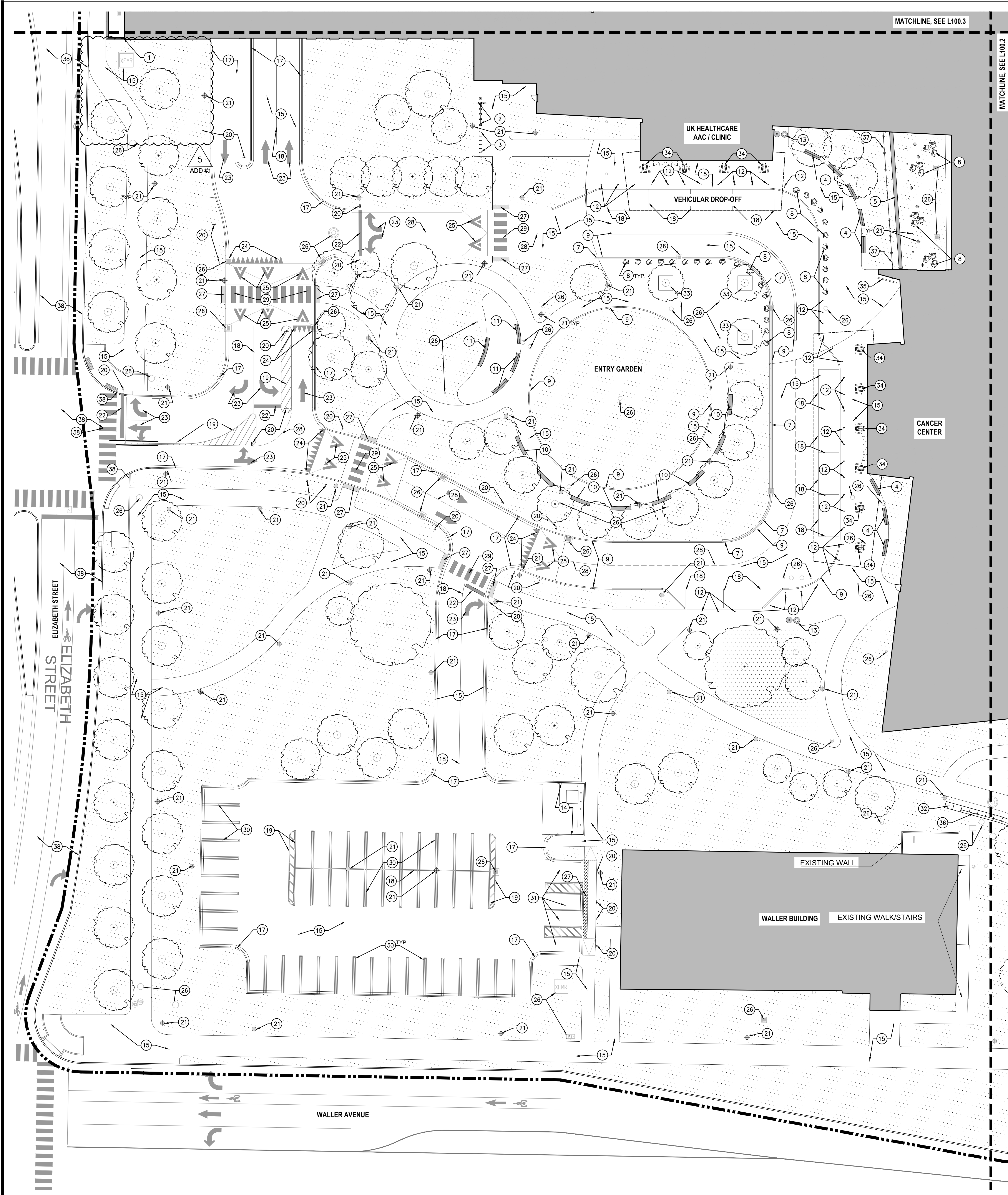
1. *Delete section 2.c. – FUEL MAINTENANCE SYSTEM.*
2. *Delete section 3.e. - FUEL MAINTENANCE SYSTEM INSTALLATION*

**End of Addendum**





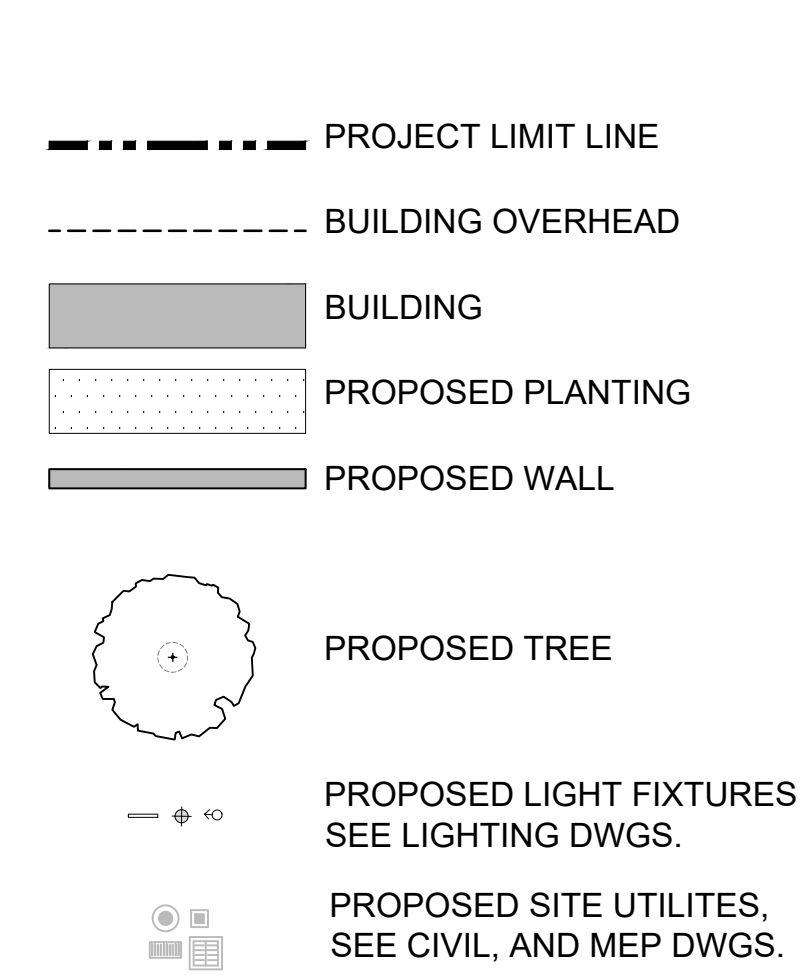




SITE PLAN CODED NOTES

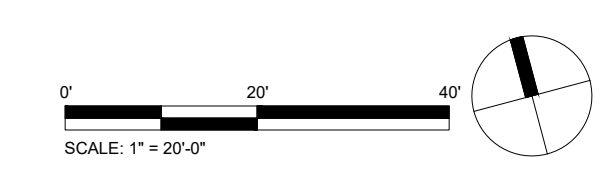
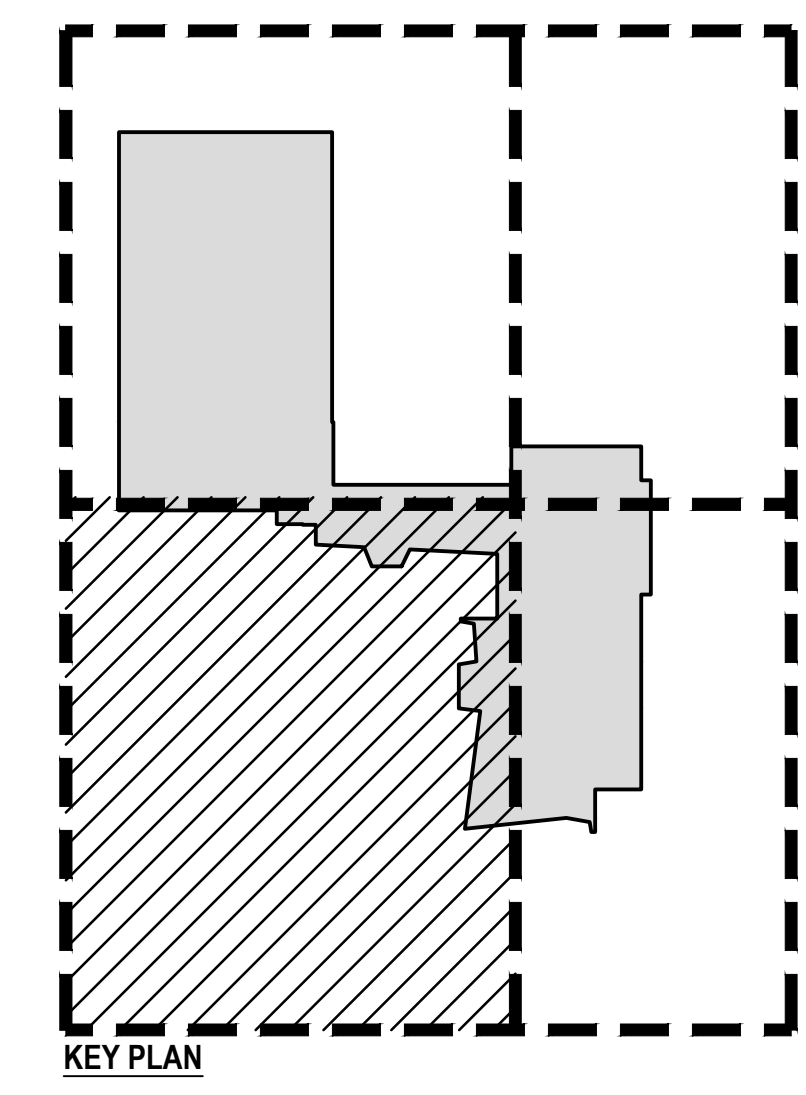
KEY	DESCRIPTION	DETAILS
1	CONCRETE RETAINING WALL	4 / L802
2	E-BIKE PARKING	
3	BICYCLE RACK	2 / L804
4	STONE CLAD SEAT WALL - AT BUILDING ENTRY - ILLUMINATED	1 / L803
5	STONE CLAD RETAINING WALL - AT RAD MED GARDEN	1 / L802
6	NOT USED	
7	SLOT DRAIN - SEE CIVIL DRAINAGE PLAN	SEE CIVIL
8	BOULDER	4 / L804
9	FLUSH CONCRETE RIBBON CURB	15 / L800
10	STONE CLAD SEAT WALL - AT ENTRY GARDEN - NON-ILLUMINATED	4 / L803
11	STONE CLAD SEAT WALL - AT ENTRY GARDEN - ILLUMINATED	2 / L803
12	BOLLARD	3 / L804
13	TRASH AND RECYCLING RECEPTACLE	1 / L804
14	DUMPSTER ENCLOSURE	5A-5B / L805
15	PAVEMENT - SEE MATERIALS PLAN FOR TYPE	
16	CONCRETE TRAFFIC TABLE	20 / L800
17	CONCRETE CURB AND GUTTER	14 / L800
18	SOLID PAINTED WHITE STRIPE	
19	STRIPED ISLAND - PAINTED YELLOW STRIPE OUTLINE WITH INTERIOR STRIPES SPACED 24" O.C. ANGLED 45 DEGREES	
20	TRAFFIC SIGN - SEE TRAFFIC SIGNAGE & STRIPING PLAN	1 / L340.2
21	LIGHT POLE - SEE MEP & LIGHTING PLANS	
22	THERMOPLASTIC STOP BAR - SEE TRAFFIC SIGNAGE & STRIPING PLAN	2 / L340.2
23	THERMOPLASTIC DIRECTIONAL ARROW - SEE TRAFFIC SIGNAGE & STRIPING PLAN	2 / L340.2
24	THERMOPLASTIC SHARK TEETH YIELD MARKINGS - SEE TRAFFIC SIGNAGE & STRIPING PLAN	2 / L340.2
25	THERMOPLASTIC SPEED TABLE ARROW - SEE TRAFFIC SIGNAGE & STRIPING PLAN	2 / L340.2
26	UTILITY STRUCTURE - SEE UTILITY/CIVIL PLANS	
27	DETECTABLE WARNING PAVERS	5 / L340.2
28	DASHED PAINTED WHITE STRIPE	
29	THERMOPLASTIC CROSSWALK STRIPING - SEE TRAFFIC SIGNAGE & STRIPING PLAN	2 / L340.2
30	UK STANDARD PARKING SPACE STRIPING - SEE TRAFFIC SIGNAGE & STRIPING PLAN	3 / L340.2
31	UK STANDARD HANDICAP PARKING SPACE AND ACCESS AISLE - SEE TRAFFIC SIGNAGE & STRIPING PLAN	4 / L340.2
32	SEGMENTAL RETAINING WALL - SEE SPECIFICATIONS	
33	7"x7" TREE WELL - SEE LANDSCAPE PLAN	
34	CANOPY SUPPORT BASE WITH IN-GROUND LIGHTS - SEE ARCH. DRAWINGS	
35	IN-GROUND SHROUD LIGHT - SEE LIGHTING PLANS	
36	WIRE MESH BARRIER - 3'-6" H.	3 / L802
37	WIRE MESH BARRIER - 3'-0" H.	3 / L802
38	ELIZABETH STREET IMPROVEMENTS BY OTHERS (NOT IN CONTRACT)	

SITE PLAN LEGEND



SITE PLAN NOTES

- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS GOVERNING THE WORK.
- DO NOT SCALE OFF DRAWINGS. USE DRAWING DIMENSIONS ONLY. VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO COMMENCEMENT OF WORK. BRING TO THE ATTENTION OF LANDSCAPE ARCHITECT ANY DISCREPANCIES BETWEEN FIELD CONDITIONS AND DRAWINGS PRIOR TO THE BEGINNING OF WORK. FIELD CONDITION DISCREPANCIES SHALL NOT BE USED AS THE BASIS FOR CHANGE ORDER CLAIMS ONCE WORK HAS BEGUN.
- PRESERVE AND PROTECT ALL EXISTING STRUCTURES, FURNISHINGS, SURFACE MATERIALS, ABOVE AND BELOW-GRADE UTILITIES, FOOTINGS AND VEGETATION INDICATED TO REMAIN WITHIN AND ADJACENT TO LIMIT OF WORK DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION.
- THE EXISTENCE AND LOCATION OF EACH AND EVERY UNDERGROUND UTILITY IS NOT GUARANTEED AND UNDOCUMENTED CONDITIONS MAY EXIST. COORDINATE WITH LANDSCAPE ARCHITECT FOR LOCATIONS OF UTILITIES NOT SHOWN ON THE BASE DRAWING INCLUDING, BUT NOT LIMITED TO, HIGH VOLTAGE ELECTRIC, ABANDONED STEAM LINES, ABANDONED WATER LINES, TELEPHONE, CABLES, ETC. STAKE OUT LOCATION OF ALL UTILITIES PRIOR TO COMMENCEMENT OF WORK. ANY UTILITY THAT IS DAMAGED DURING SITE WORK OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- MAINTAIN VEHICULAR TRAFFIC FLOW TO AND AROUND THE SITE. MAINTAIN CLEARLY MARKED PEDESTRIAN ACCESS TO AREAS ON-SITE NOT AFFECTED BY CONSTRUCTION ACTIVITIES.
- CONTRACTOR SHALL ADJUST ALL EXISTING UTILITY STRUCTURES AS REQUIRED TO MEET PROPOSED GRADES, INCLUDING DRAIN INLETS, MANHOLES AND LIGHT POLE BASES. CONTRACTOR SHALL MEET EXISTING GRADES AT ALL EDGES OF LIMIT OF WORK.
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- SEE CIVIL DWGS. FOR DEMOLITION AND EXISTING UTILITIES.



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI Affiliated Engineers**

**CMTA**  
**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 CIVIL ENGINEERING  
**WALSH** CONSULTING GROUP

**bell engineering**  
**CDM Smith**

**PIVOTAL** lighting design

**UK HEALTHCARE**

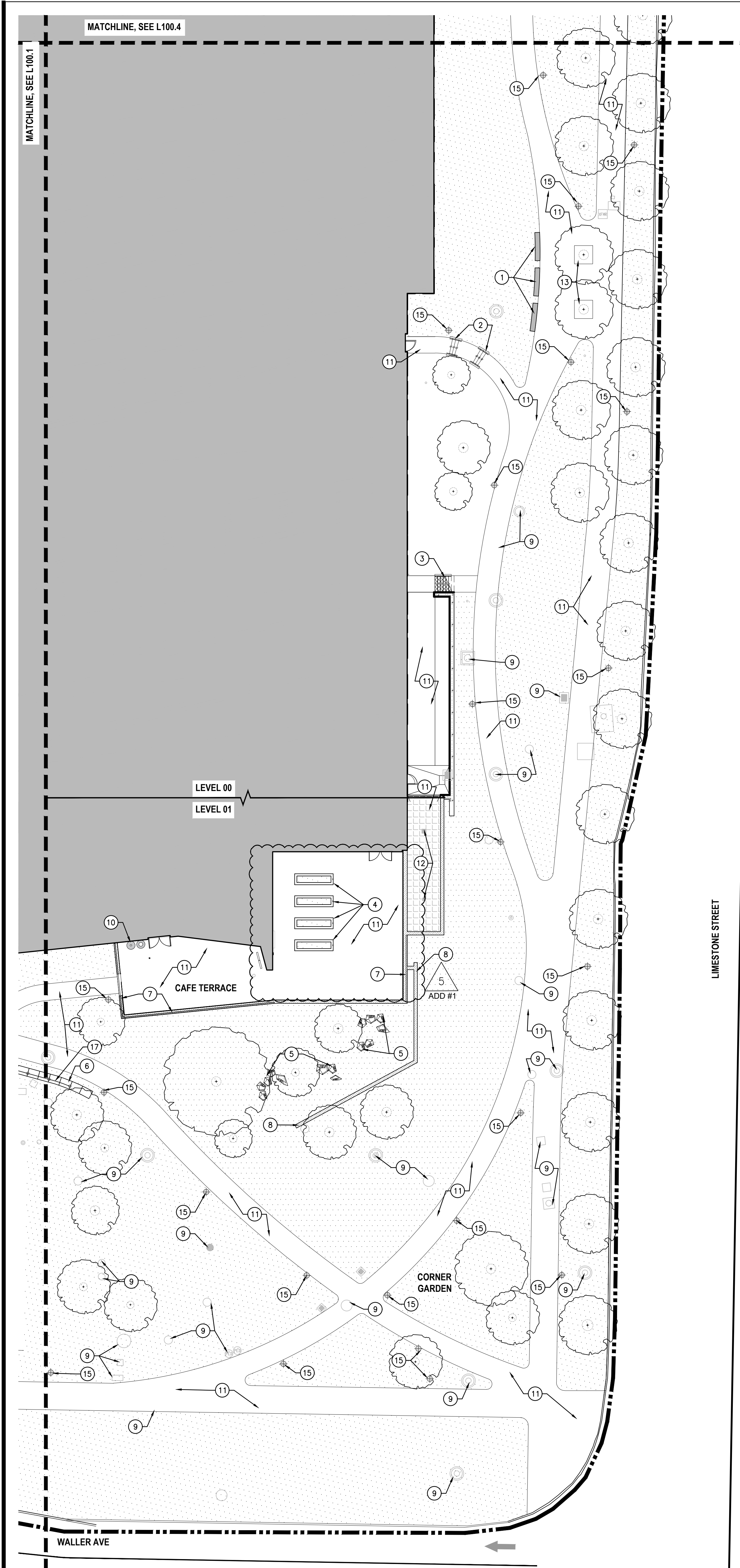
**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

ISSUANCES

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By: WTD  
 Checked By: KW  
 Client Number: 514  
 Project Number: 6926

DRAWING TITLE  
 SITE PLAN - AREA 1  
 SHEET NO.  
**L100.1**



SITE PLAN CODED NOTES

KEY	DESCRIPTION	DETAILS
1	STONE CLAD SEAT WALL - AT ENTRY GARDEN - NON-ILLUMINATED, MODULE C	4 / L803
2	CIP CONCRETE STAIR - 3 RISERS	1 / L801
3	CIP CONCRETE STAIR - 5 RISERS	2 / L801
4	RAISED GARDEN BED OVER STRUCTURE	8 / L804
5	BOULDER	4 / L804
6	SEGMENTAL RETAINING WALL - SEE SPECIFICATIONS	
7	ARCHITECTURAL GUARDRAIL - SEE ARCHITECTURAL	
8	ARCHITECTURAL RETAINING WALL - SEE ARCHITECTURAL	
9	UTILITY STRUCTURE - SEE UTILITY PLANS	
10	TRASH AND RECYCLING RECEPTACLE	4 / L803
11	PAVEMENT - SEE MATERIALS PLAN FOR TYPE	2 / L803
12	AREAWAY - SEE ARCHITECTURAL	
13	7'x7' TREE WELL - SEE LANDSCAPE PLANS	
14	NOT USED	
15	LIGHT POLE - SEE MEP PLANS	
16	DRAINAGE STRUCTURE - SEE CIVIL DRAINAGE PLANS	
17	WIRE MESH BARRIER - 3'-6" H.	3 / L802

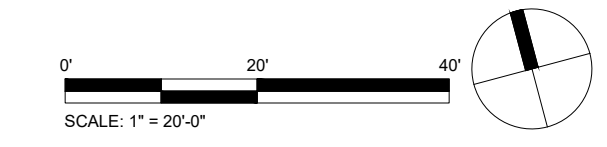
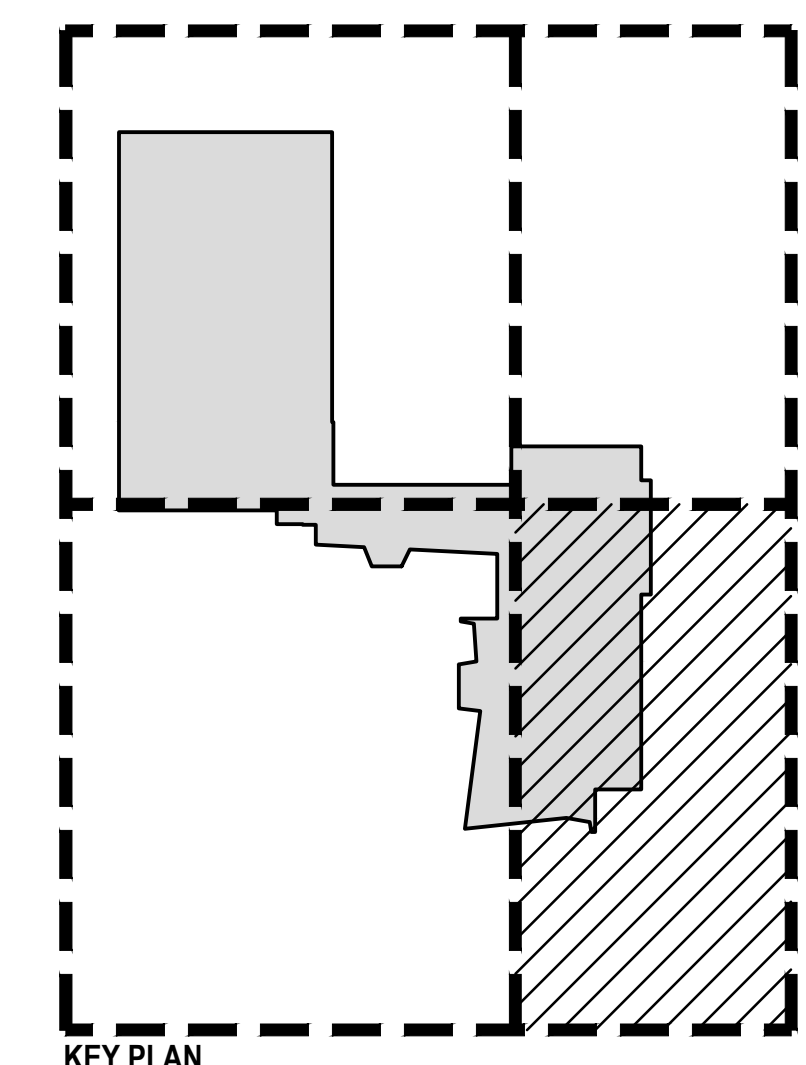
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ADD #1

SITE PLAN LEGEND

- PROJECT LIMIT LINE
- BUILDING OVERHEAD
- BUILDING
- PROPOSED PLANTING
- PROPOSED WALL
- PROPOSED TREE
- PROPOSED LIGHT FIXTURES  
SEE LIGHTING DWGS.
- PROPOSED SITE UTILITIES,  
SEE CIVIL, AND MEP DWGS.

SITE PLAN NOTES

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3. PRESERVE AND PROTECT ALL EXISTING STRUCTURES, FURNISHINGS, SURFACE MATERIALS, ABOVE AND BELOW - GRADE UTILITIES, FOOTINGS AND VEGETATION INDICATED TO REMAIN WITHIN AND ADJACENT TO LIMIT OF WORK DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION.
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**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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ISSUANCES

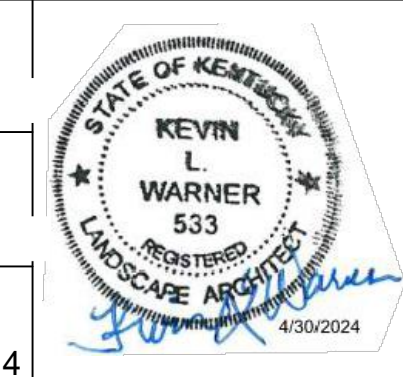
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2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
WTD

Checked By  
KW

Client Number  
514

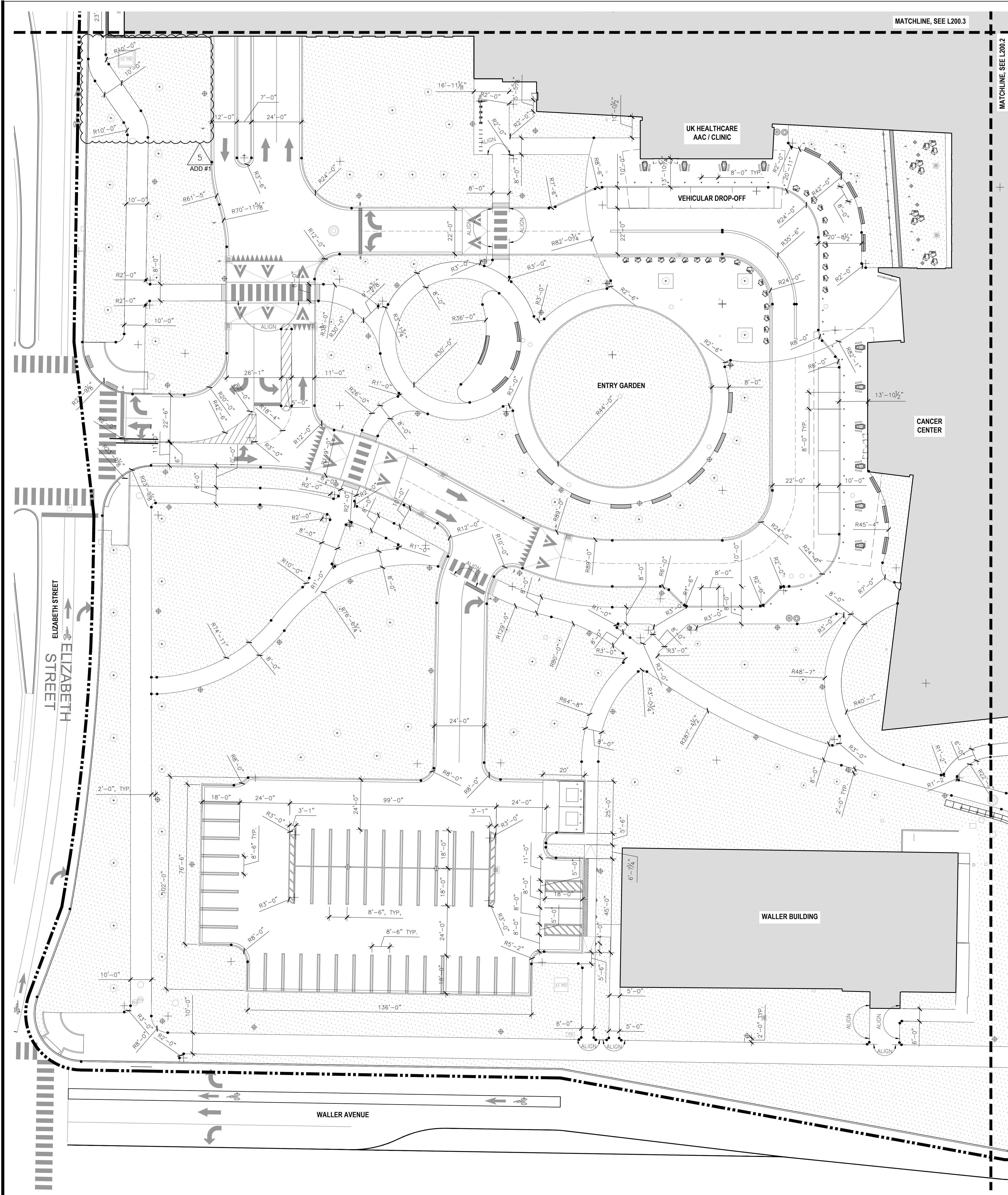
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6926



DRAWING TITLE

SITE PLAN - AREA 2

SHEET NO.  
**L100.2**



MATCHLINE, SEE L200.3

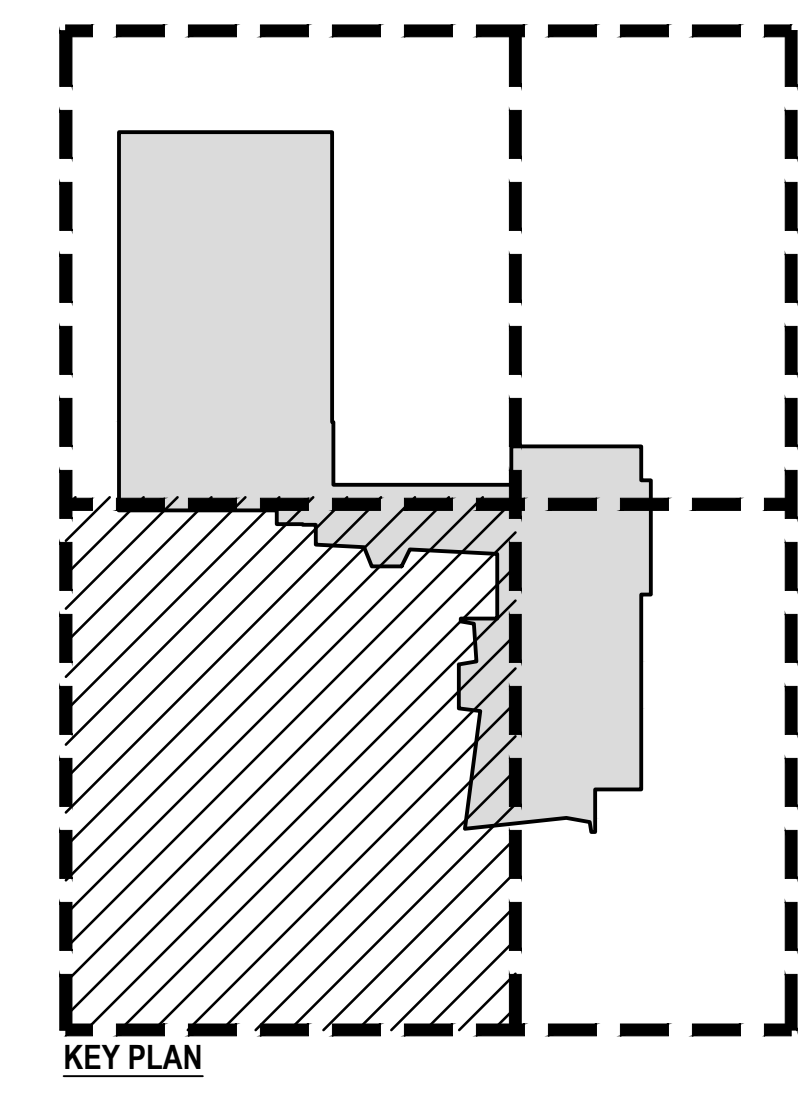
MATCHLINE, SEE L200.2

LAYOUT LEGEND

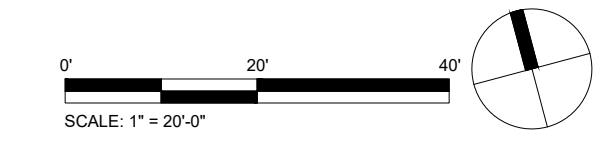
- PROJECT LIMIT LINE
- ▭ BUILDING
- ▨ PROPOSED PLANTING
- ⊕ XXXXXX CENTERLINE
- ALIGN
- POINT OF TANGENCY

LAYOUT PLAN NOTES

1. DO NOT SCALE DRAWINGS.
2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND LAYOUT DIMENSIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO LANDSCAPE ARCHITECT FOR DECISION PRIOR TO STARTING CONSTRUCTION.
3. CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT IF THERE IS ANY CONFLICT BETWEEN THE COORDINATE POINTS AND DIMENSIONS WHEN LAYING OUT IN THE FIELD.
4. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF BELOW GRADE UTILITY STRUCTURES DURING SITE LAYOUT AND REPORT ANY DISCREPANCIES BETWEEN FOOTINGS AND EXISTING BELOW-GRADE STRUCTURES TO LANDSCAPE ARCHITECT FOR DECISION PRIOR TO STARTING CONSTRUCTION.
5. CONTRACTOR SHALL STAKE OR FLAG ALL SITE ELEMENTS TO BE CONSTRUCTED IN THE FIELD FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
6. ALL ANGLES ARE ASSUMED TO BE 90 DEGREES UNLESS OTHERWISE STATED. ALL LINES ARE ASSUMED TO BE PARALLEL UNLESS OTHERWISE STATED. ALL DIMENSIONS ARE TO FACE OF CURB, WALL OR BUILDING UNLESS OTHERWISE STATED.
7. FOR EXISTING CONTROL POINTS, SEE CIVIL DWGS.



KEY PLAN



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI** Affiliated Engineers

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 UK Project Number 2563.0

ISSUANCES

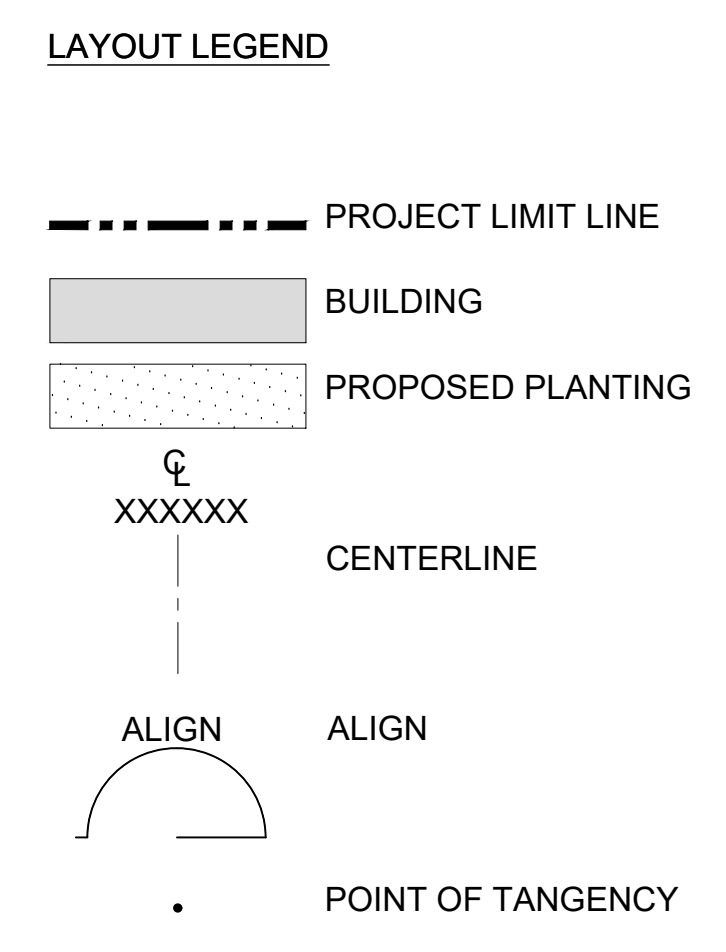
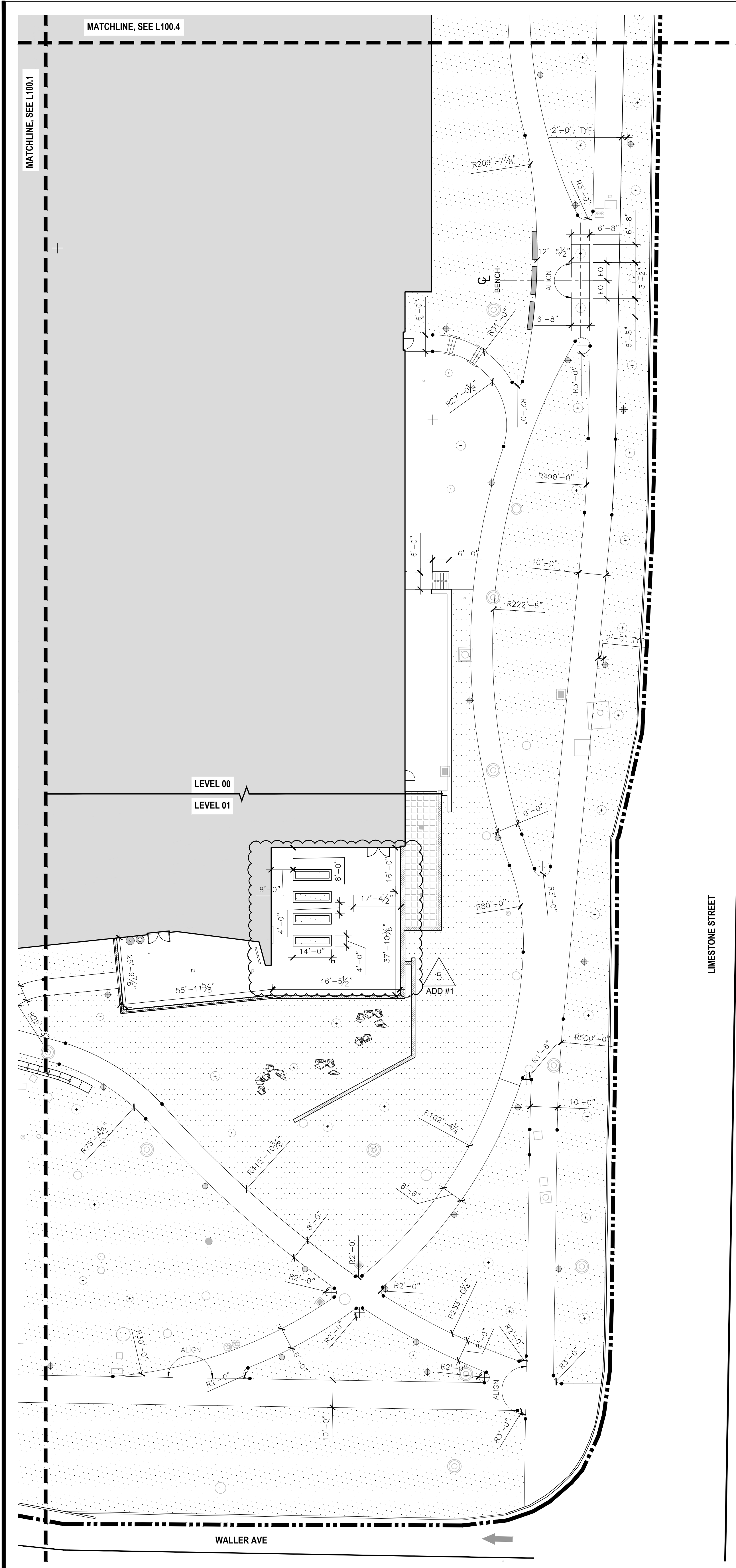
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3	C&S 100% CD REVIEW	04/09/24
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Checked By	KW
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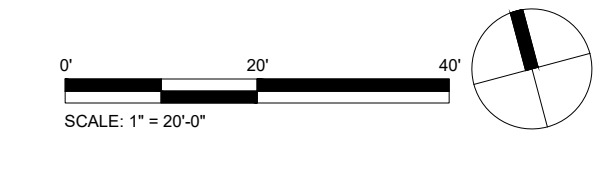
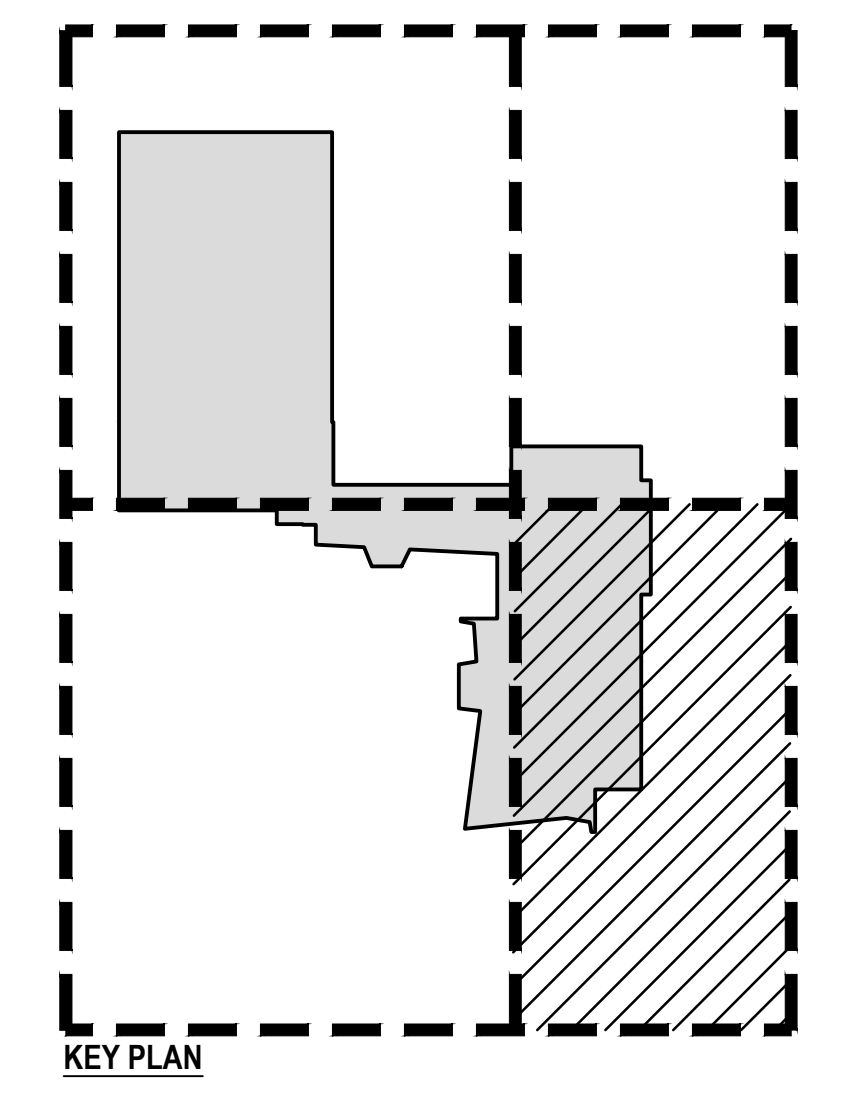
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LAYOUT PLAN - AREA 1

SHEET NO. **L200.1**



- LAYOUT PLAN NOTES**
1. DO NOT SCALE DRAWINGS.
  2. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND LAYOUT DIMENSIONS IN THE FIELD AND REPORT ANY DISCREPANCIES TO LANDSCAPE ARCHITECT FOR DECISION PRIOR TO STARTING CONSTRUCTION.
  3. CONTRACTOR SHALL CONTACT THE LANDSCAPE ARCHITECT IF THERE IS ANY CONFLICT BETWEEN THE COORDINATE POINTS AND DIMENSIONS WHEN LAYING OUT IN THE FIELD.
  4. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF BELOW GRADE UTILITY STRUCTURES DURING SITE LAYOUT AND REPORT ANY DISCREPANCIES BETWEEN FOOTINGS AND EXISTING BELOW-GRADE STRUCTURES TO LANDSCAPE ARCHITECT FOR DECISION PRIOR TO STARTING CONSTRUCTION.
  5. CONTRACTOR SHALL STAKE OR FLAG ALL SITE ELEMENTS TO BE CONSTRUCTED IN THE FIELD FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
  6. ALL ANGLES ARE ASSUMED TO BE 90 DEGREES UNLESS OTHERWISE STATED. ALL LINES ARE ASSUMED TO BE PARALLEL UNLESS OTHERWISE STATED. ALL DIMENSIONS ARE TO FACE OF CURB, WALL OR BUILDING UNLESS OTHERWISE STATED.
  7. FOR EXISTING CONTROL POINTS, SEE CIVIL DWGS.



**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
Affiliated  
Engineers

**CMTA**

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**CARMAN** LANDSCAPE ARCHITECTURE  
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engineering

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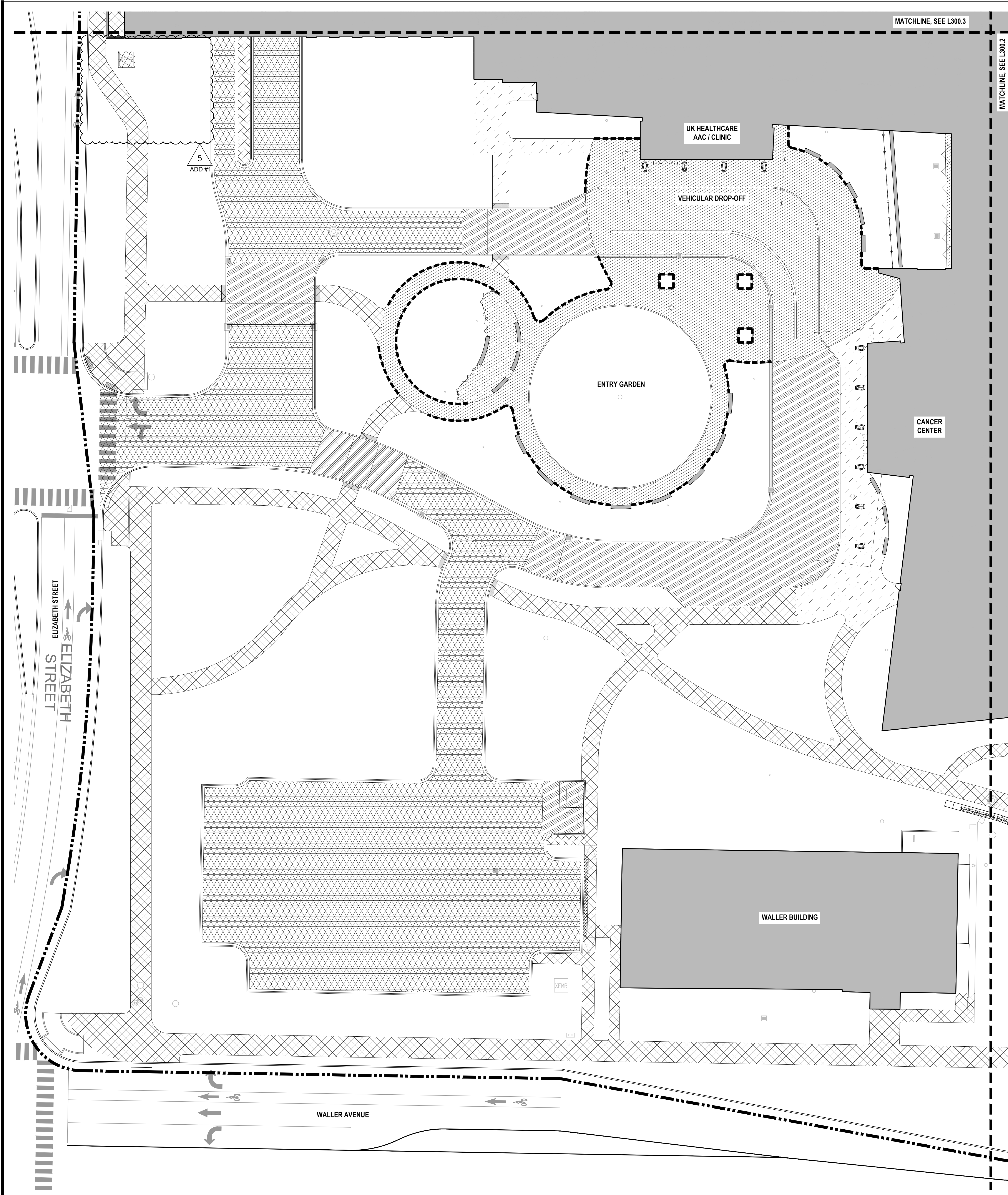
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Checked By: KW  
Client Number: 514  
Project Number: 6926

**DRAWING TITLE**

LAYOUT PLAN  
- AREA 2

**SHEET NO.**  
L200.2



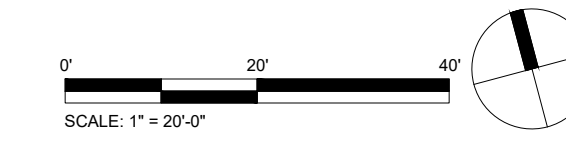
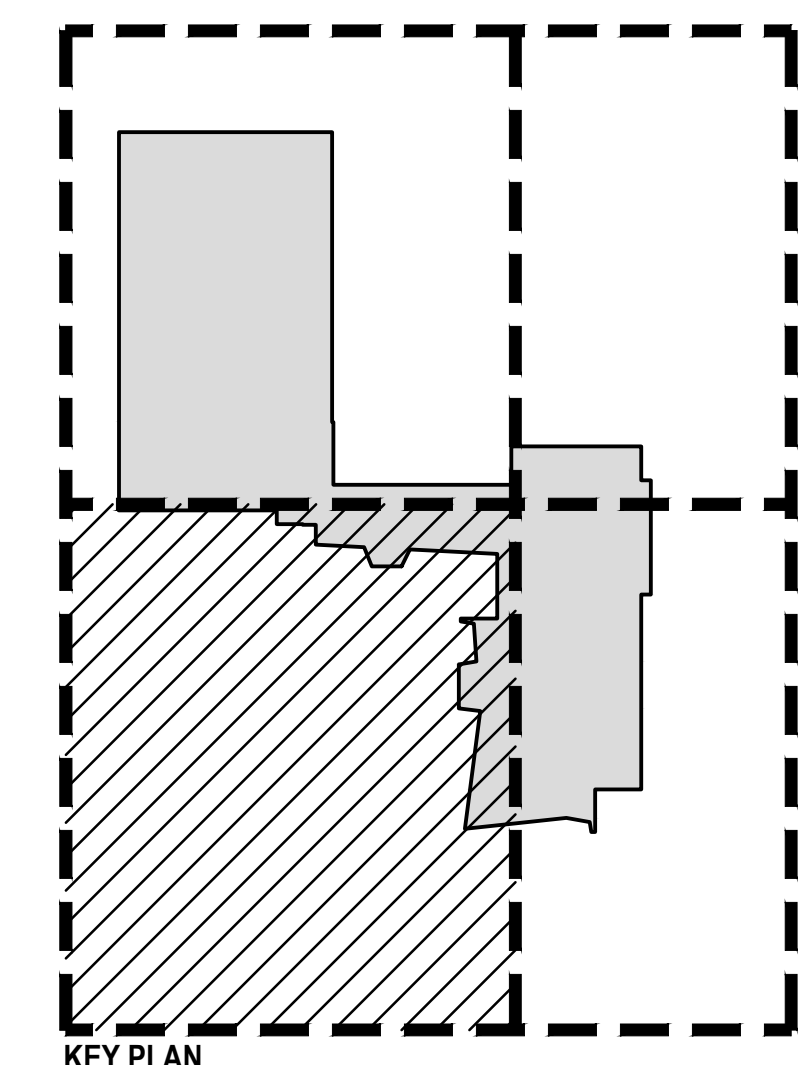


**MATERIAL LEGEND**

- PROJECT LIMIT LINE
- BUILDING OVERHEAD
- BUILDING
- ▨ CONCRETE UNIT PAVERS, SEE 1/L800
- ▩ CONCRETE UNIT PAVERS - OVER STRUCTURE, SEE 2/L800
- ▧ CONCRETE UNIT PAVERS ON PEDESTALS - ON-GRADE, SEE 3/L800
- ▦ CRUSHED STONE PAVING - PEDESTRIAN, SEE 5/L800
- ▤ ASPHALT PAVING - VEHICULAR, SEE 4/L800
- ▥ CIP CONCRETE PAVING - PEDESTRIAN, TYPE A, SEE 6/L800
- ▧ CIP CONCRETE PAVING - PEDESTRIAN, TYPE B, SEE 6/L800
- ▨ CIP CONCRETE PAVING - VEHICULAR, SEE 7/L800
- ▩ CIP CONCRETE - MED GAS PAD SEE 19/L800
- METAL EDGE - TYPE 1, SEE 10/L800
- METAL EDGE - TYPE 2, SEE 11/L800

**MATERIAL PLAN NOTES**

1. FOR LIGHTING, SEE LIGHTING CONSULTANT DRAWINGS



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
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**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
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**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

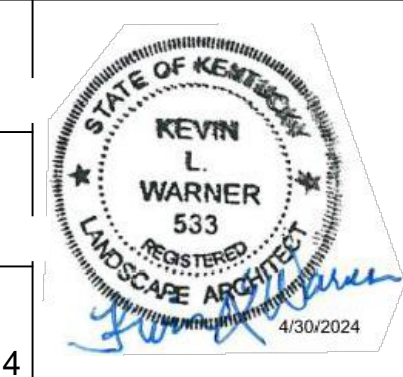
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**Cancer Treatment Center + Advanced Ambulatory Center**  
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 Lexington, KY 40536  
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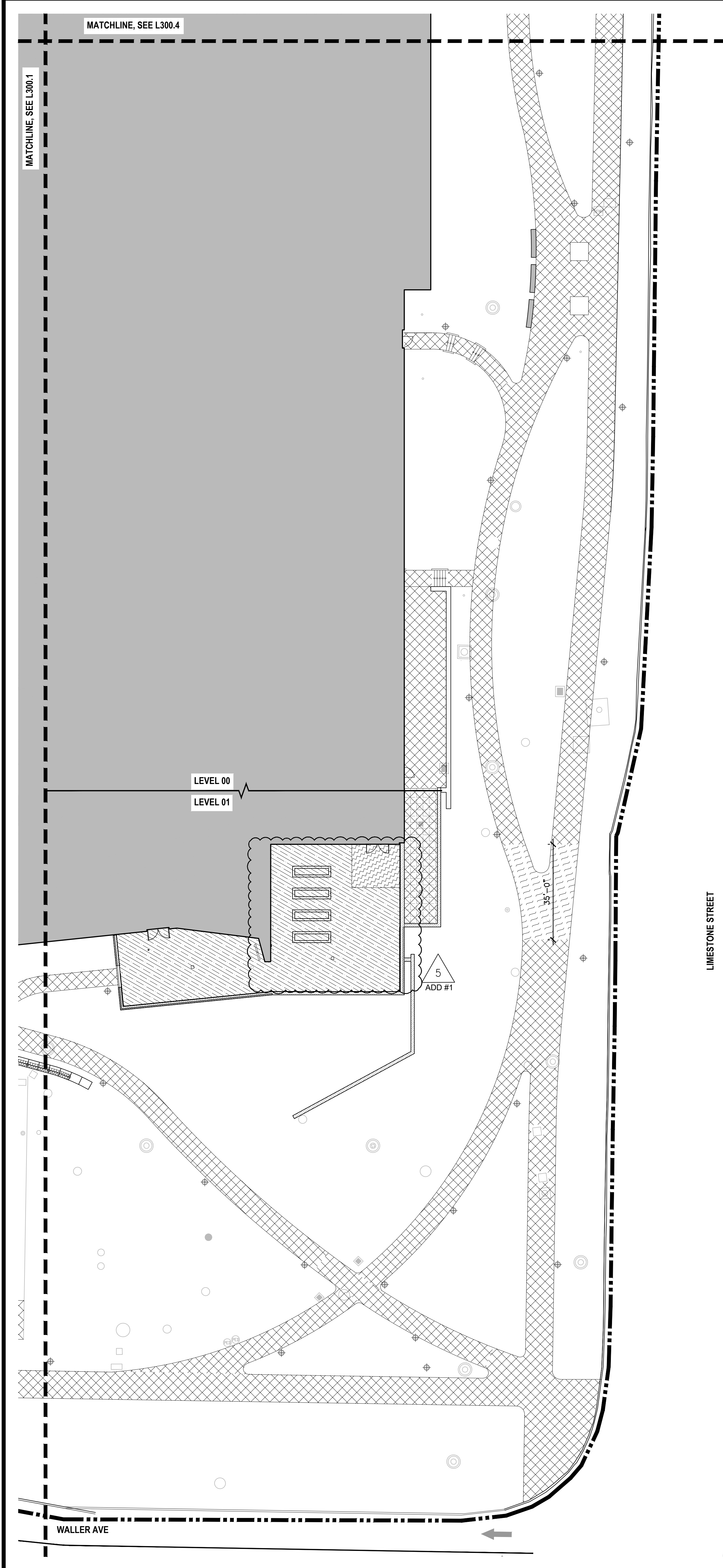
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 Checked By: KW  
 Client Number: 514  
 Project Number: 6926



**DRAWING TITLE**

MATERIALS PLAN - AREA 1

SHEET NO. L300.1

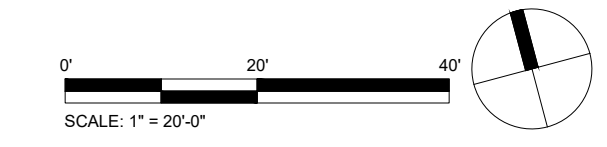
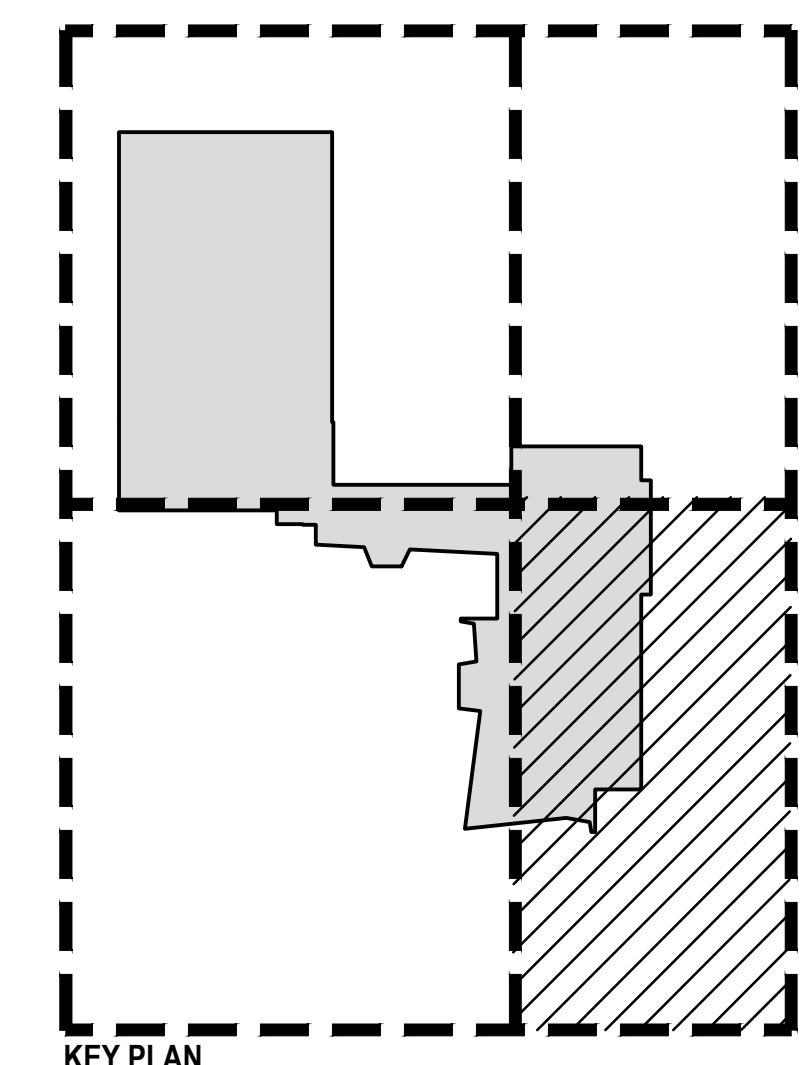


MATERIAL LEGEND

- PROJECT LIMIT LINE
- BUILDING OVERHEAD
- BUILDING
- ▨ CONCRETE UNIT PAVERS, SEE 1/L800
- ▩ CONCRETE UNIT PAVERS - OVER STRUCTURE, SEE 2/L800
- ▧ CONCRETE UNIT PAVERS ON PEDESTALS - ON-GRADE, SEE 3/L800
- ▦ CRUSHED STONE PAVING - PEDESTRIAN, SEE 5/L800
- ▤ ASPHALT PAVING - VEHICULAR, SEE 4/L800
- ▣ CIP CONCRETE PAVING - PEDESTRIAN, TYPE A, SEE 6/L800
- ▢ CIP CONCRETE PAVING - PEDESTRIAN, TYPE B, SEE 6/L800
- CIP CONCRETE PAVING - VEHICULAR, SEE 7/L800
- CIP CONCRETE - MED GAS PAD SEE 19/L800
- METAL EDGE - TYPE 1, SEE 10/L800
- METAL EDGE - TYPE 2, SEE 11/L800

MATERIAL PLAN NOTES

1. FOR LIGHTING, SEE LIGHTING CONSULTANT DRAWINGS



**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE.

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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**CDM Smith**

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5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
WTD

Checked By  
KW

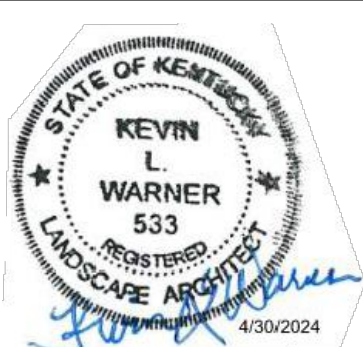
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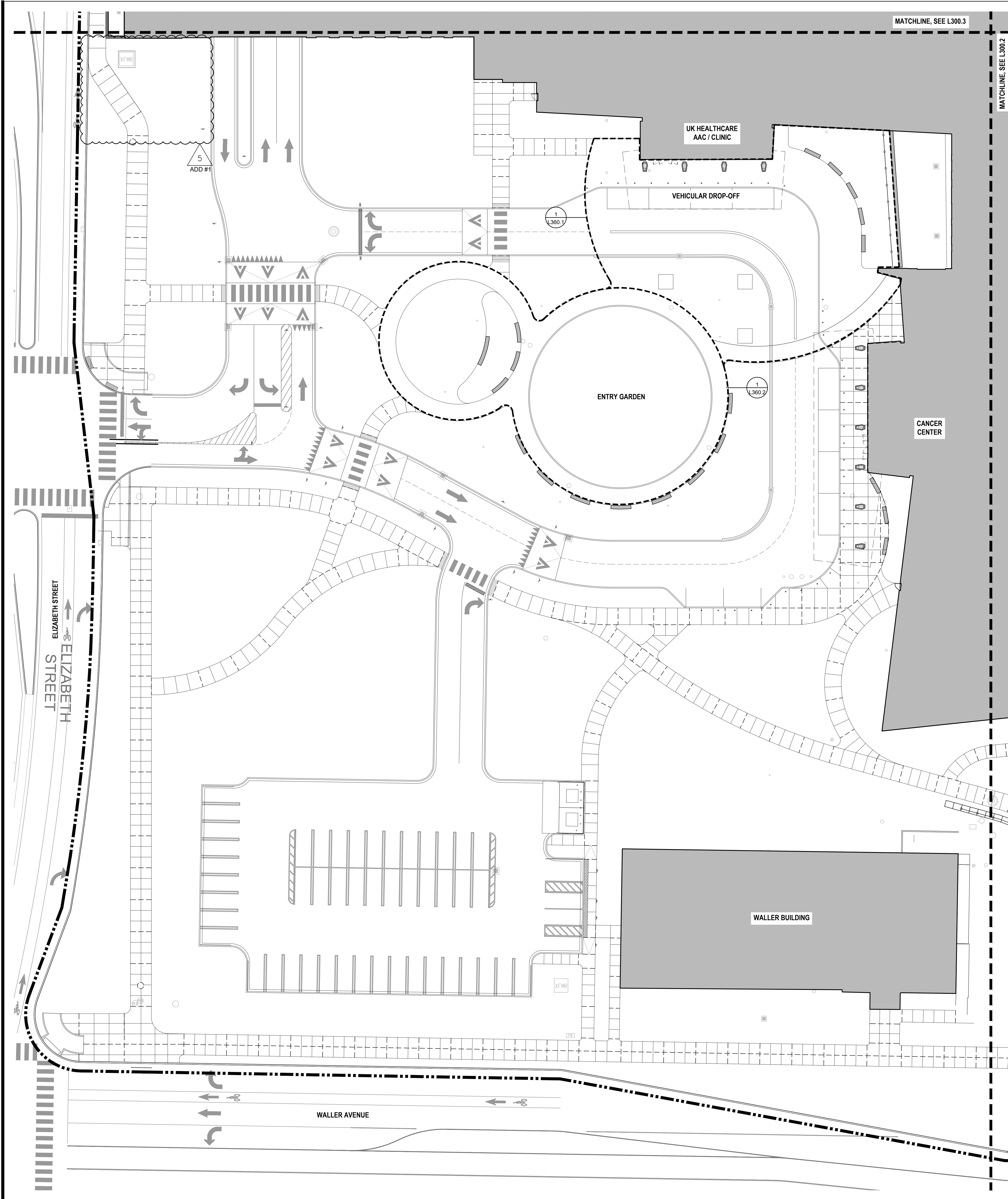
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6926

DRAWING TITLE

MATERIALS PLAN  
- AREA 2

SHEET NO.  
**L300.2**





PAVING LEGEND

- PROJECT LIMIT LINE
- ▬ BUILDING
- - - EXPANSION JOINT
- CONTROL JOINT

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ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
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420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
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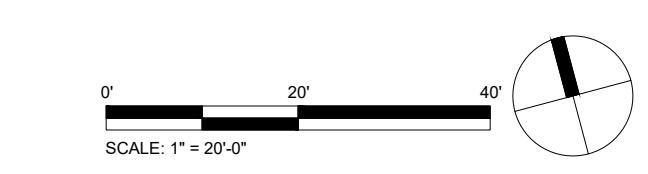
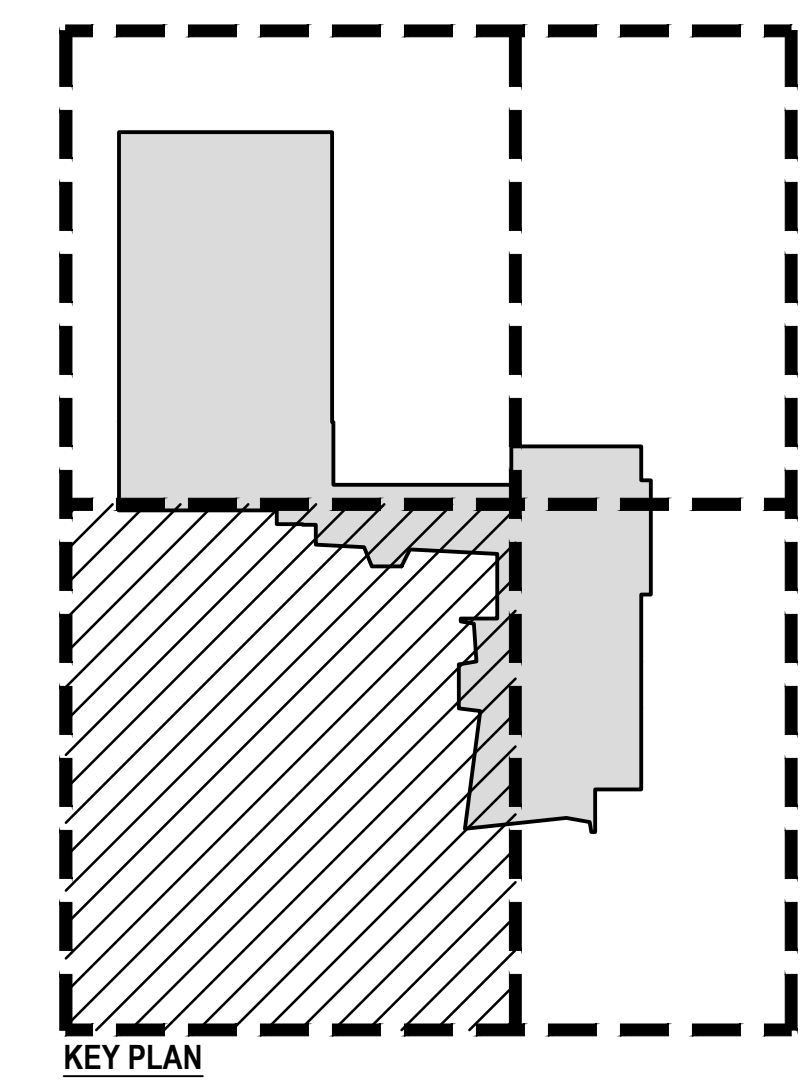
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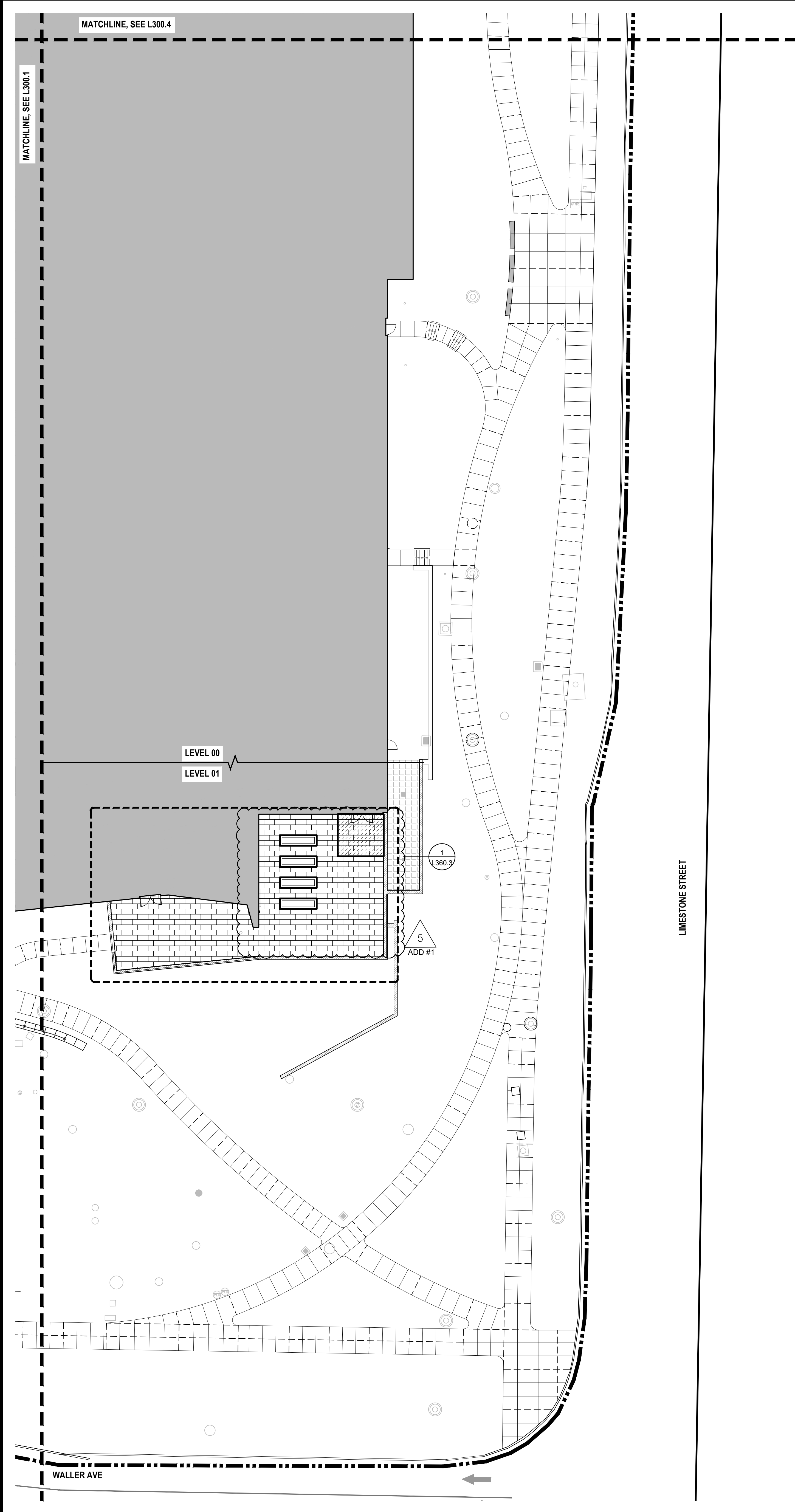
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Project Number  
6926

DRAWING TITLE  
PAVING AND JOINTING PLAN - AREA 1

SHEET NO.  
**L350.1**





PAVING LEGEND

- PROJECT LIMIT LINE
- BUILDING
- EXPANSION JOINT
- CONTROL JOINT

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ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
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**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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**Smith**

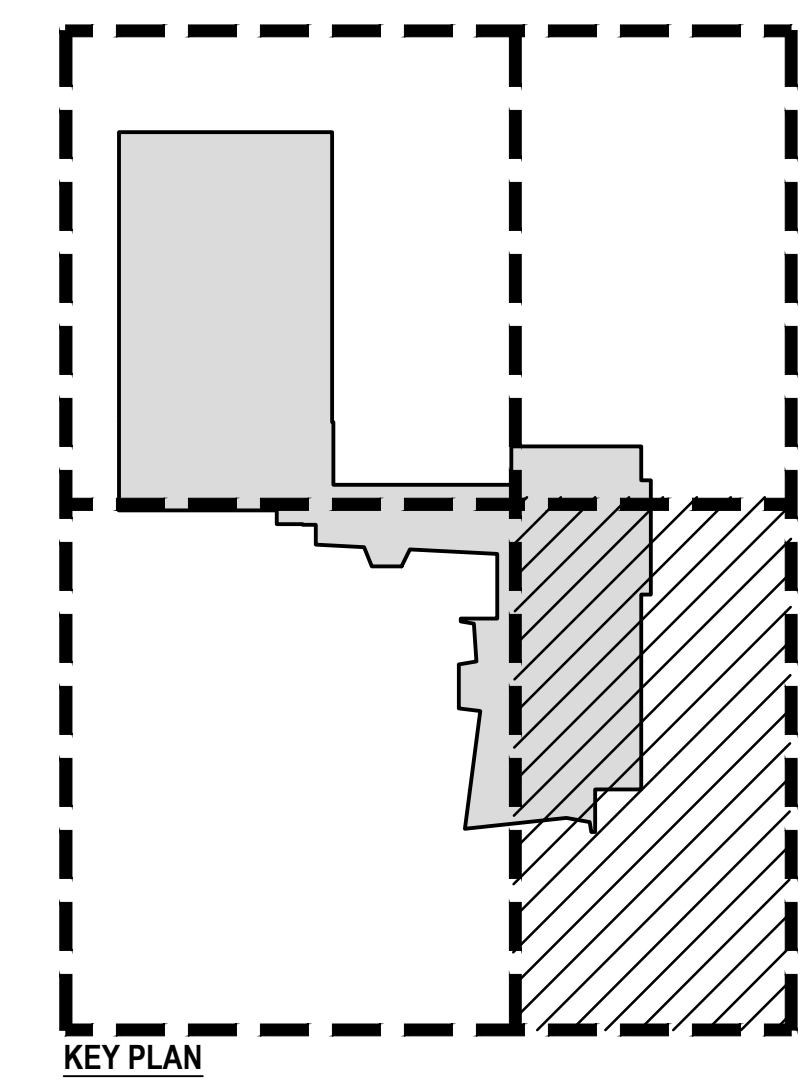
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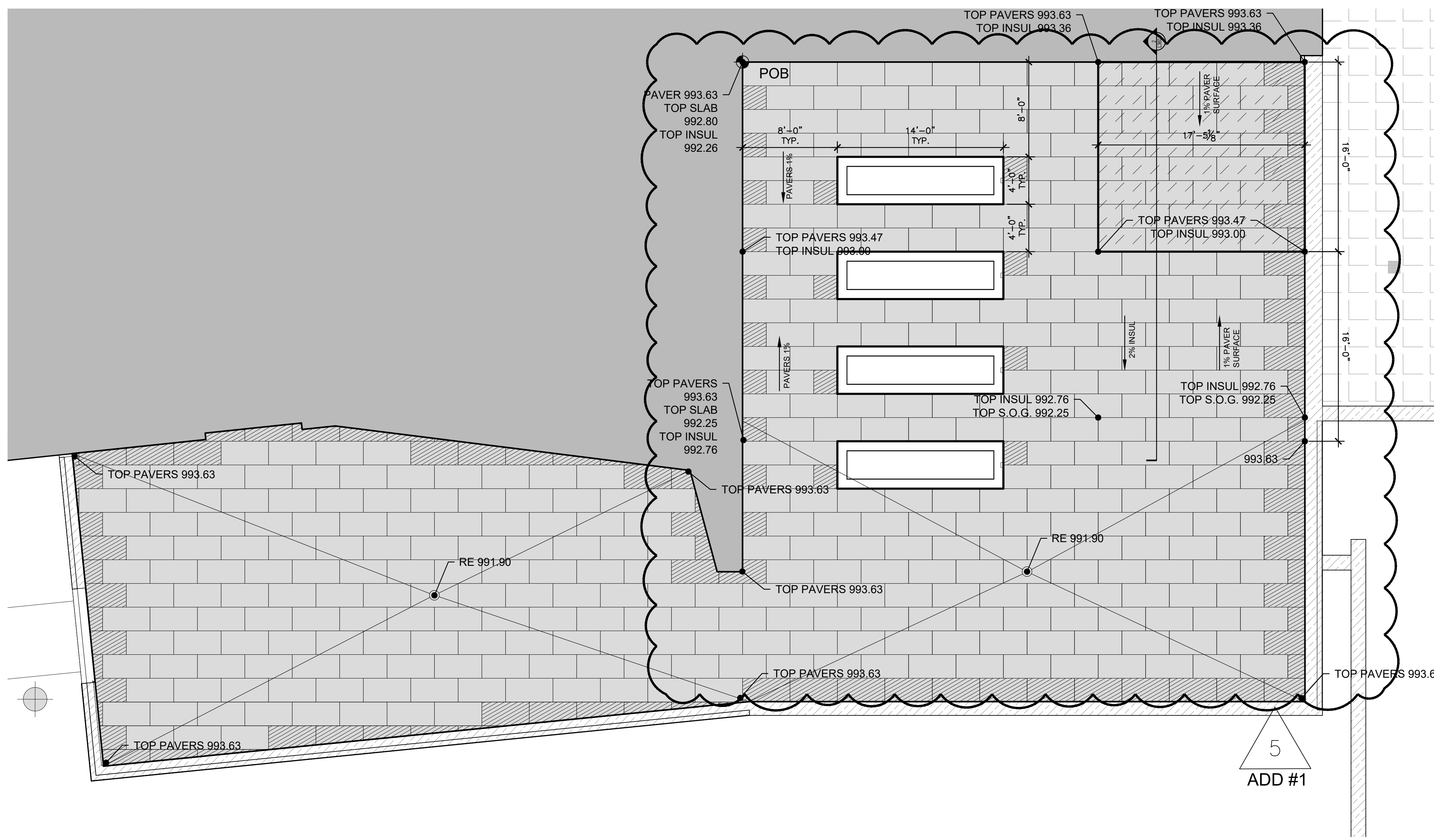
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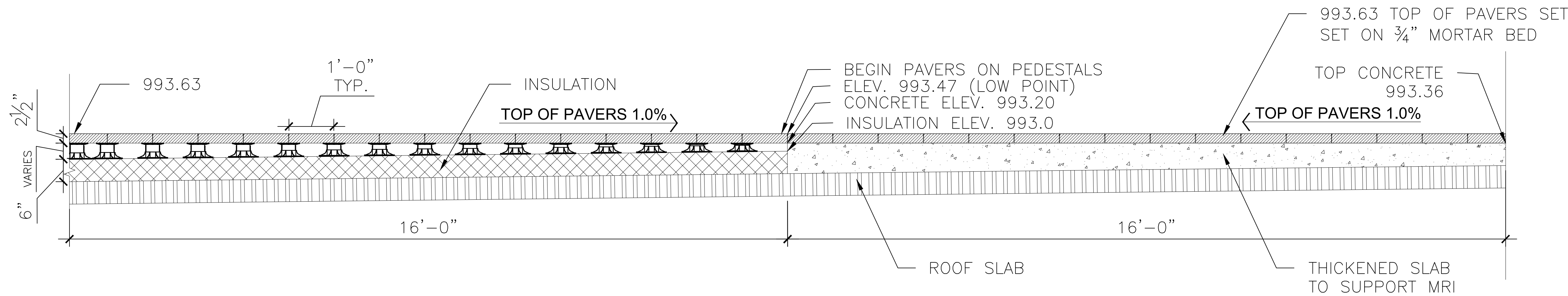
Project Number  
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DRAWING TITLE  
PAVING AND  
JOINTING PLAN -  
AREA 2

SHEET NO.  
**L350.2**



1 PAVING PLAN ENLARGEMENT - DEMO GARDEN  
 3/16" = 1'-0"



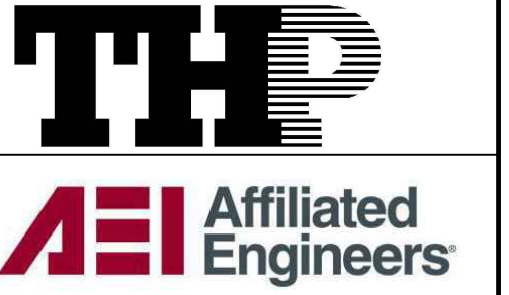
2 ROOFTOP PAVERS SECTION  
 3/4" = 1'-0"

PAVING LEGEND

- PROJECT LIMIT LINE
- [Solid Grey] BUILDING
- - - EXPANSION JOINT
- - - CONTROL JOINT
- [Diagonal Lines] CUT PAVER TO FIT VIF
- [Cross-hatch] OVERSIZED PAVER VIF
- [Solid Grey] CONCRETE UNIT PAVER TYPE 4
- [Dark Grey] CONCRETE UNIT PAVERS OVER THICKENED SLAB
- [Circle with Arrow] POB PAVING PATTERN POINT OF BEGINNING

PAVING PLAN NOTES

1. ALL DIMENSIONS OF PAVING UNITS ARE NOMINAL TO CENTERLINE OF JOINT.



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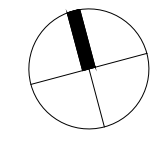
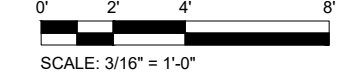
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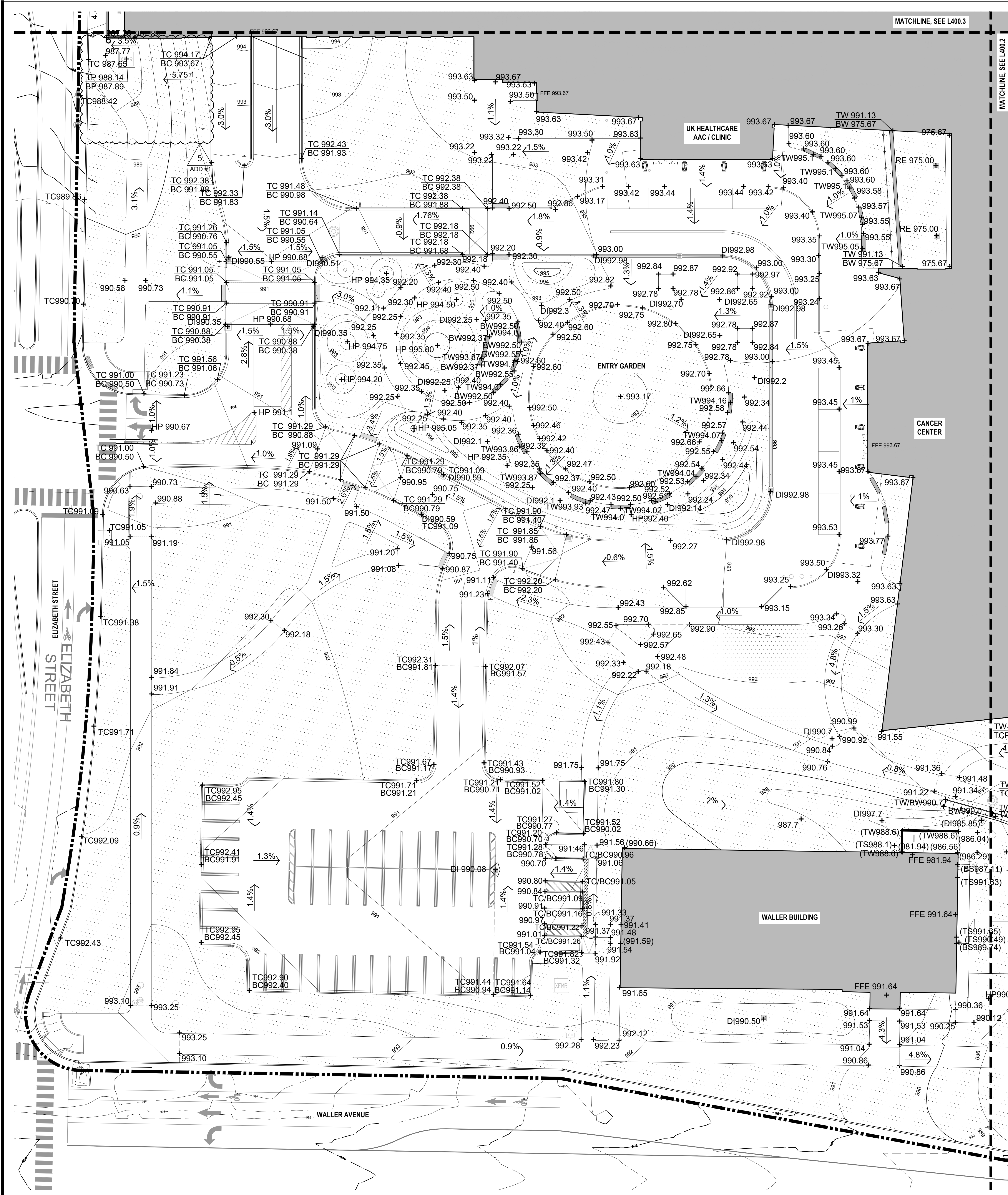
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Checked By	KW	
Client Number	514	
Project Number	6926	

DRAWING TITLE

PAVING PLAN - ENLARGEMENT

SHEET NO. L360.3



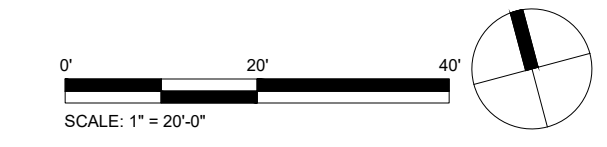
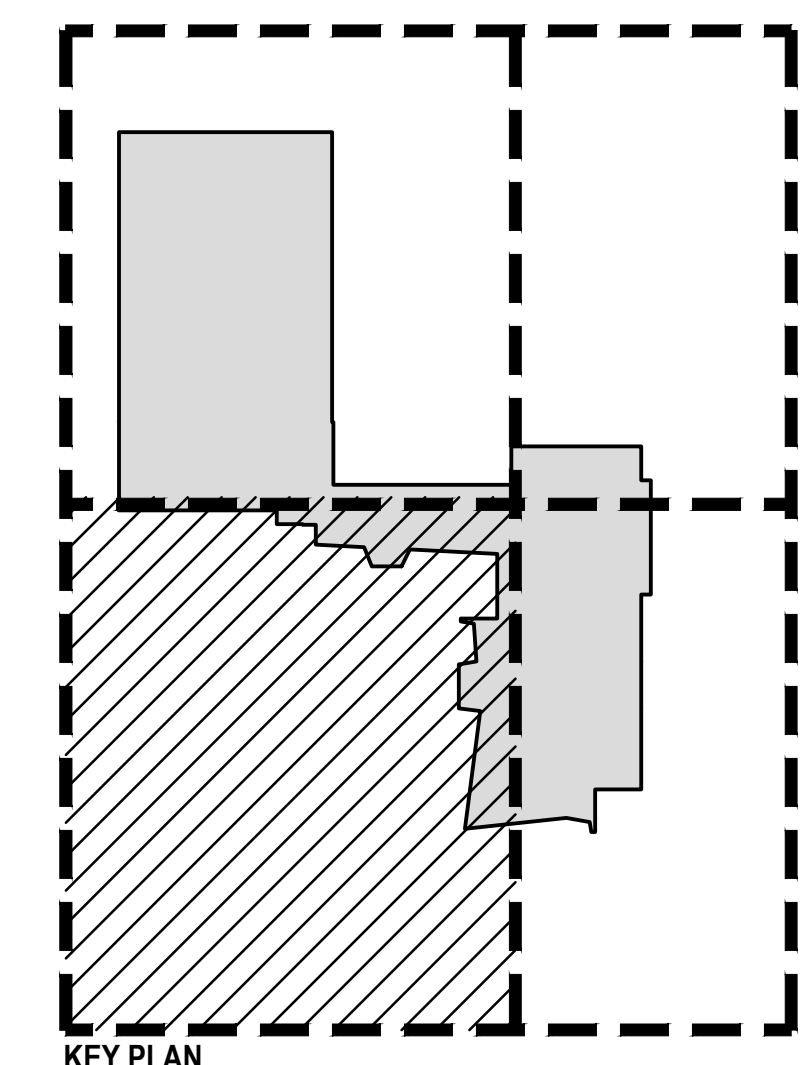


**GRADING LEGEND**

- PROJECT LIMIT LINE
- PROPOSED PLANTING
- BUILDING
- EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- PROPOSED CONTOUR (MINOR)
- PROPOSED CONTOUR (MAJOR)
- + (XX.XX) EXISTING SPOT ELEVATION
- + XX.XX PROPOSED SPOT ELEVATION
- <XX.X%> DIRECTION OF SURFACE DRAINAGE FLOW ROUTE
- XX.XX/XXXX T/B SPOT ELEVATION
- BC BOTTOM OF CURB
- BS BOTTOM OF STEPS
- BW BOTTOM OF WALL
- FFE FINISH FLOOR
- HP HIGH POINT
- LP LOW POINT
- TC TOP OF CURB
- TS TOP OF STEPS
- TW TOP OF WALL
- DI DRAIN INLET
- RE RIM ELEVATION
- TCP TOP OF CORING
- TP TOP OF PAD
- BP BOTTOM OF PAD

**GRADING PLAN NOTES**

1. CONTRACTOR SHALL VERIFY ALL EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT. CONTRACTOR SHALL STAKE ALL ELEVATIONS TO BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE CONSTRUCTION.
2. ALL LINES AND GRADE WORK NOT PRESENTLY ESTABLISHED AT THE SITE SHALL BE LAID OUT BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL CIVIL ENGINEER EMPLOYED BY THE CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL ESTABLISH PERMANENT BENCHMARKS AND BOUNDS AND REPLACE ANY WHICH ARE DESTROYED OR DISTURBED.
3. SPOT ELEVATIONS SHALL GOVERN OVER PROPOSED CONTOURS.
4. CONTRACTOR SHALL ENSURE CONSISTENT SLOPE BETWEEN SPOT ELEVATIONS.
5. AT RIDGE LINES, HIGH POINTS AND LOW POINTS, CONTRACTOR SHALL TRANSITION GRADE TO AVOID A POINT OR SHARP EDGE.
6. SEE CIVIL DRAWINGS FOR ALL AREA DRAIN LOCATIONS AND INVERT LOCATIONS.
7. ALL WORK PERFORMED IN A PUBLIC RIGHT-OF-WAY SHALL MEET THE REQUIREMENTS OF THE LOCAL MUNICIPALITY.
8. CONTRACTOR SHALL NOT PERFORM WORK OUTSIDE THE DESIGNATED SITE BOUNDARY. IF FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION SHALL BE OBTAINED BY CONTRACTOR FROM THE AFFECTED PROPERTY OWNERS.
9. ALL SIDEWALKS, STOOPS, TERRACES AND OTHER PAVED AREAS SHALL SLOPE AWAY FROM BUILDING(S) AT 2.0% MAXIMUM.
10. FOR SLOPE CONSTRUCTION 3:1 AND STEEPER THE CONTRACTOR SHALL COORDINATE WITH A GEOTECHNICAL ENGINEER ON THE SUITABILITY OF SOILS PLANNED FOR THESE SLOPES AND FOLLOW RECOMMENDATIONS SET FORTH BY THE GEOTECHNICAL ENGINEER FOR SLOPE CONSTRUCTION. TOP SOIL PLACEMENT ON SLOPES SHALL BE INSTALLED IN A BENCHED PATTERN.



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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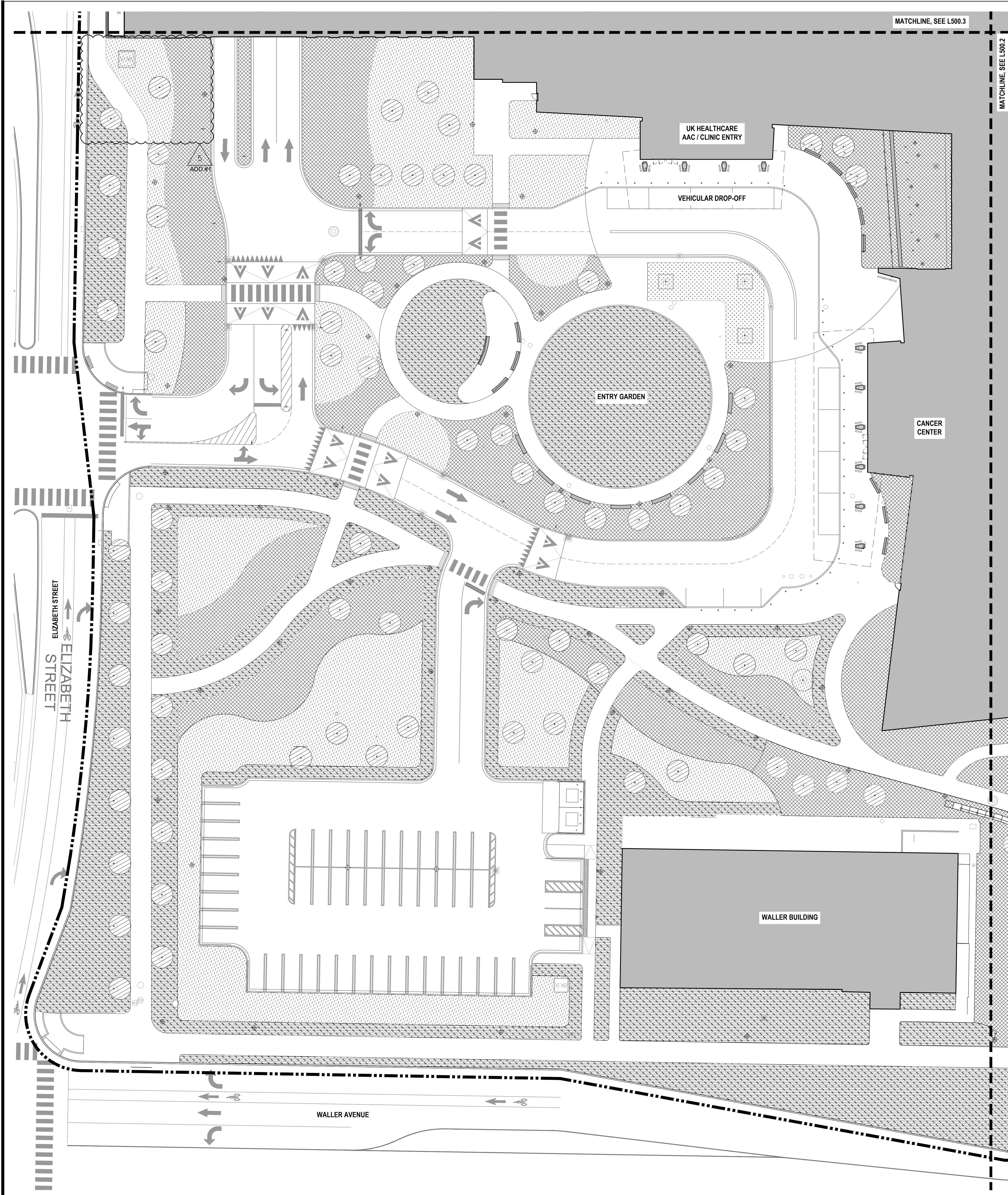
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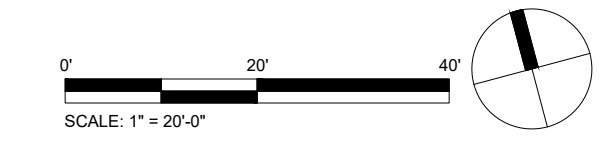
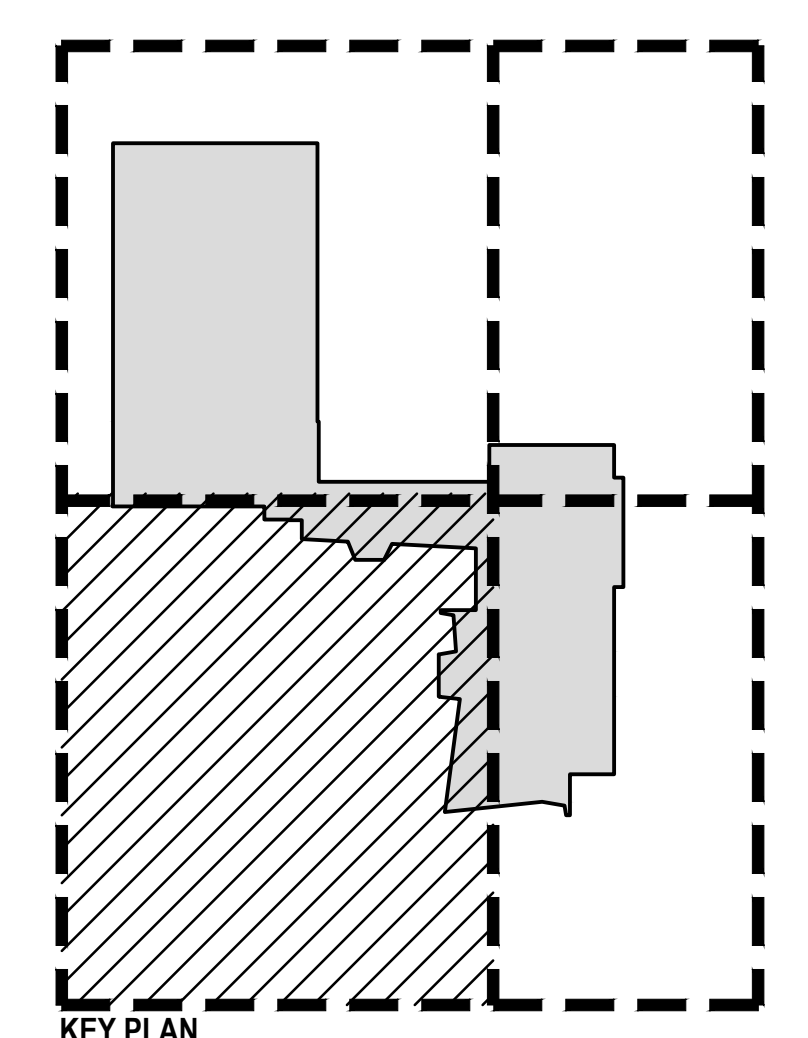
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 GRADING PLAN - AREA 1  
**SHEET NO.**  
 L400.1





**SOILS LEGEND**

- PROJECT LIMIT LINE
- BUILDING
- ▨ SOIL PROFILE 1 - TREE, SEE 9/L922
- ▩ SOIL PROFILE 2 - SHRUB AND GROUNDCOVER, SEE 10/L922
- ▧ SOIL PROFILE 3 - FESCUE AND FORBS, SEE 11/L922
- ▦ SOIL PROFILE 4 - SOD LAWN, SEE 12/L922
- ▤ SOIL PROFILE 5 - STRUCTURAL SOIL, SEE 13/L922
- ▣ PLANTING OVER STRUCTURE, SEE 7/L922



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 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
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**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP Affiliated Engineers**

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 HORTICULTURE CIVIL ENGINEERING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By: WTD  
 Checked By: KW  
 Client Number: 514  
 Project Number: 6926

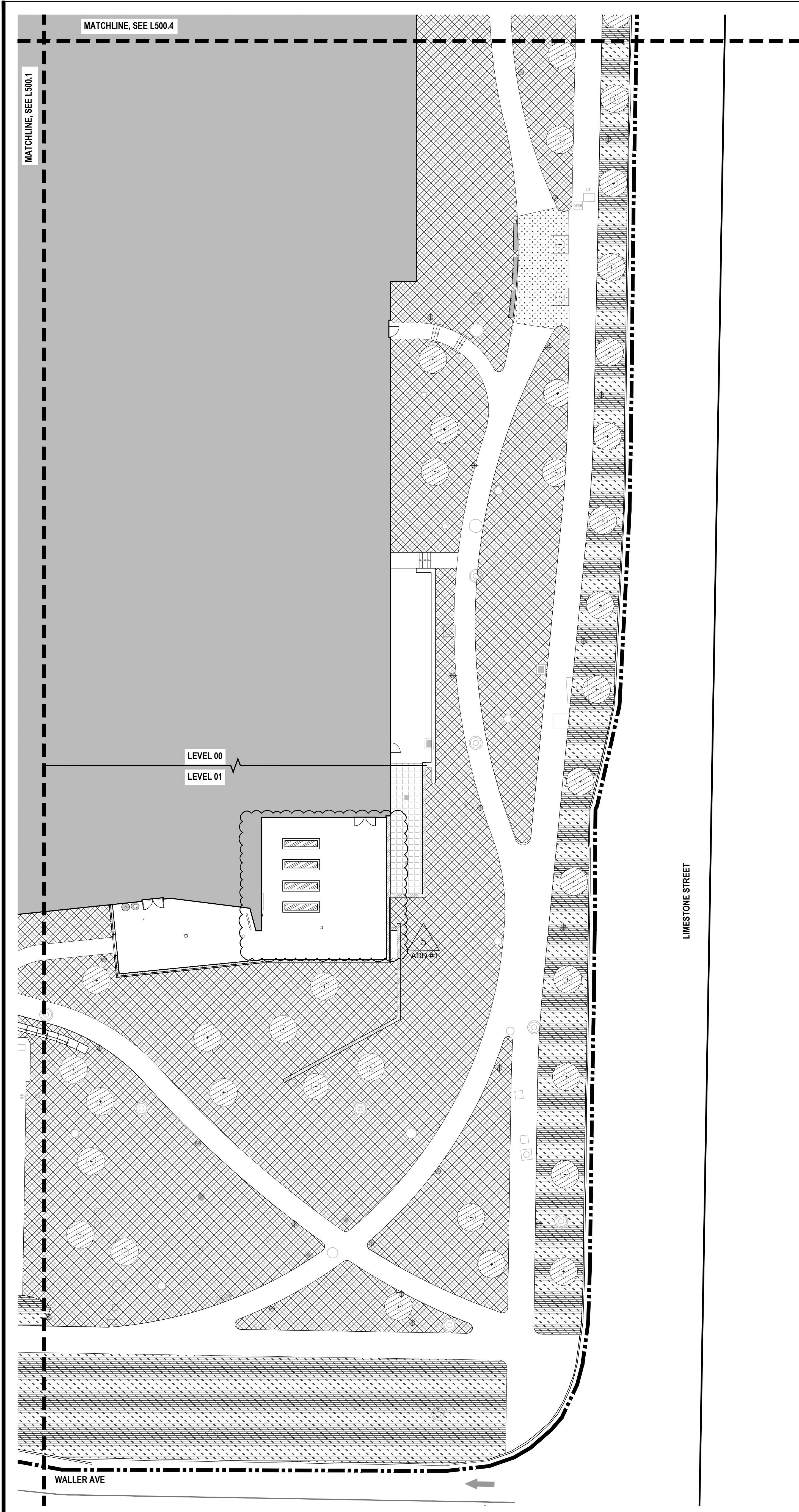
STATE OF KENTUCKY  
 KEVIN L. WARNER  
 533  
 LANDSCAPE ARCHITECT  
 03/20/2024

**DRAWING TITLE**

SOILS PLAN - AREA 1

SHEET NO. L500.1





SOILS LEGEND

- PROJECT LIMIT LINE
- BUILDING
- SOIL PROFILE 1 - TREE, SEE 9/L922
- SOIL PROFILE 2 - SHRUB AND GROUNDCOVER, SEE 10/L922
- SOIL PROFILE 3 - FESCUE AND FORBS, SEE 11/L922
- SOIL PROFILE 4 - SOD LAWN, SEE 12/L922
- SOIL PROFILE 5 - STRUCTURAL SOIL, SEE 13/L922
- PLANTING OVER STRUCTURE, SEE 7/L922

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ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
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CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

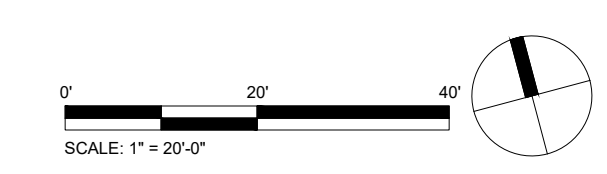
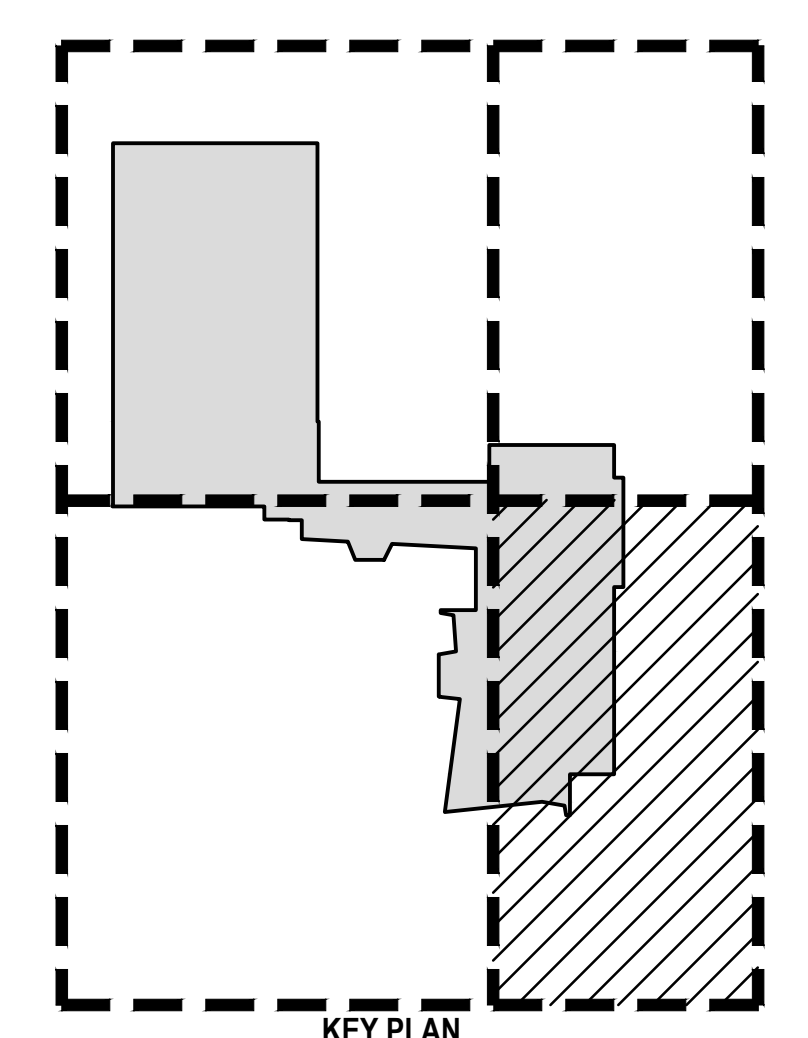
**PIVOTAL**  
lighting design

**UK**  
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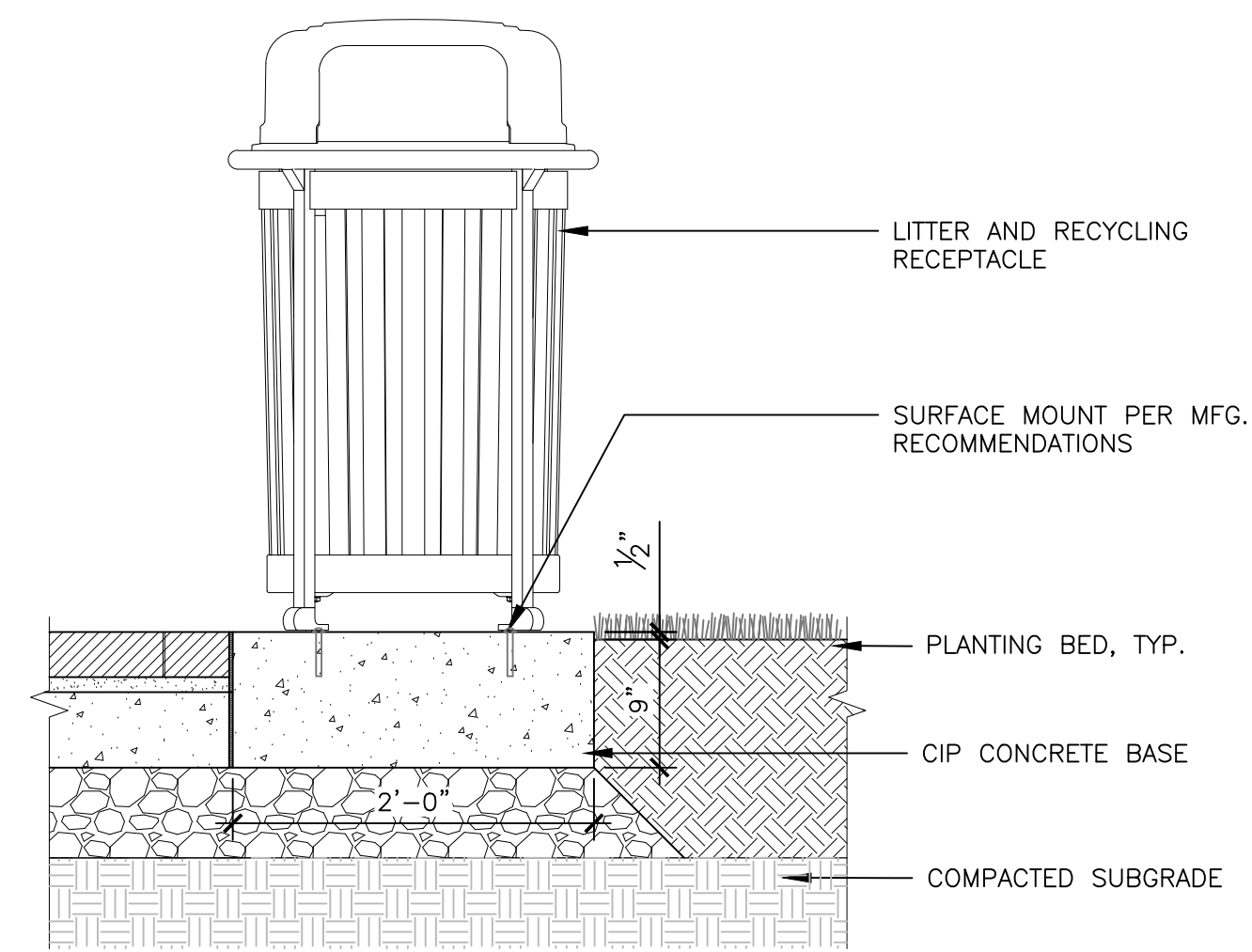
ISSUANCES

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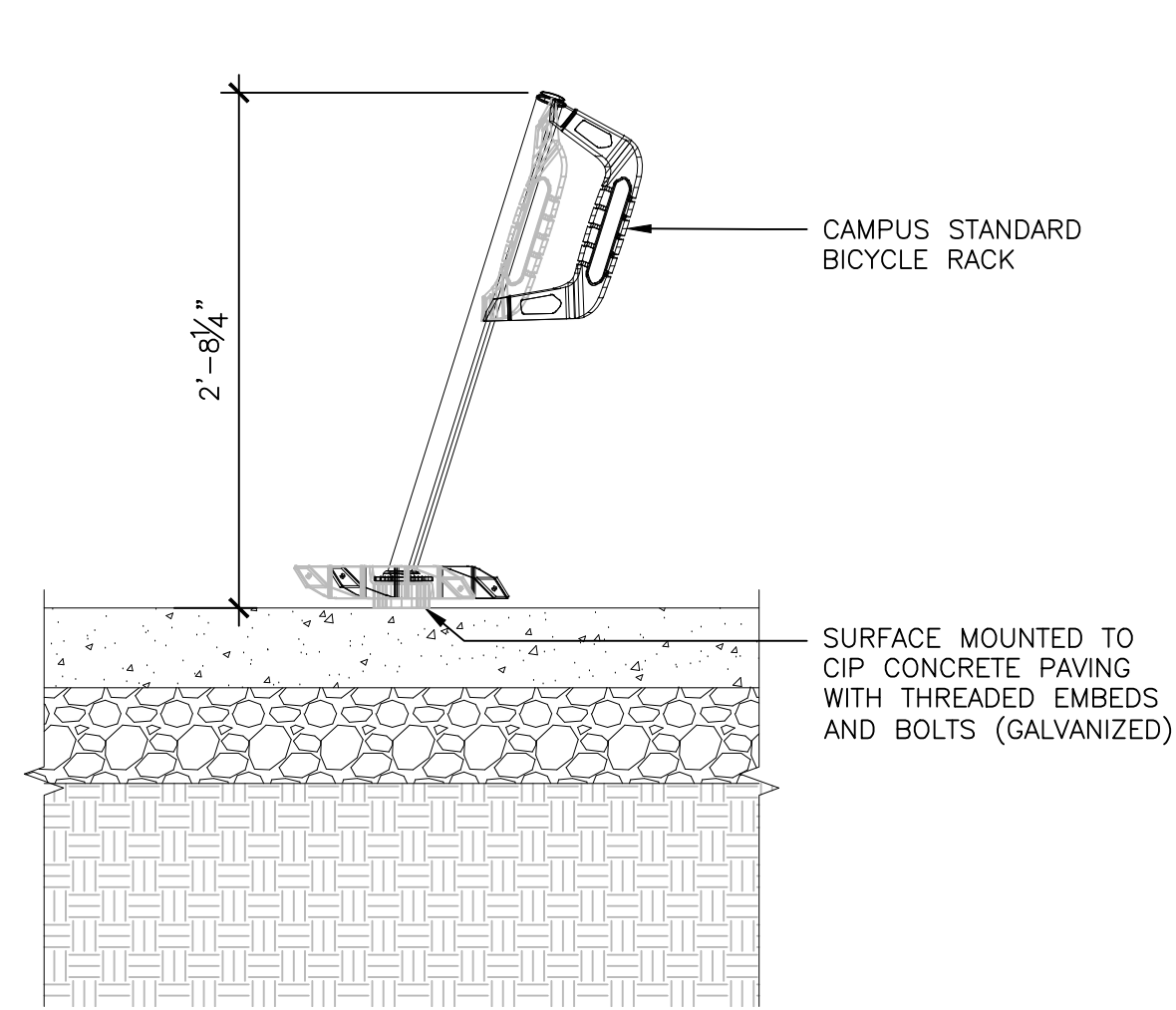


Drawn By: WTD  
Checked By: KW  
Client Number: 514  
Project Number: 6926

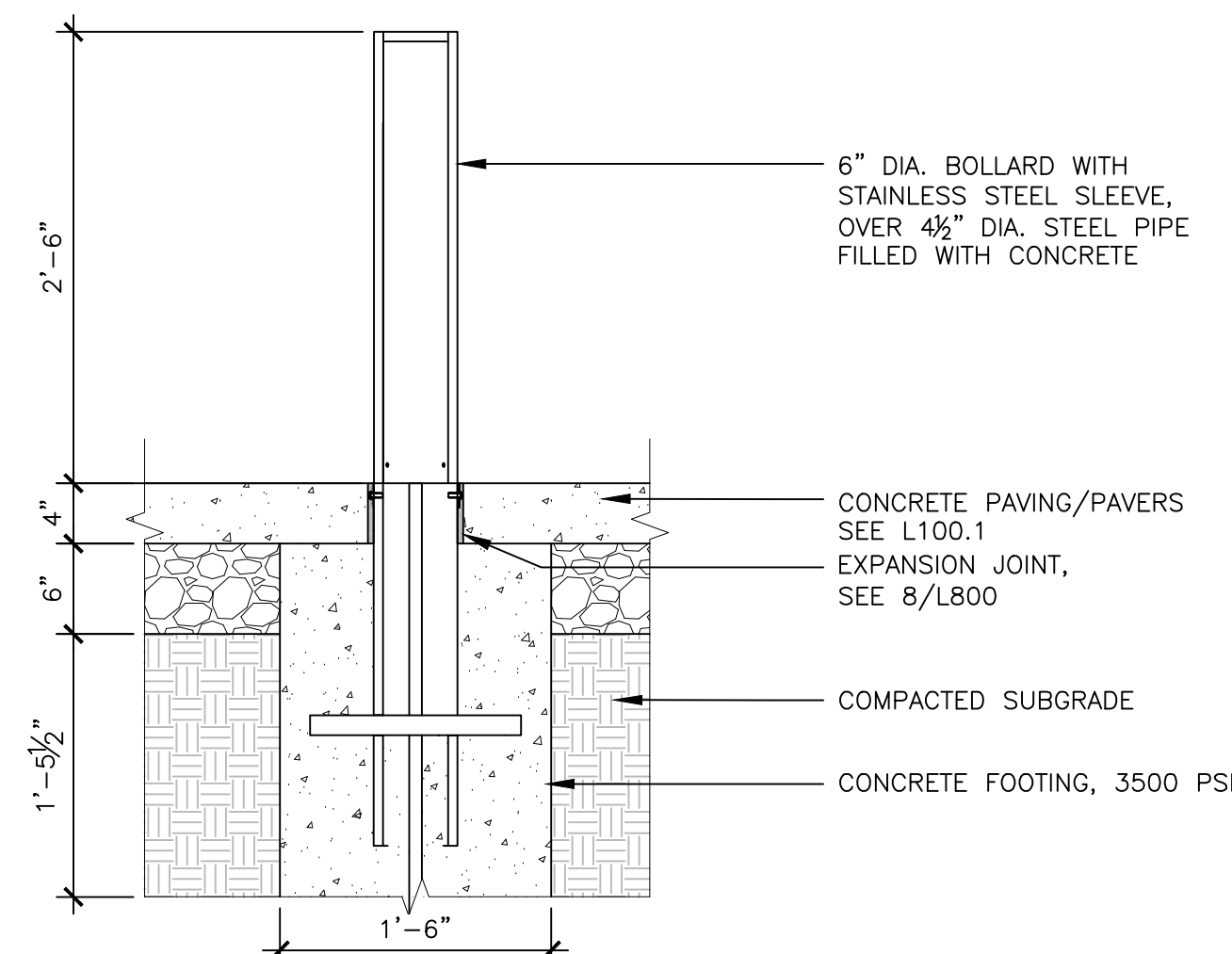
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**SOILS PLAN - AREA 2**  
SHEET NO.  
**L500.2**



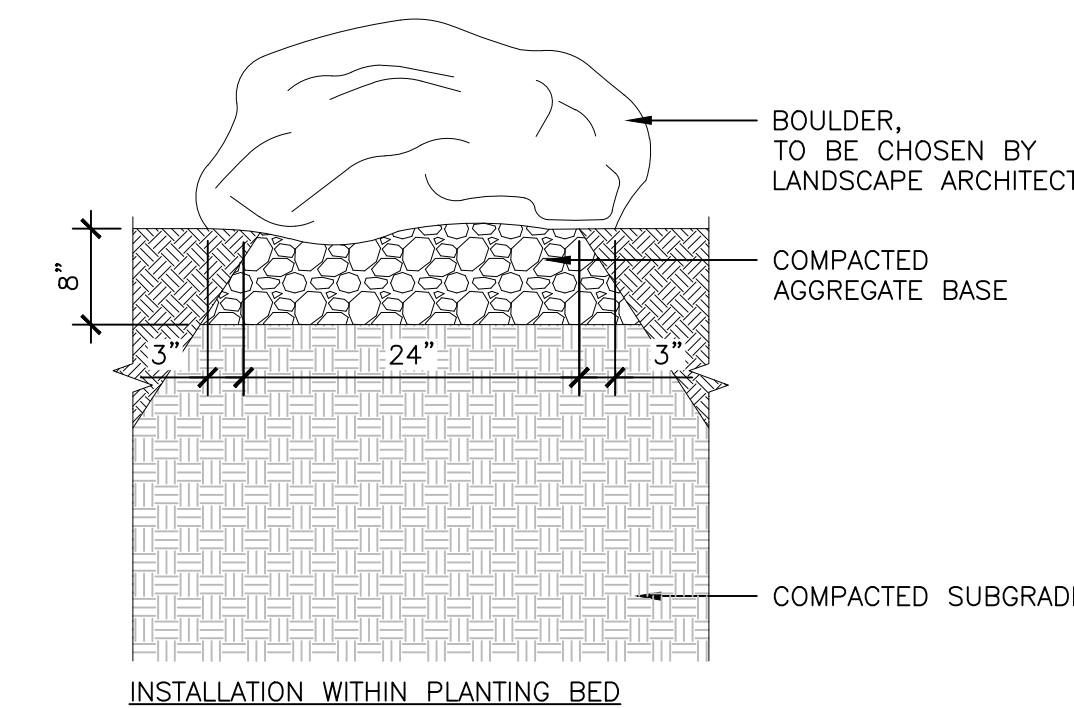
**1 TRASH AND RECYCLING RECEPTACLE**  
SCALE: 1" = 1'-0"



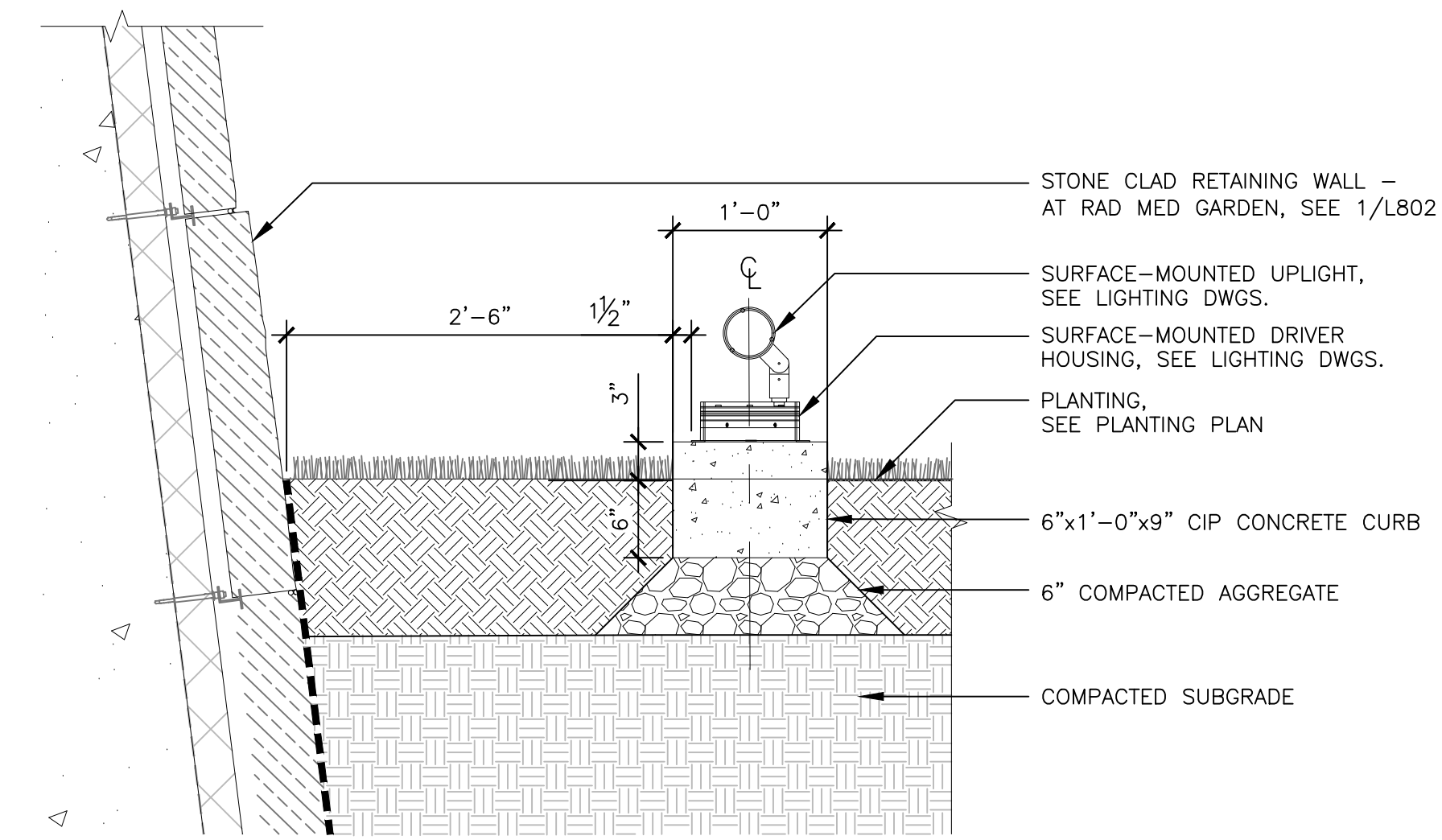
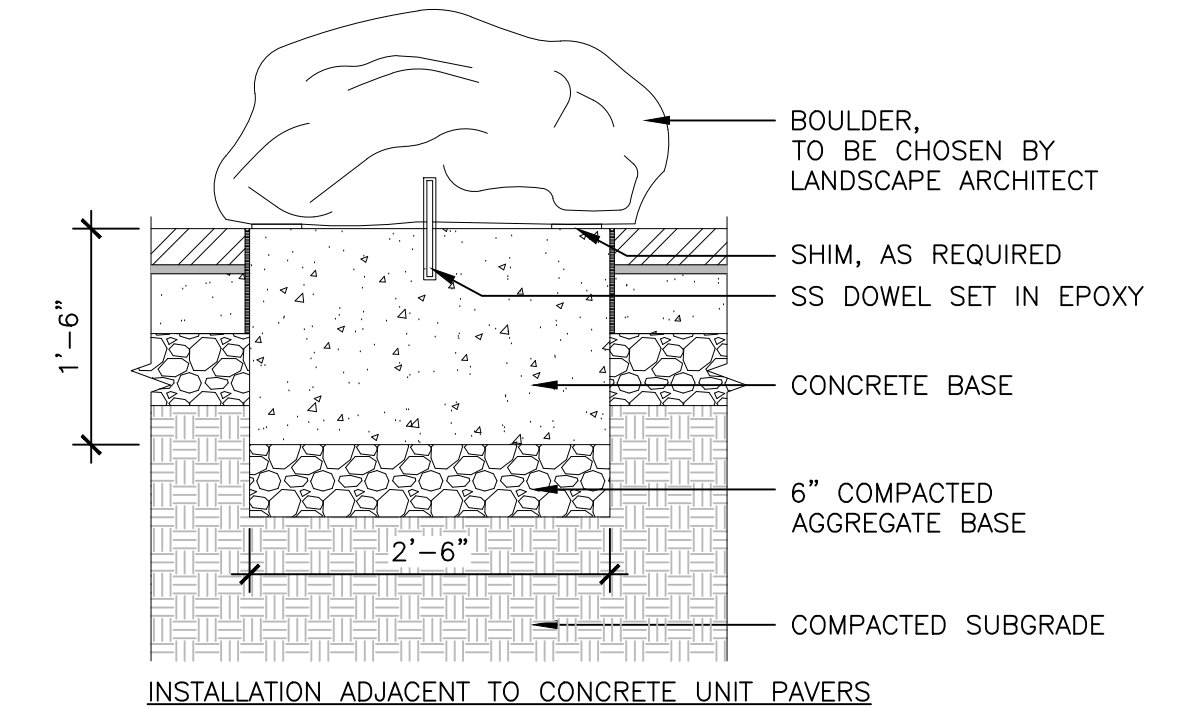
**2 BICYCLE RACK**  
SCALE: 1" = 1'-0"



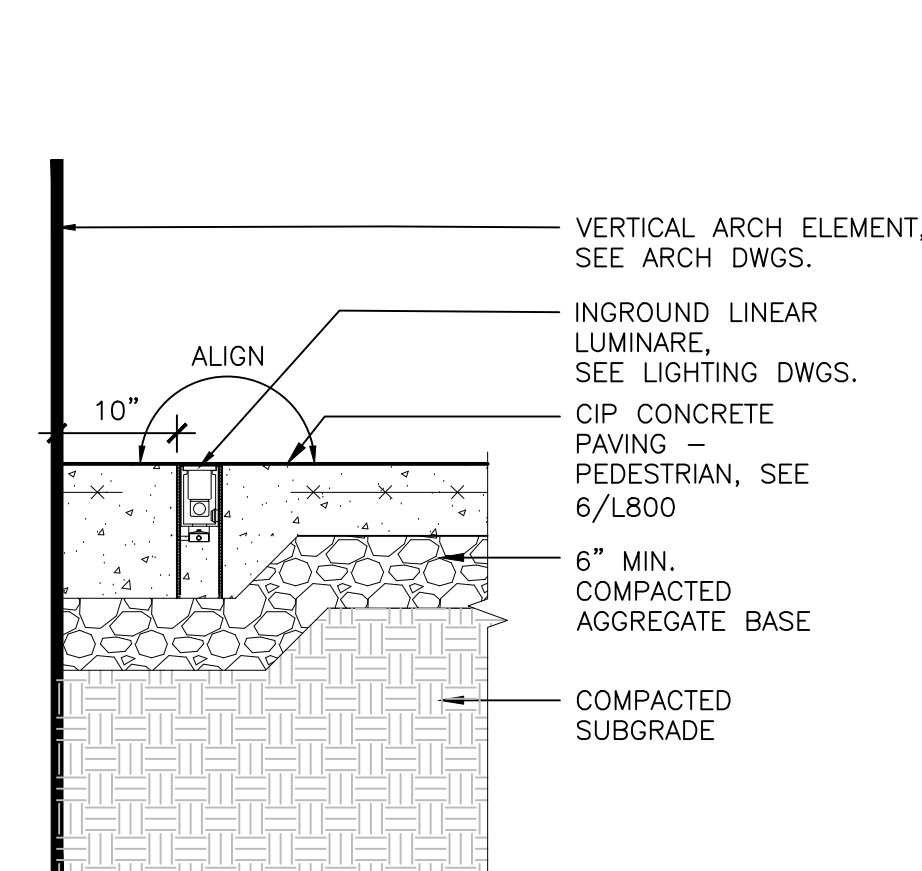
**3 BOLLARD**  
SCALE: 1" = 1'-0"



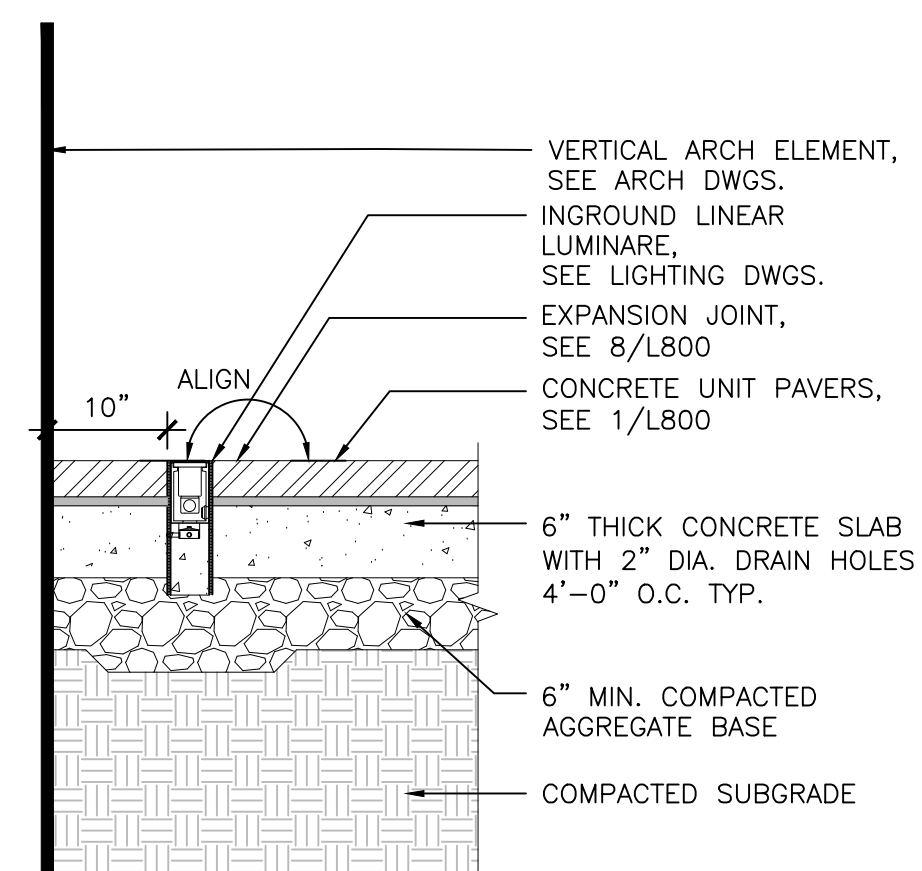
**4 BOULDER**  
SCALE: 3/4" = 1'-0"



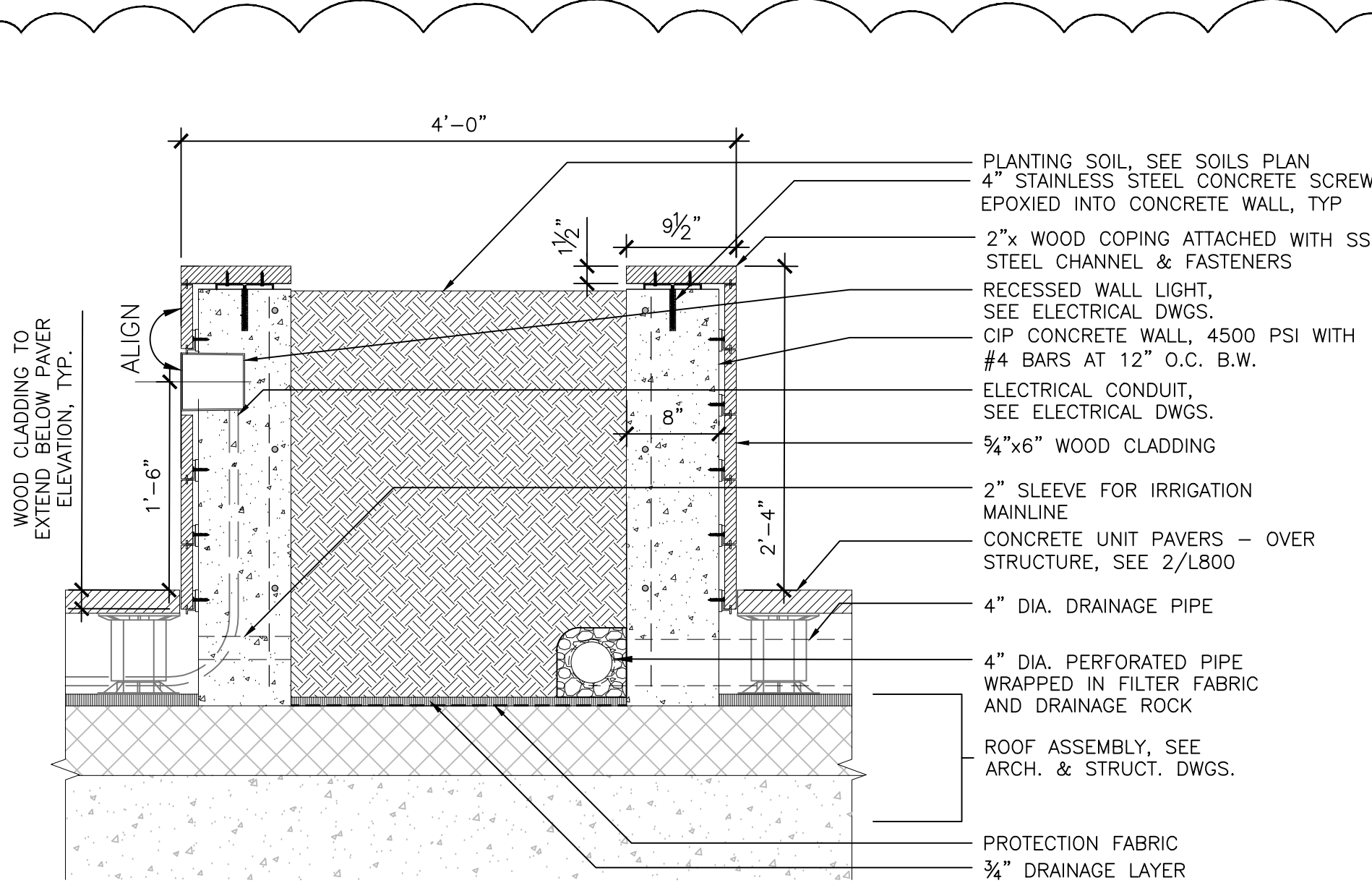
**5 SURFACE-MOUNTED UPLIGHT AT RAD MED GARDEN**  
SCALE: 1" = 1'-0"



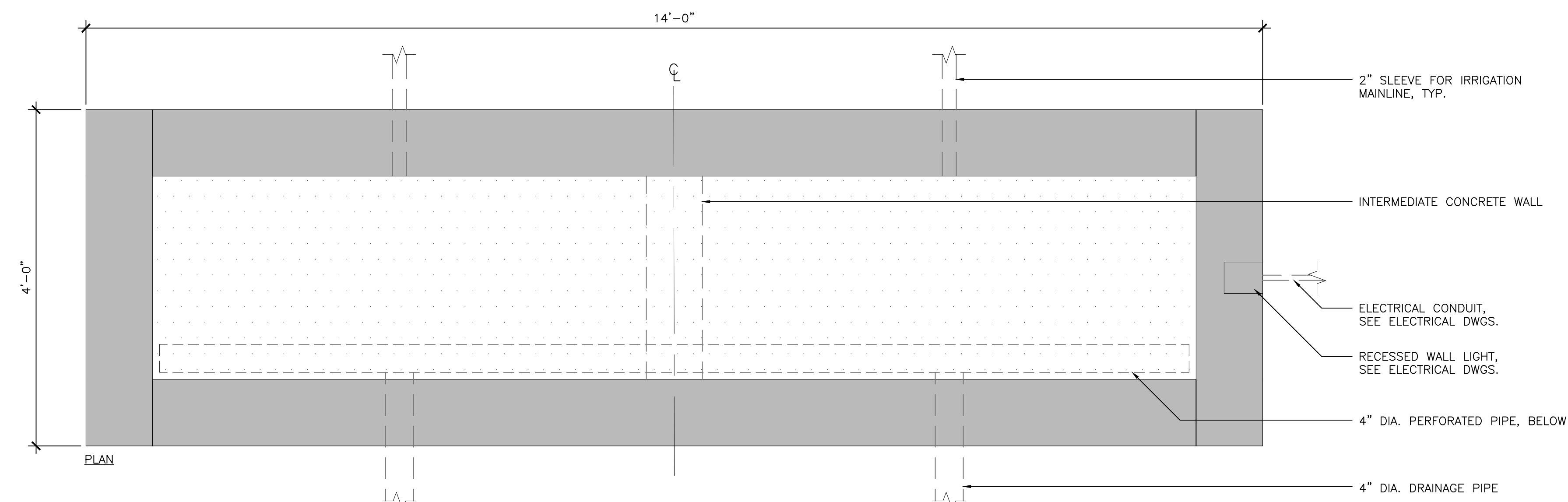
**6 IN-GROUND LIGHTING AT ARCHITECTURAL CANOPY COLUMN**  
SCALE: 3/4" = 1'-0"



**7 IN-GROUND LIGHTING AT ARCHITECTURAL SHROUD WALL**  
SCALE: 3/4" = 1'-0"



**8 RAISED GARDEN BED OVER STRUCTURE**  
SCALE: 1" = 1'-0"



**ISSUANCES**

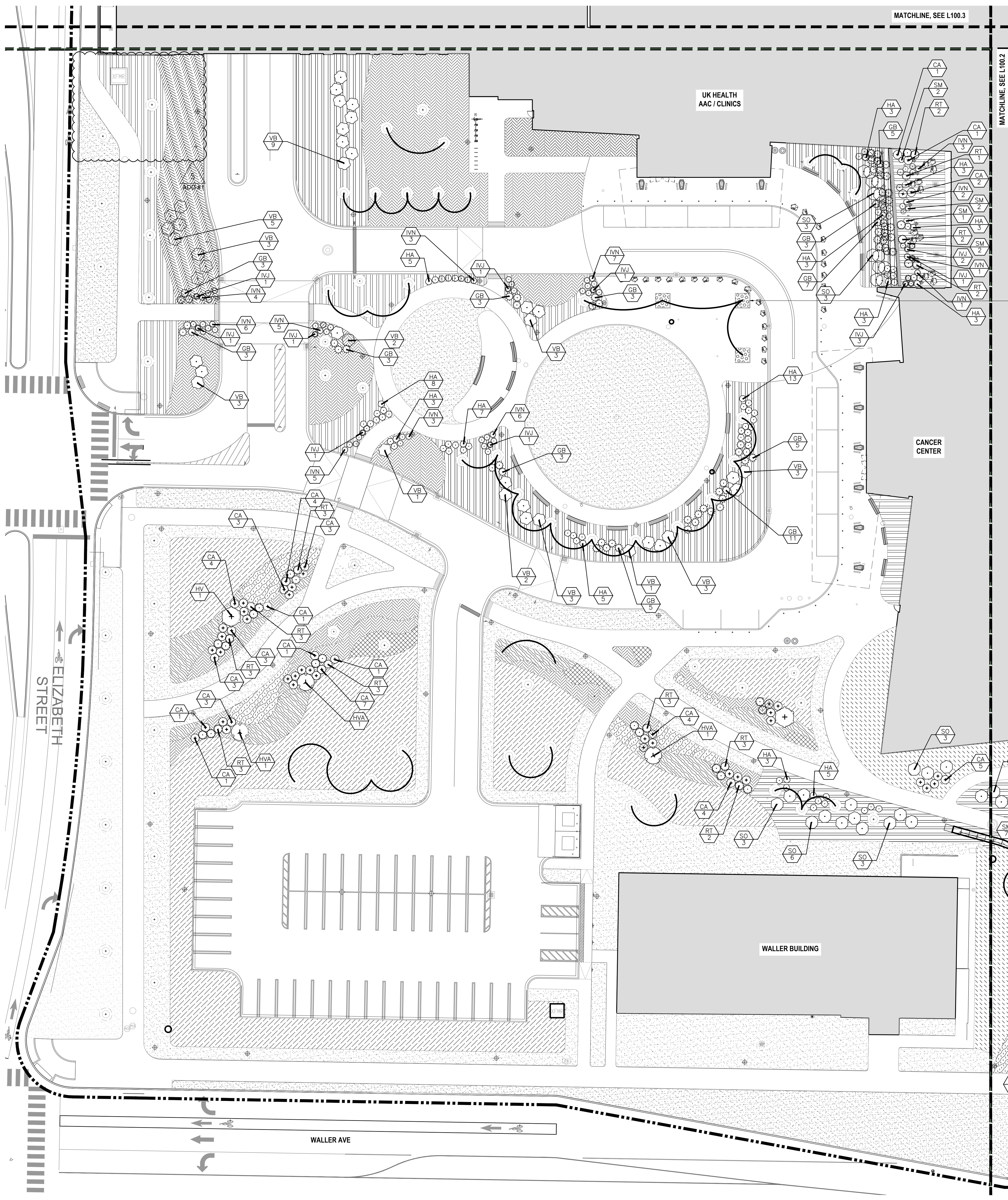
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5	BP-07 ADDENDUM #1	05/28/24

Drawn By	WTD
Checked By	KW
Client Number	514
Project Number	6926

**DRAWING TITLE**

**SITE DETAILS - FURNISHINGS**

SHEET NO.  
**L804**



MATCHLINE, SEE L100.3

MATCHLINE, SEE L100.2

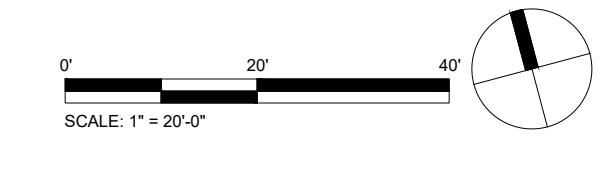
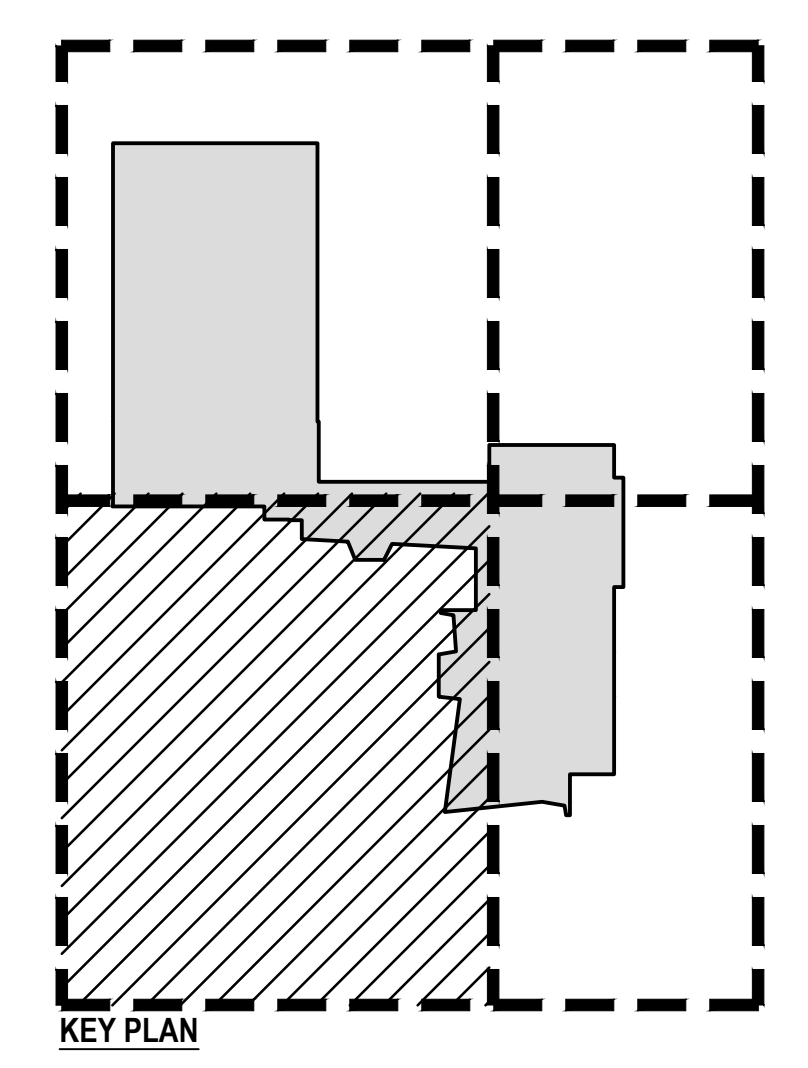
TREE PLANTING WITH STONE MULCH, TYP. OF 3, SEE 2/L922

PLANTING LEGEND

- PROJECT LIMIT LINE
- BUILDING
- PROPOSED TREE
- PROPOSED SHRUBS
- LAWN
- MIX 1 - LOW-MOW MIX
- MIX 2 - SEDGE MIX
- MIX 3 - SOUTHERN LANDSCAPE - A
- MIX 4 - SOUTHERN LANDSCAPE - B
- MIX 5 - SOUTHERN LANDSCAPE - C
- MIX 6 - ENTRY GARDEN
- MIX 7 - LIMESTONE STREETSCAPE - SUN
- MIX 8 - LIMESTONE STREETSCAPE - SHADE

PLANTING NOTES

1. ALL AREAS NOT COVERED BY BUILDINGS OR PAVEMENT AND WHICH HAVE BEEN GRADED OR OTHERWISE DISTURBED SHALL BE TOPSOILED AND SEEDED, UNLESS SHOWN OTHERWISE.
2. P.B. = PLANT BED. MULCH ALL PLANT BEDS TO A DEPTH OF 2". BEDS SHALL BE KEPT 1" MIN AWAY FROM TRUNK OF ALL TREES, SHRUBS, TREE FERNS, AND FOLIAGE OF ALL PERENNIALS.
3. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN IN THE DRAWINGS.
4. CONTRACTOR SHALL REMOVE ALL HARD LUMPS OF CLAY, STONES OVER 1" IN DIAMETER, AND ALL CONSTRUCTION DEBRIS INCLUDING GRAVEL, ROOTS, LIMBS AND OTHER DELETERIOUS MATTER WHICH WOULD BE HARMFUL, OR PREVENT PROPER ESTABLISHMENT AND/OR MAINTENANCE OF LAWN AND PLANTING AREAS.
5. ALL PLANTS SHALL BE BALLED IN BURLAP OR CONTAINER GROWN UNLESS OTHERWISE NOTED IN THE PLANTING SCHEDULE.
6. ALL PLANTS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO THEIR ARRIVAL ON THE SITE.
7. THE CONTRACTOR SHALL LOCATE AND VERIFY UTILITY LINE LOCATIONS PRIOR TO PLANTING AND REPORT ANY CONFLICTS TO THE LANDSCAPE ARCHITECT.
8. THE LAYOUT OF PLANTS IN THE FIELD IS TO BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.



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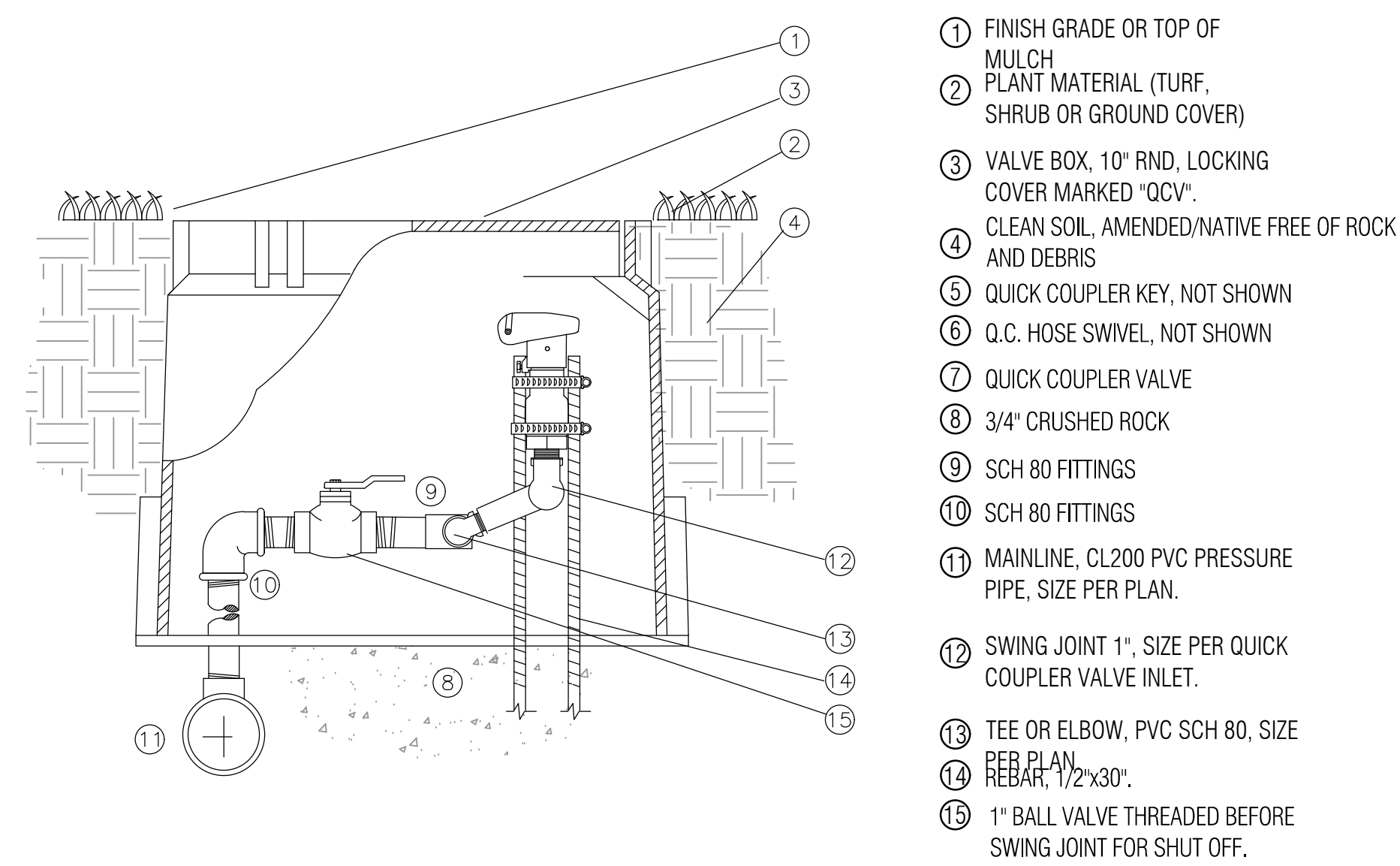
Drawn By: WTD  
Checked By: KW  
Client Number: 514  
Project Number: 6926



DRAWING TITLE  
PLANTING PLAN - SHRUBS & GROUNDCOVER - AREA 1

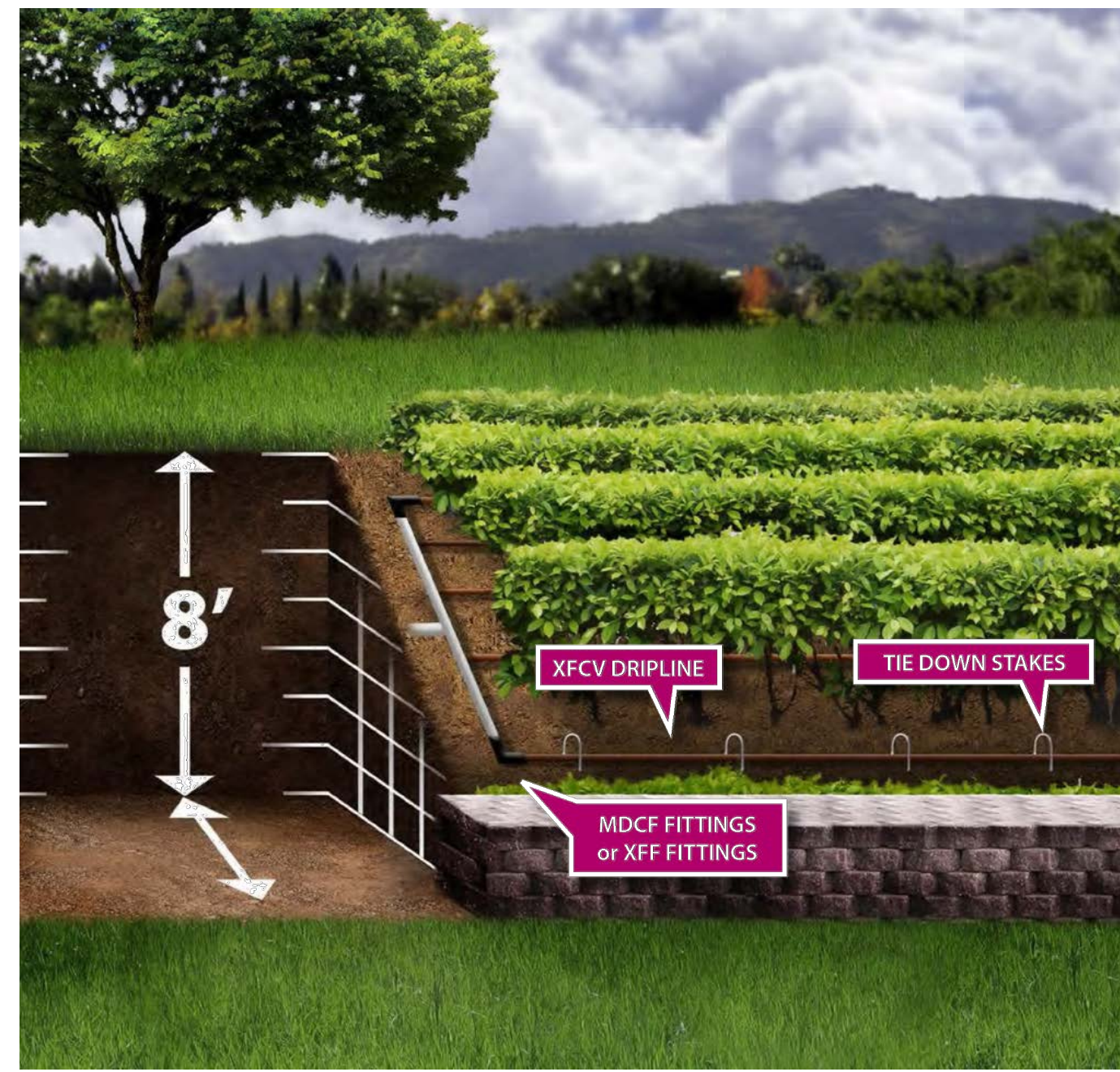
SHEET NO.  
**L910.1**





- 1 FINISH GRADE OR TOP OF MULCH
- 2 PLANT MATERIAL (TURF, SHRUB OR GROUND COVER)
- 3 VALVE BOX, 10" RND, LOCKING COVER MARKED "QCV"
- 4 CLEAN SOIL, AMENDED/NATIVE FREE OF ROCK AND DEBRIS
- 5 QUICK COUPLER KEY, NOT SHOWN
- 6 Q.C. HOSE SWIVEL, NOT SHOWN
- 7 QUICK COUPLER VALVE
- 8 3/4" CRUSHED ROCK
- 9 SCH 80 FITTINGS
- 10 SCH 80 FITTINGS
- 11 MAINLINE, CL200 PVC PRESSURE PIPE, SIZE PER PLAN.
- 12 SWING JOINT 1", SIZE PER QUICK COUPLER VALVE INLET.
- 13 TEE OR ELBOW, PVC SCH 80, SIZE PER PLAN.
- 14 REBAR, 1/2"x30"
- 15 1" BALL VALVE THREADED BEFORE SWING JOINT FOR SHUT OFF.

1 QUICK COUPLER VALVE  
Scale: NTS SECTION



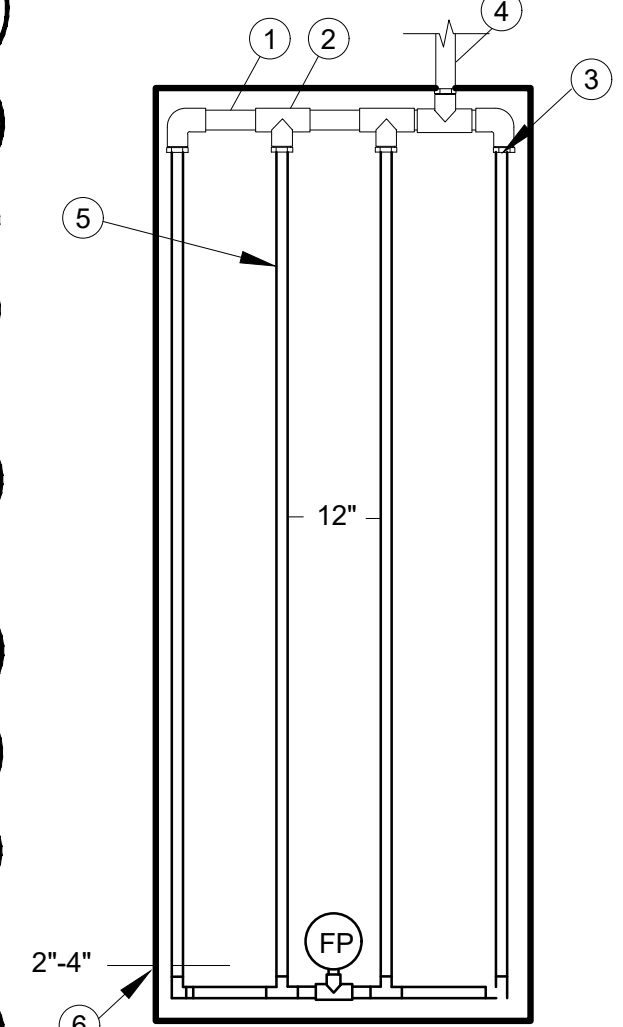
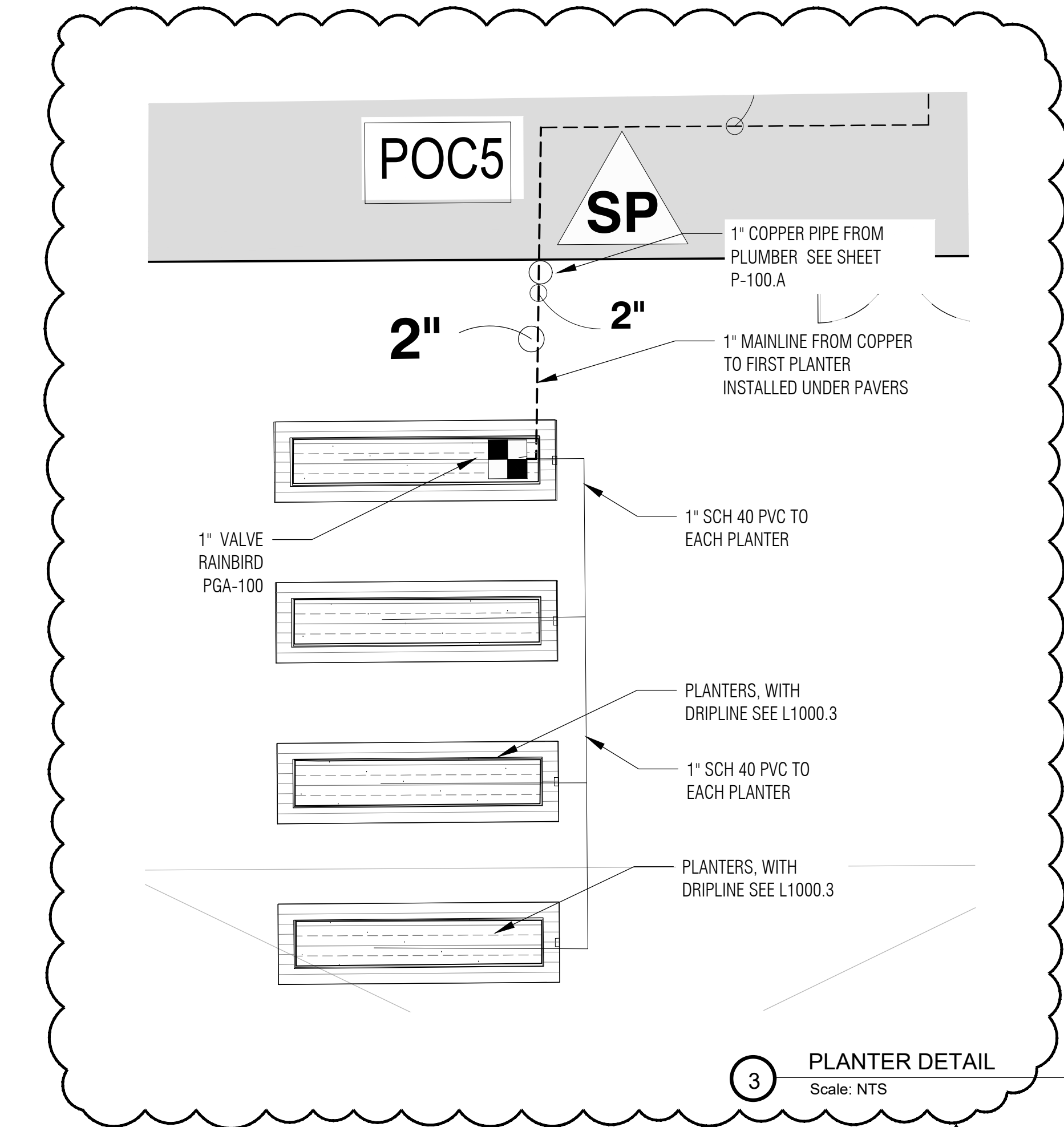
WHEN ELEVATION DROP FROM TOP OF ZONE TO BOTTOM OF ZONE EXCEEDS 8' CREATE A NEW DRIPLINE ZONE

EMITTER FLOW	LATERAL FLOW PER 100 FT (GPM)		
	12" SPACING	18" SPACING	24" SPACING
0.6 GPH	1.0 GPM	0.67 GPM	0.50 GPM
1.0 GPH	1.7 GPM	1.12 GPM	0.83 GPM

- NOTES:
1. DISTANCE BETWEEN LATERAL ROWS AND EMITTER SPACING TO BE BASED ON SOIL TYPE, PLANT MATERIALS AND CHANGES IN ELEVATION. DISTANCE BETWEEN LATERAL ROWS FOR BOTTOM 1/3 OF SLOPE TO BE SPACED GREATER THAN OPTIMAL ROW DISTANCE. SEE RAIN BIRD XFD DRIPLINE INSTALLATION GUIDE FOR SUGGESTED SPACING.
  2. LENGTH OF LONGEST DRIPLINE LATERAL SHOULD NOT EXCEED THE MAXIMUM LENGTH SHOWN IN THE ACCOMPANYING TABLE.
  3. WHEN ELEVATION CHANGE EXCEEDS 8 FEET IT IS RECOMMENDED THAT A NEW DRIPLINE ZONE BE CREATED.
  4. WHEN USING 17MM INSERT FITTINGS WITH DESIGN PRESSURE OVER 50PSI, IT IS RECOMMENDED THAT STAINLESS STEEL CLAMPS BE INSTALLED ON EACH FITTING.

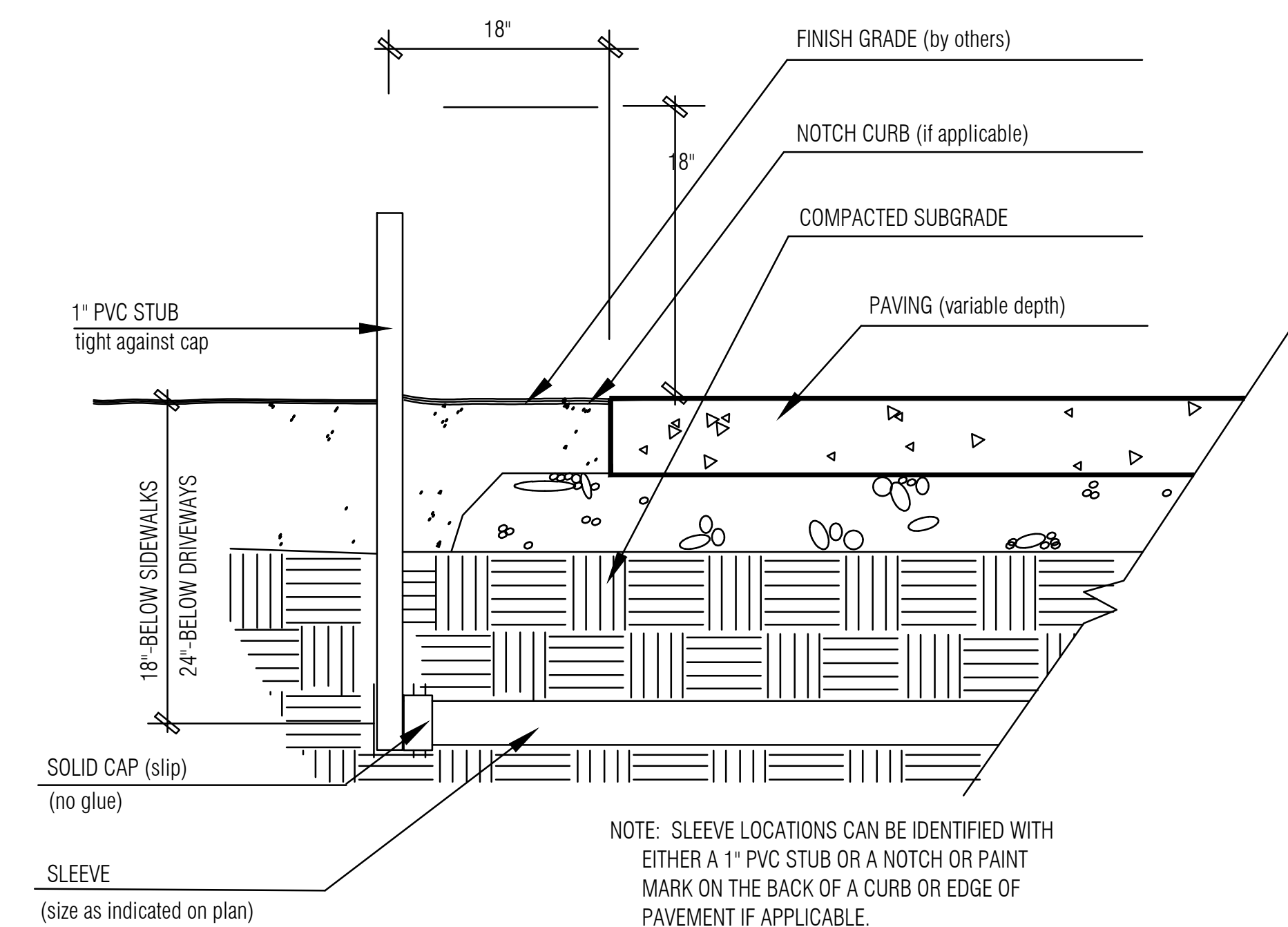
- 1 PVC DRIP MANIFOLD FROM RAIN BIRD CONTROL ZONE VALVE KIT (SIZED TO MEET LATERAL FLOW DEMAND)
- 2 QF FITTING TO DRIPLINE
- 3 QF OF SUPPLY HEADER
- 4 PVC SCH 40 TEE OR EL (TYPICAL)
- 5 ON-SURFACE DRIPLINE: RAIN BIRD XP SERIES DRIPLINE (TYPICAL) POTABLE: XFCV DRIPLINE
- 6 FLUSH POINT: SEE RAIN BIRD XFC DETAILS FOR FLUSH POINT INSTALLATION
- 7 PVC FLUSH HEADER

2 DRIPLINE INSTALLATION ON SLOPE  
Scale: NTS SECTION



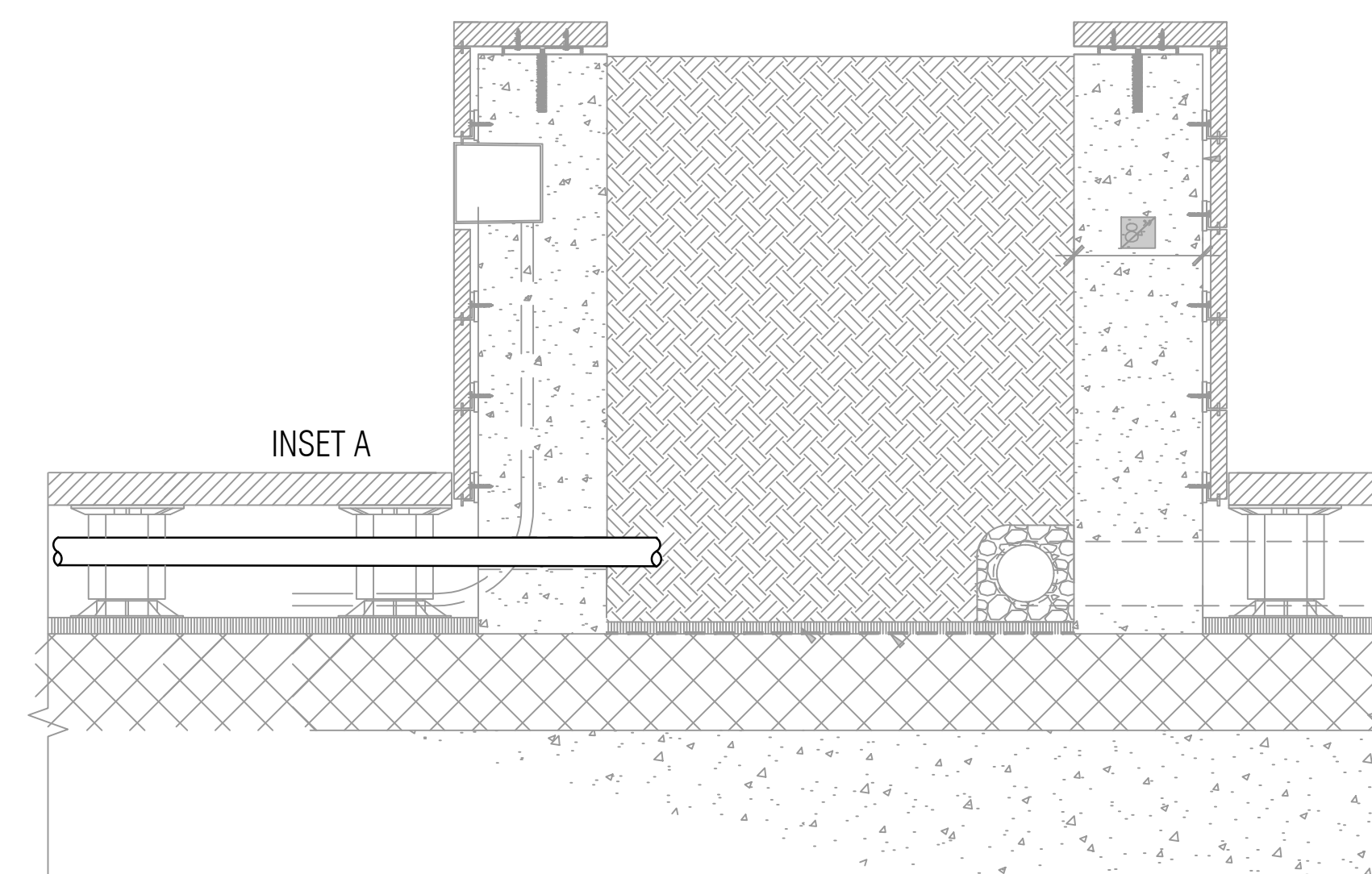
- 1 PVC SUPPLY HEADER
- 2 PVC SCH 40 TEE OR EL (TYPICAL)
- 3 BARB X MALE FITTING
- 4 PIPE FROM UNDER PAVERS STUB IN PLANTER
- 5 SUB-SURFACE DRIPLINE: NETAFIM TLCV-06-12
- 6 PERIMETER OF AREA

3 PLANTER DETAIL  
Scale: NTS SECTION



NOTE: SLEEVE LOCATIONS CAN BE IDENTIFIED WITH EITHER A 1" PVC STUB OR A NOTCH OR PAINT MARK ON THE BACK OF A CURB OR EDGE OF PAVEMENT IF APPLICABLE.

4 SLEEVE INSTALLATION BY GC  
Scale: NTS SECTION



WATERING SCHEDULE

NUMBER	MODEL	TYPE	PRECIP	IN./WEEK	MIN./WEEK	GAL./WEEK	GAL./DAY	
1	RAIN BIRD PGA ANGLE	TURF SPRAY	1.84 in/h	1	33	288	57.6	
2	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	3,581	512	
3	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	2,056	294	
4	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,953	279	
5	RAIN BIRD PGA ANGLE	TURF SPRAY	1.5 in/h	1	41	1,282	256	
6	RAIN BIRD PGA ANGLE	TURF SPRAY	1.37 in/h	1	44	1,529	306	
7	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,468	210	
8	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,521	217	
9	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	2,458	351	
10	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	2,469	353	
11	RAIN BIRD PGA ANGLE	TURF SPRAY	0.82 in/h	1	74	2,473	495	
12	RAIN BIRD PGA ANGLE	TURF SPRAY	0.82 in/h	1	73	2,459	492	
13	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,623	232	
14	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	797	114	
15	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	2,470	353	
16	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	2,431	347	
17	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	2,221	317	
18	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,211	173	
19	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.45 in/h	1	133	1,694	242	
20	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.44 in/h	1	137	1,799	257	
21	RAIN BIRD XCZ-150-LCS	AREA FOR DRIPLINE	0.43 in/h	1	141	797	114	
22	RAIN BIRD PGA ANGLE	TURF SPRAY	1.93 in/h	1	32	1,151	230	
23	RAIN BIRD PGA ANGLE	TURF SPRAY	1.79 in/h	1	34	581	116	
24	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,472	210	
25	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,472	210	
26	RAIN BIRD PGA ANGLE	TURF SPRAY	1.54 in/h	1	39	1,198	240	
27	RAIN BIRD XCZ-150-LCS	AREA FOR DRIPLINE	0.43 in/h	1	141	2,046	292	
28	RAIN BIRD PGA ANGLE	TURF SPRAY	1.45 in/h	1	42	1,534	307	
29	RAIN BIRD PGA ANGLE	TURF SPRAY	1.66 in/h	1	37	1,004	201	
30	RAIN BIRD PGA ANGLE	TURF SPRAY	1.44 in/h	1	42	1,522	304	
31	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,019	146	
32	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,892	270	
33	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,081	154	
34	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	946	135	
35	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,277	182	
36	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,270	181	
37	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	602	86.0	
38	RAIN BIRD PGA ANGLE	TURF ROTARY	0.64 in/h	1	94	1,516	505	
39	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,189	170	
40	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	378	54.0	
41	RAIN BIRD XCZPGA-100-PRF	DRIP RING	0.31 in/h	1	196	94.1	13.4	
42	RAIN BIRD PGA ANGLE	TURF ROTOR	0.35 in/h	1	174	4,091	1,364	
43	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,025	146	
44	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	505	72.1	
45	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	395	56.4	
46	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.65 in/h	1	92	99.9	14.3	
47	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.96 in/h	1	63	808	115	
48	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.96 in/h	1	63	769	110	
49	RAIN BIRD XCZPGA-100-PRF	AREA FOR DRIPLINE	0.43 in/h	1	141	1,421	203	
50	RAIN BIRD PGA ANGLE	TURF SPRAY	2.19 in/h	1	28	580	116	
51	RAIN BIRD PGA ANGLE	TURF SPRAY	1.79 in/h	1	34	1,105	221	
52	RAIN BIRD PGA ANGLE	TURF ROTOR	0.45 in/h	1	134	2,785	928	
53	RAIN BIRD PGA ANGLE	TURF SPRAY	1.37 in/h	1	44	1,109	222	
TOTALS:						5,772	75,720	13,433

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com

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UK Project Number 2563.0

ISSUANCES

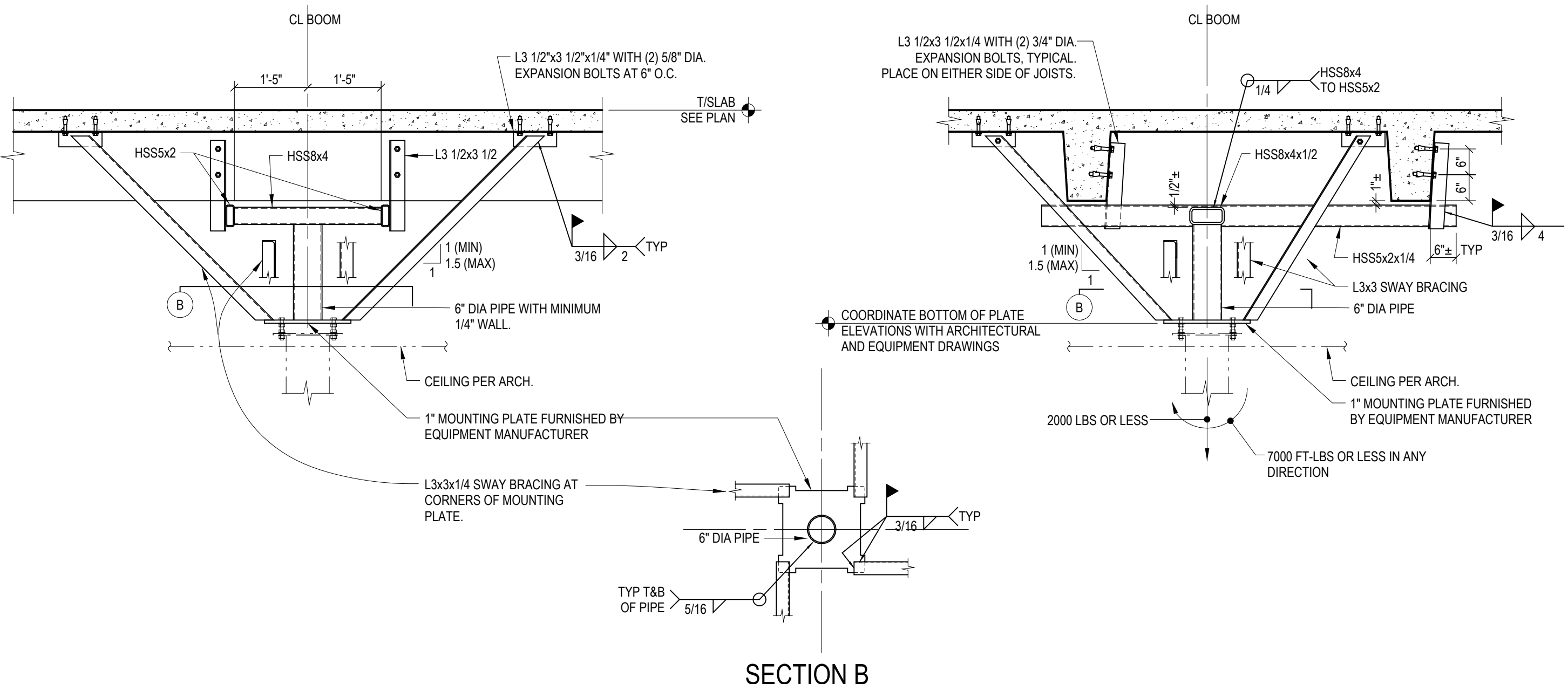
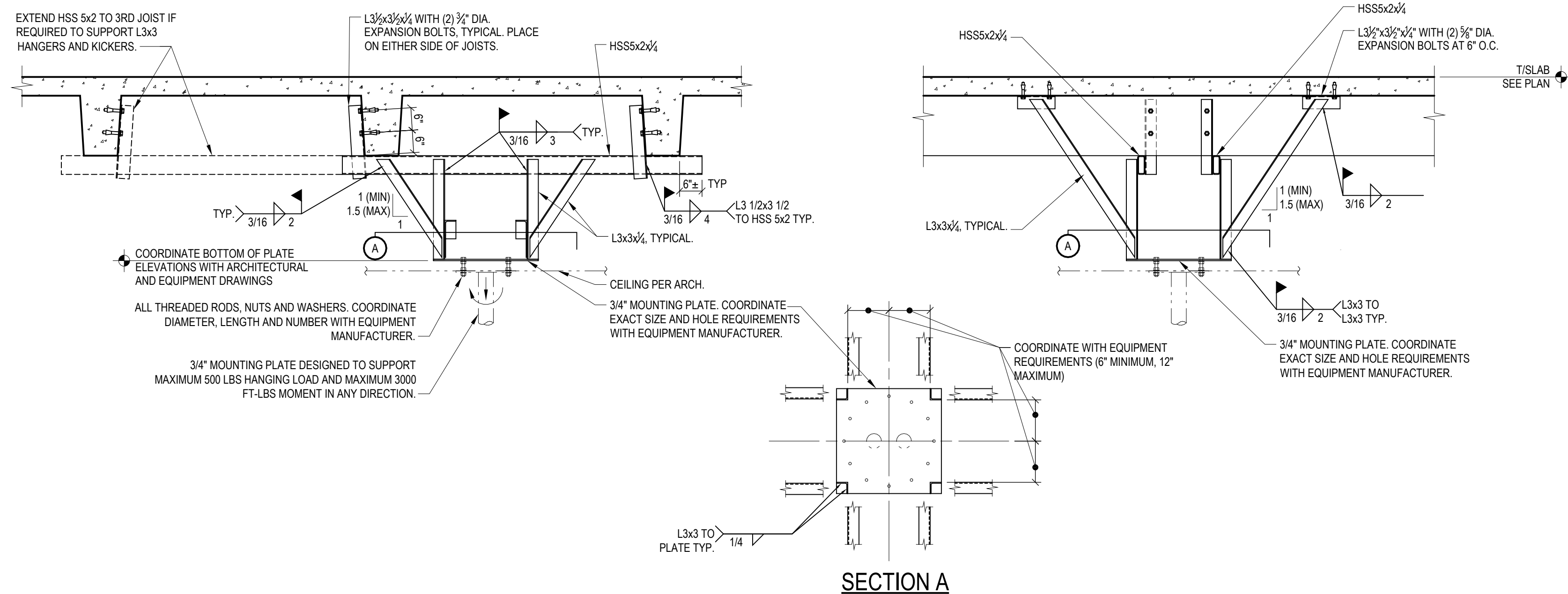
No.	Description	Date
1	C&S 100 CD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **DLB**  
Checked By **KW**  
Client Number **514**  
Project Number **6926**

DRAWING TITLE

IRRIGATION PLAN-DETAILS-2

SHEET NO.  
**L1000.7**



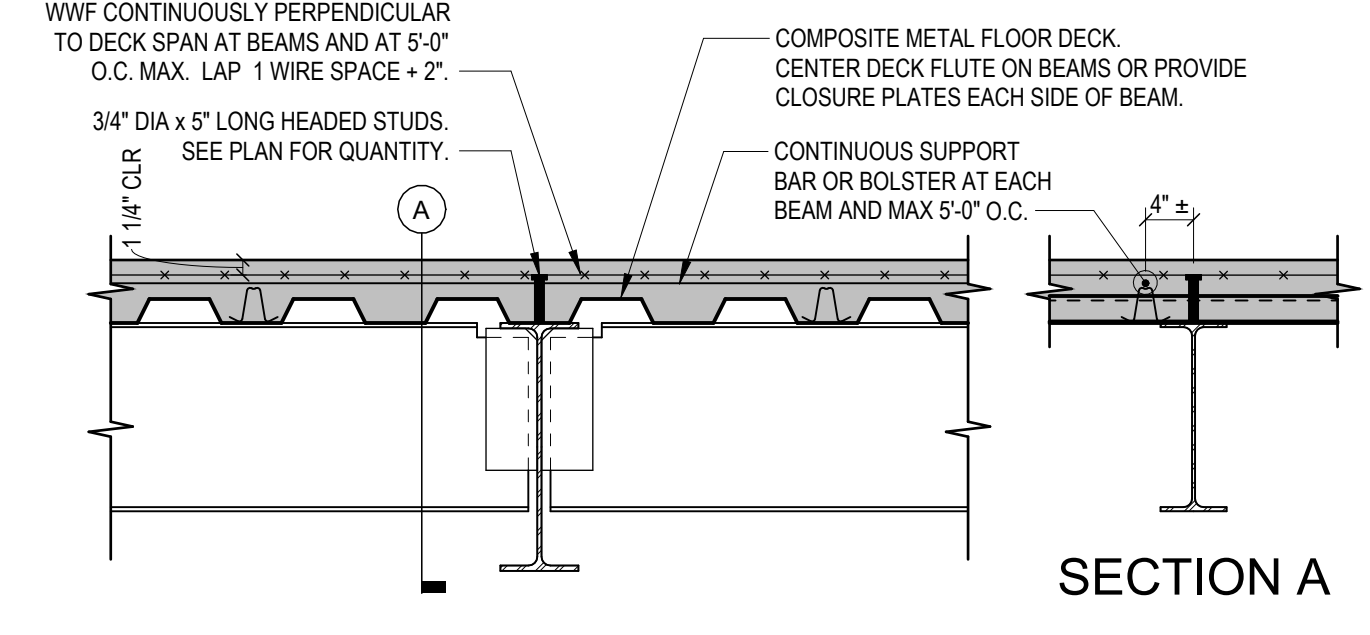
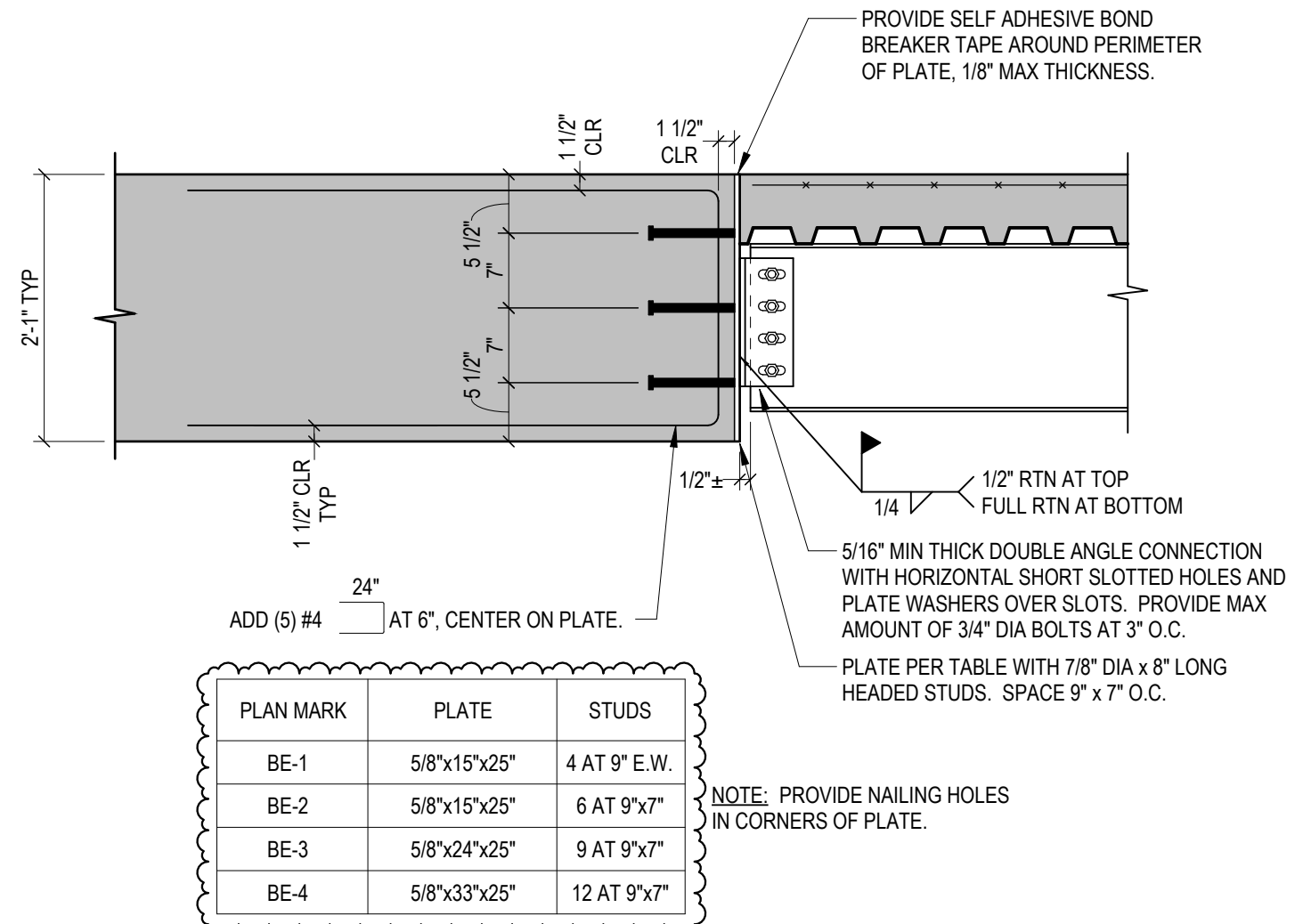
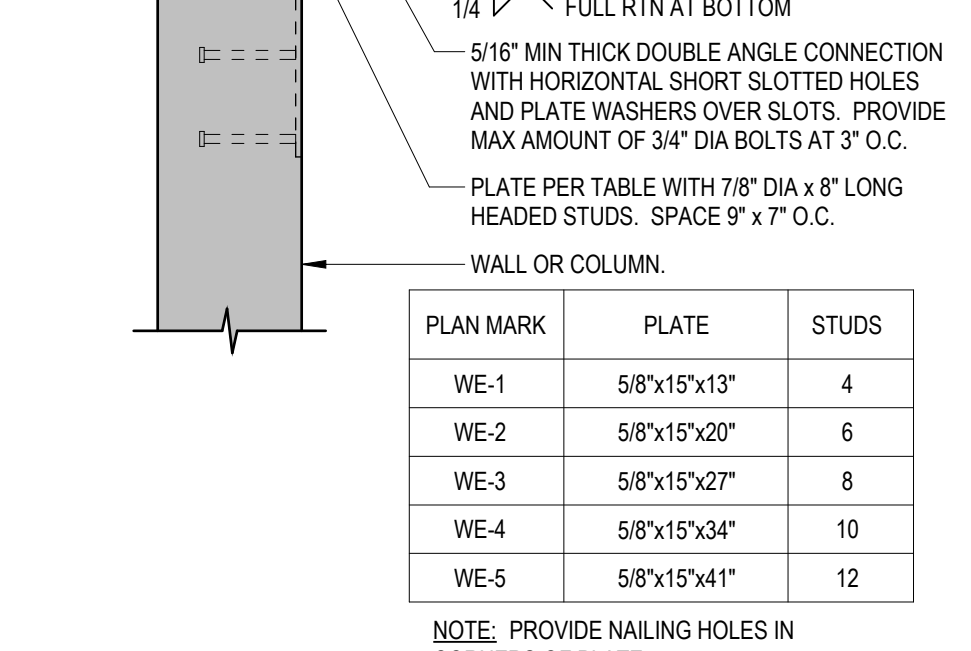
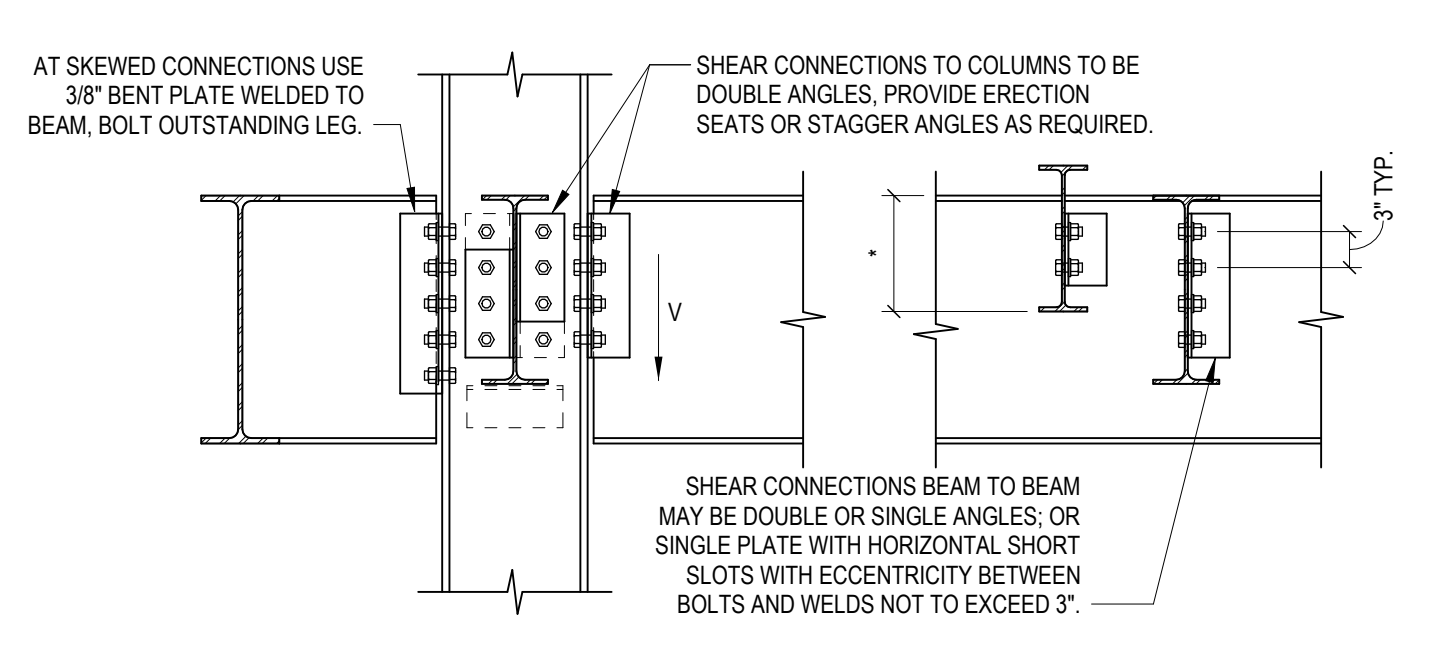
- NOTES:**
- DETAIL IS PROVIDED FOR BIDDING PURPOSES ONLY. SUBMIT MANUFACTURER'S CUT SHEETS OF SUPPORTED EQUIPMENT TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORT FRAMING.
  - REFER TO ARCHITECTURAL DRAWINGS FOR NUMBER AND LOCATIONS OF MOUNTING PLATES.
  - REFER TO "TYPICAL SUPPORT OF OVERHEAD LIGHT BOOM AND SIMILAR EQUIPMENT" DETAIL FOR SUPPORT OF OVERHEAD EQUIPMENT WEIGHING MORE THAN 500 LBS OR MOMENTS GREATER THAN 3000 FT-LBS.
  - IN LIEU OF DETAIL ABOVE, AND AT CONTRACTOR'S OPTION, EQUIPMENT MAY BE SUPPORTED BY HEALTHCARE TECHNOLOGY CORPORATION'S ACCU-MOUNT SUPPORT SYSTEM. SUBMIT PROPOSED ACCU-MOUNT LOADS AND DETAILS TO STRUCTURAL ENGINEER FOR APPROVAL.

- NOTES:**
- DETAIL IS PROVIDED FOR BIDDING PURPOSES ONLY. SUBMIT MANUFACTURER'S CUT SHEETS OF SUPPORTED EQUIPMENT TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORT FRAMING.
  - REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS AND REQUIRED NUMBER OF SUPPORT FRAMES.
  - DETAIL SHALL NOT BE USED IF EQUIPMENT WEIGHS MORE THAN 2000 LBS OR MOMENT IS GREATER THAN 7000 FT-LBS.
  - IN LIEU OF DETAIL ABOVE, AND AT CONTRACTOR'S OPTION, EQUIPMENT MAY BE SUPPORTED BY HEALTHCARE TECHNOLOGY CORPORATION'S ACCU-MOUNT SUPPORT SYSTEM. SUBMIT PROPOSED ACCU-MOUNT LOADS AND DETAILS TO STRUCTURAL ENGINEER FOR APPROVAL.

**TYPICAL MOUNTING PLATE FOR CEILING MOUNTED EQUIPMENT**

**TYPICAL SUPPORT OF OVERHEAD LIGHT BOOM AND SIMILAR EQUIPMENT**

BEAM DEPTH (INCHES)	MINIMUM ROWS OF BOLTS BY CONNECTIONS		
	DOUBLE ANGLE BOLT/WELD	DOUBLE ANGLE BOLT/BOLT	SINGLE ANGLE OR PLATE
8, 10	2	2	2
12	2	2	3
14	3	3	3
16	3	3	4
18	4	4	4
21	4	4	5
24	5	5	6
27	6	6	6
30	6	6	7
33	7	7	8
36	8	8	9
40	8	8	10
44	9	9	11



**TYPICAL SUPPORTED SLAB ON METAL DECK**

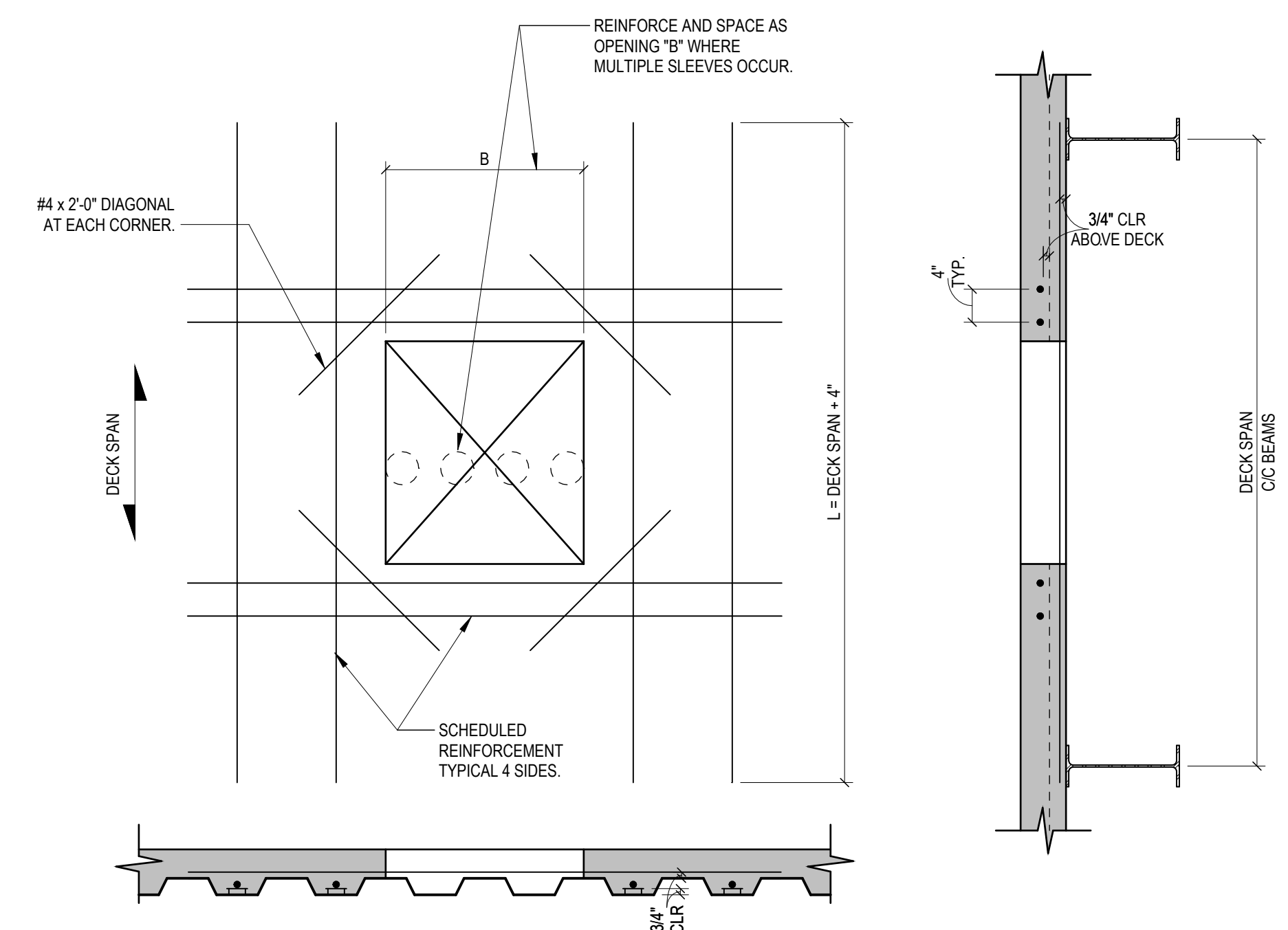
\* EFFECTIVE BEAM DEPTH WHERE RAISED. SEE DETAIL AT RIGHT.

**BEAM SHEAR CONNECTIONS (NO AXIAL)**

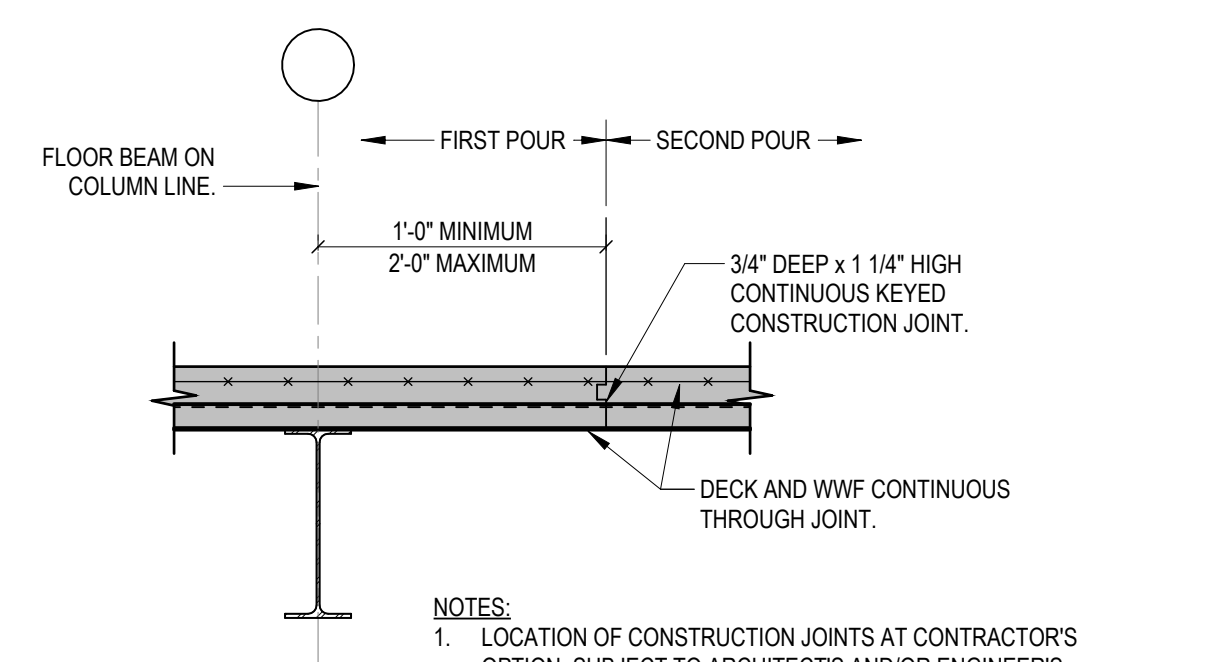
**BEAM TO EMBED PLATE (WALL OR COLUMN)**

**BEAM TO EMBED PLATE (CONCRETE BEAM)**

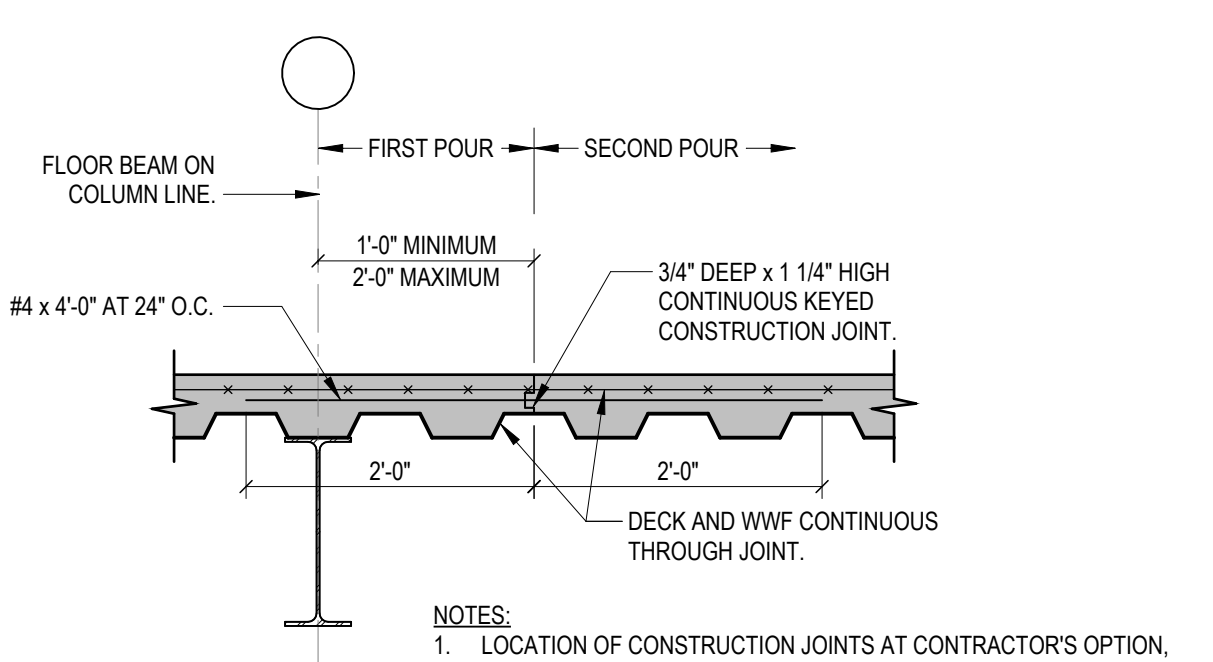
**TYPICAL SUPPORTED SLAB ON METAL DECK**



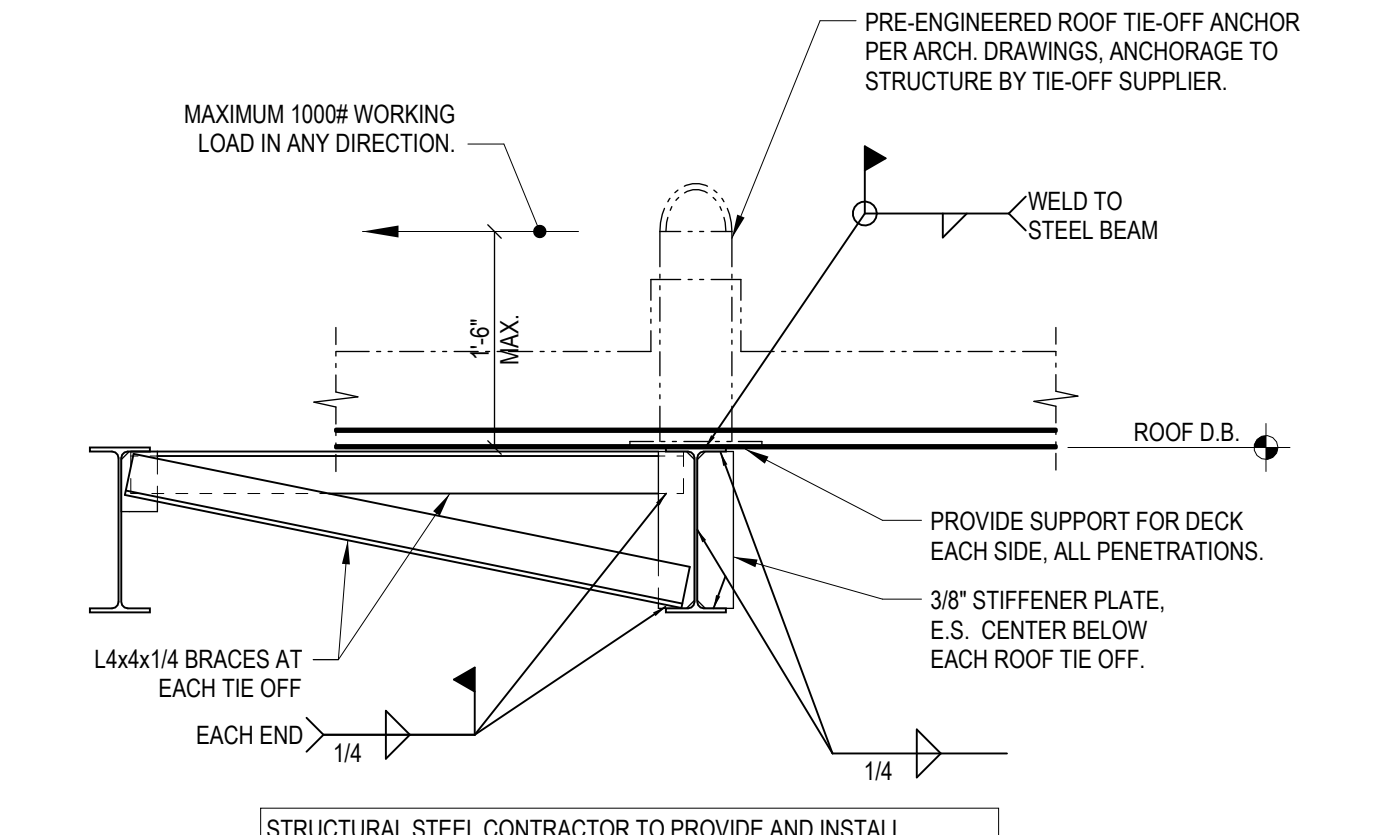
**ISOLATED SLAB OPENING**



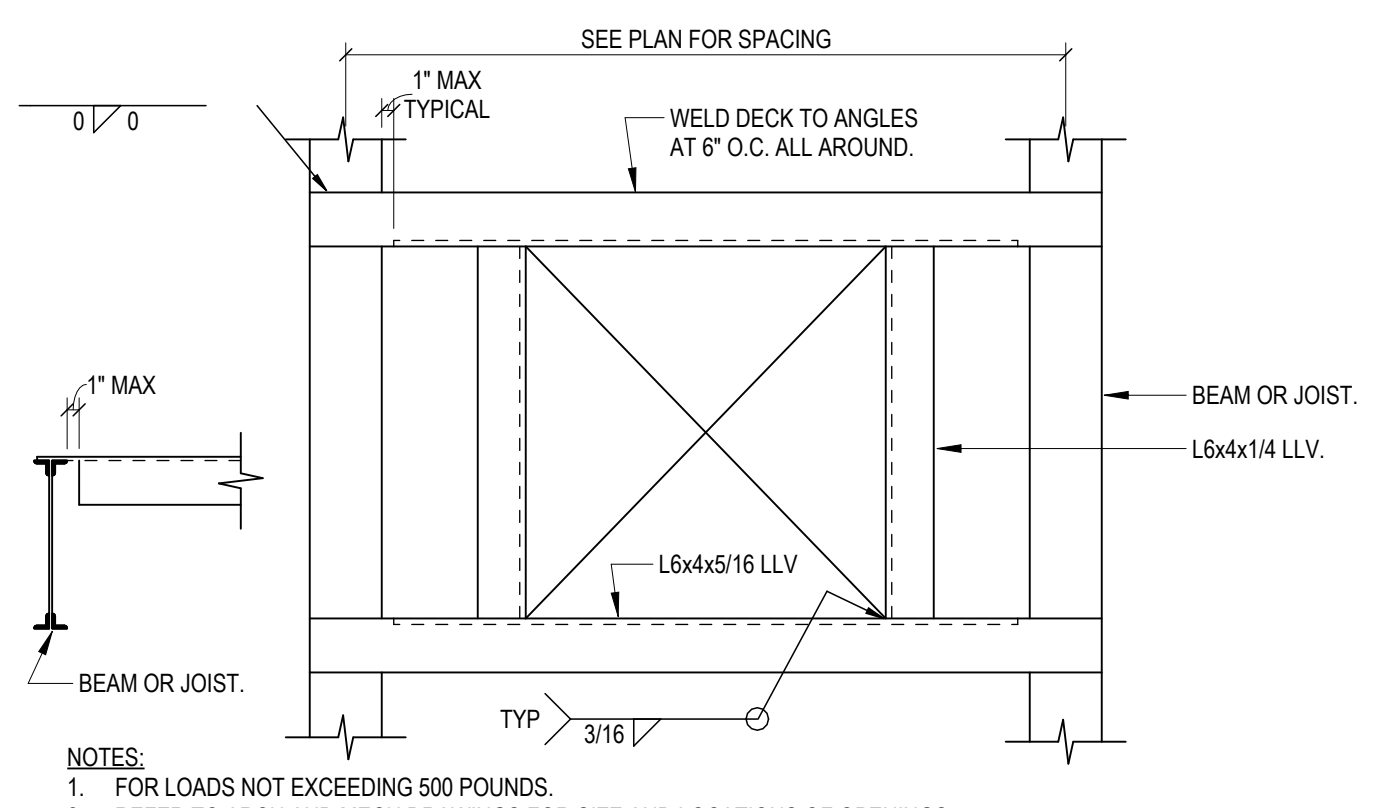
**SLAB CONSTRUCTION JOINT (PERPENDICULAR)**



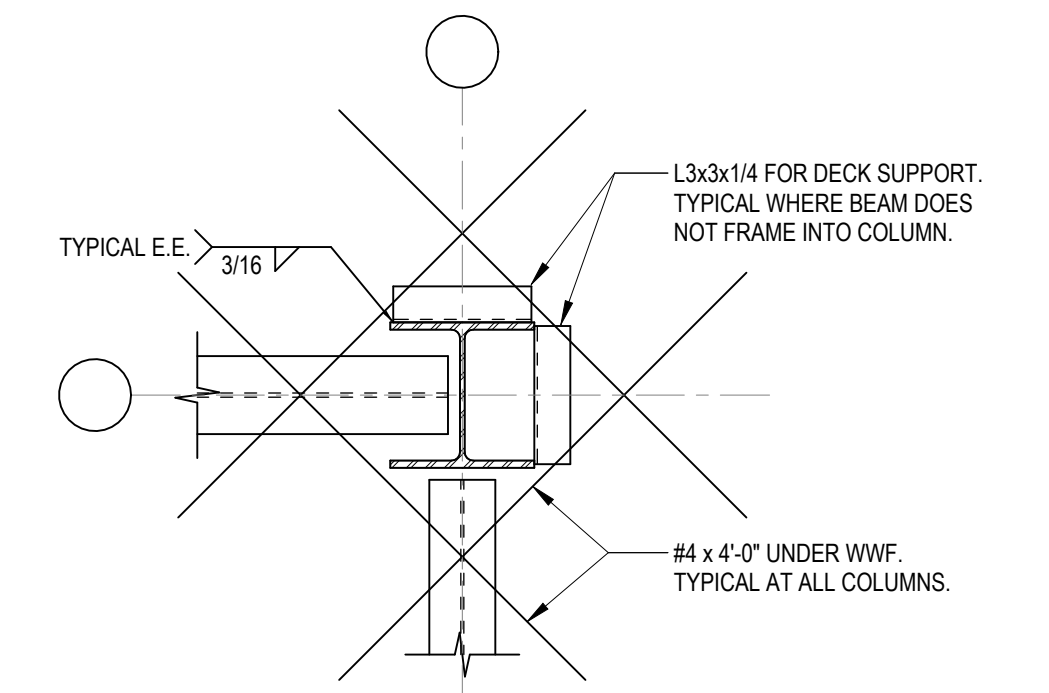
**SLAB CONSTRUCTION JOINT (PARALLEL)**



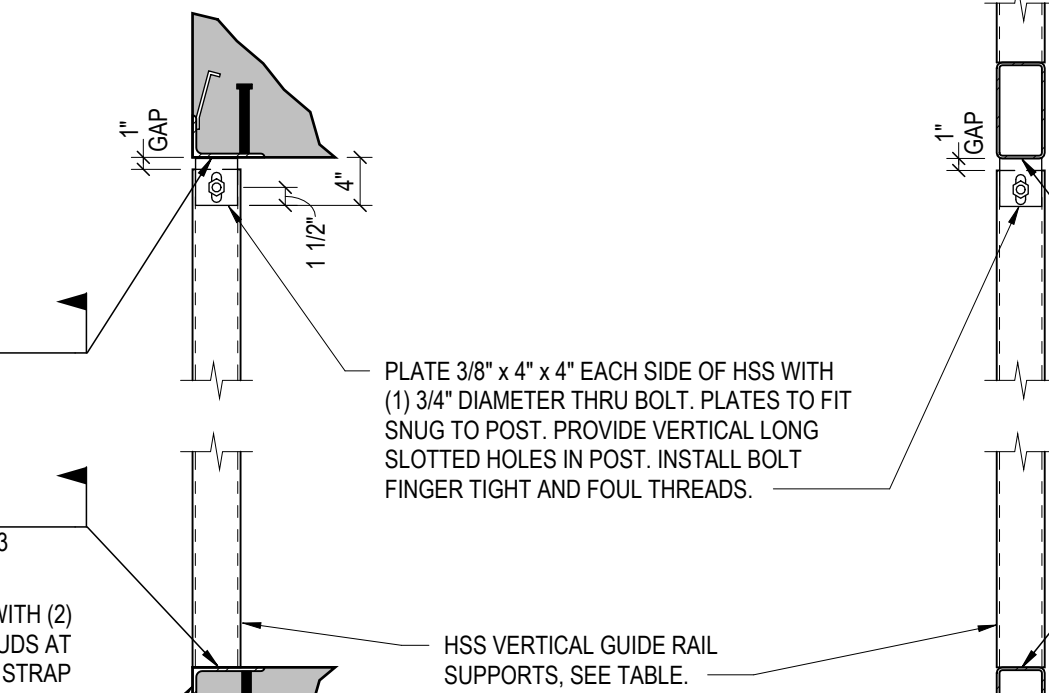
**TYPICAL SAFETY TIE-OFF ANCHOR**



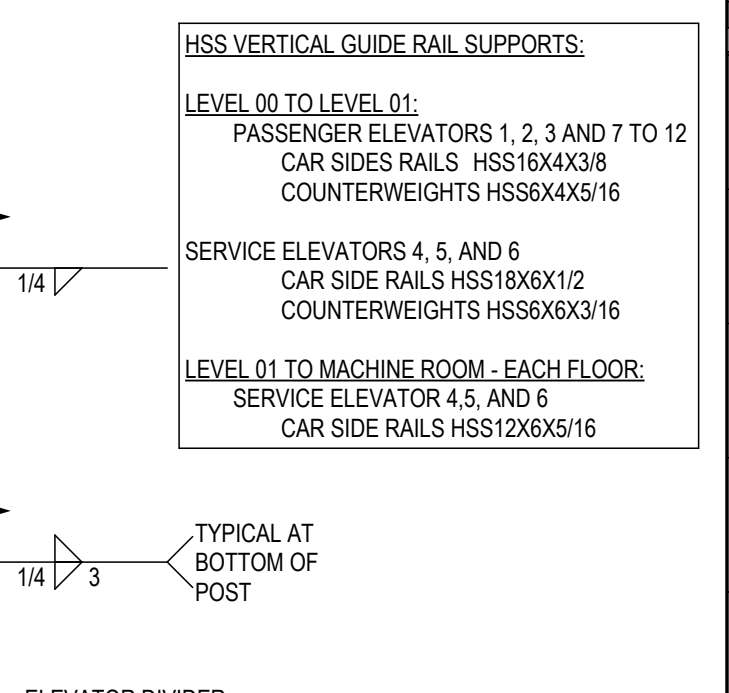
**ROOF OPENING FRAME**



**SLAB AT COLUMN**



**CONCRETE EDGE BEAM SUPPORT**



**DIVIDER BEAM SUPPORT**

**TYPICAL HSS VERTICALS AT ELEVATOR SHAFTS**

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI** Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 URBAN PLANNING  
 CIVIL ENGINEERING

**WALSH**  
 CONSULTING GROUP

**bell**  
 engineering

**CDM Smith**

**PIVOTAL**  
 lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

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Drawn By **SET**  
 Checked By **TLS**  
 Client Number **514**  
 Project Number **6926**  
 Date **05/28/2024**

DRAWING TITLE  
**TYPICAL DETAILS**

SHEET NO.  
**S104**

5/28/2024 5:59:28 PM Autodesk Docs://14-6926- UKHC Cancer Treatment & Advance Ambulatory Center/S23-UKHC\_5146926.rvt

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No.	Description	Date
1	BP-04 FOR BID & PERMIT	01/24/24
2	C&S 80% CD	03/05/24
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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By: SET

Checked By: TLS

Client Number: 514

Project Number: 6926

DRAWING TITLE: LEVEL 00 FOUNDATION PLAN - AREAS D AND E

SHEET NO.: S200D

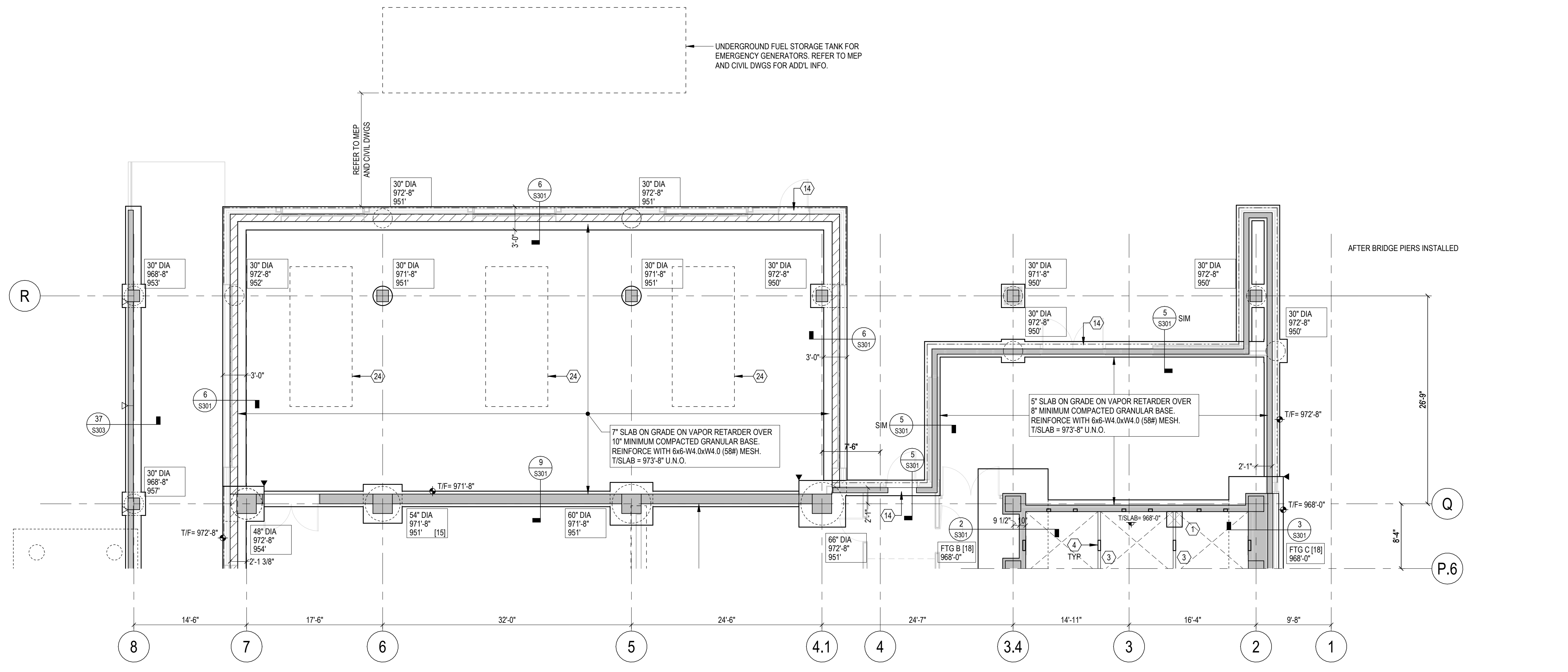
Date: 05/28/2024

PLAN NOTES:

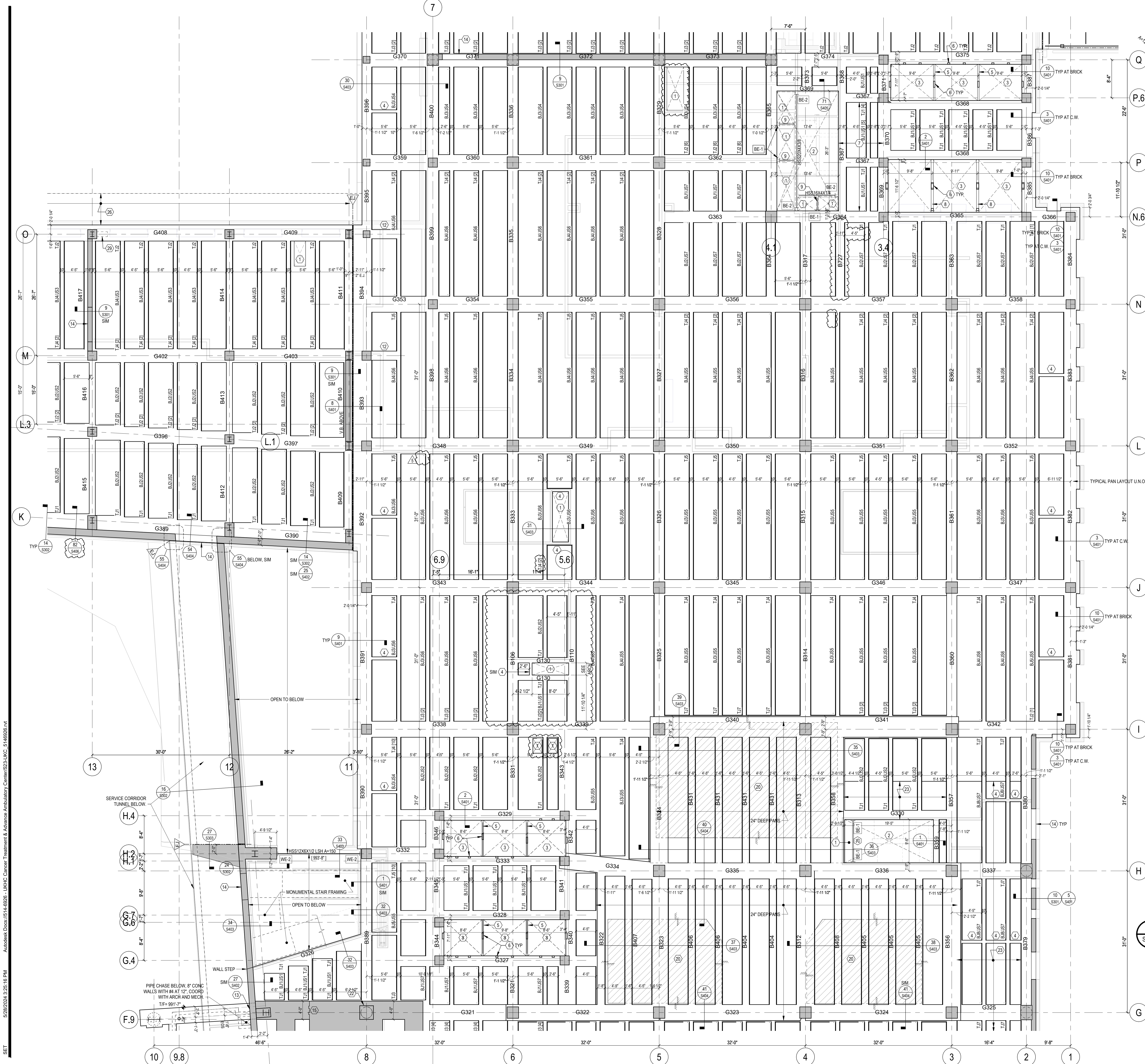
- APPROXIMATE LOCATION OF ELEVATOR SUMP. COORDINATE EXACT LOCATION WITH ELEVATOR MANUFACTURER.
- THICKEN SLAB ON GRADE BELOW STAIR STRINGER/POST BEARING PER TYPICAL DETAIL. COORDINATE STRINGER AND POST BEARING LOCATION WITH STAIR SUPPLIER.
- HSS10X4X14 ELEVATOR DIVIDER BEAM.
- VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDE RAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDE RAIL LOCATIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
- THICKEN SLAB ON GRADE BELOW INTERIOR CMU WALL PER TYPICAL DETAIL.
- THICKEN SLAB ON GRADE TO 9" AT LINEAR ACCELERATOR ROOM. REINFORCE WITH #6@16" O.C. (S88) MESH TOP AND BOTTOM. COORDINATE FLOOR LEVELNESS REQUIREMENTS WITH LINACC SUPPLIER. TOP OF SLAB EQUALS 973'-8" U.N.O. COORDINATE SLAB DEPRESSIONS, TRENCHES AND PITS THAT ARE REQ'D FOR THE MEDICAL EQUIPMENT WITH FUTURE INTERIORS PACKAGE AND MEDICAL EQUIPMENT SUPPLIER.
- THICKEN SLAB ON GRADE TO 9" AT HDR ROOM. REINFORCE WITH #6@16" O.C. (S88) MESH TOP AND BOTTOM. COORDINATE FLOOR LEVELNESS REQUIREMENTS WITH HDR SUPPLIER. TOP OF SLAB EQUALS 973'-8" U.N.O. 18" CONCRETE WALLS WITH 18" STRUCTURAL SLAB ABOVE. T/SLAB = 987'-7".
- THICKEN SLAB ON GRADE TO 10" AT MRI ROOM. REINFORCE WITH #6 AT 12" O.C. EACH WAY AT SLAB MID-DEPTH. ALL REINFORCING TO BE AUTENTICENT STAINLESS STEEL BARS. DEPRESS SLAB PER ARCHITECTURAL DRAWINGS AND COORDINATE FLOOR LEVELNESS REQUIREMENTS WITH MRI SUPPLIER.
- THICKEN SLAB ON GRADE TO 8" AT CT/BRACHY/HOT LAB ROOMS. REINFORCE WITH #4 AT 12" O.C. EACH WAY BOTTOM. MESH TO BE CONTINUOUS THROUGH THICKENED SLAB. COORDINATE FLOOR LEVELNESS REQUIREMENTS WITH CT/BRACHY/HOT LAB SUPPLIERS.
- 2x4" NOMINAL FULL HEIGHT PLASTER CAST INTEGRAL WITH FOUNDATION WALL. REINFORCE WITH #4 #1 VERT AND #4 CLOSED TIES (3 AT 3' O.C. TOP, BALANCE AT 10"). HOOK VERT BARS AT TOP OF LEVEL 01 FRAMING AND PROVIDE MATCHING STRAIGHT DOWELS INTO DRILLED PIER. REFER TO DETAIL ON S503 FOR ADD'L INFO AND REINFORCING REQUIRED. ORIENT PLASTER AS SHOWN AND CENTER UNDER STEEL COLUMN ABOVE.
- HSS12X6X5/16 ELEVATOR DIVIDER BEAM.
- 36"x36" NOMINAL COLUMN CAST INTEGRAL WITH LINACC WALL. REINFORCE WITH 12 #11 VERT AND #4 CLOSED TIES (3 AT 3' O.C. TOP, BAL. AT 16" O.C.). HOOK VERTICAL BARS AT TOP OF LEVEL 01 FRAMING AND PROVIDE MATCHING STRAIGHT DOWELS INTO DRILLED PIER. REFER TO DETAIL ON S503 FOR ADD'L INFO AND REINFORCING REQUIRED. CENTER COLUMN UNDER STEEL COLUMN ABOVE.
- 5" SLAB ON GRADE AT AREAWAY. REINFORCE WITH #6@16" O.C. (S88) MESH AND SLOPE SLAB TO DRAINS. SEE ARCHITECTURAL AND MEP DRAWINGS FOR SLAB ELEVATIONS AND DRAIN LOCATIONS. OMIT VAPOR RETARDER AT AREAWAY SLAB AND SEAL ALL SLAB JOINTS INCLUDING CRACKS.
- OMIT CURB BELOW DOOR. PROVIDE (2) ROWS OF #4 DOWELS FROM GRADE BEAM AT 12" O.C. AND FIELD BEND 2'-0" HORIZONTAL INTO INTERIOR AND EXTERIOR SLAB ON GRADE.
- DRILLED PIER LOCATION WAS PRE-DRILLED. REFER TO GEOTECH REPORT AND DRILLED SHAFT BEARING ELEVATION LETTER PREPARED BY SOLID GROUND CONSULTING ENGINEERS.
- HOOK DRILLED PIER VERT BARS AT TOP OF DRILLED PIER / PIER CAP.
- 18"x24" NOMINAL FULL HEIGHT PLASTER CAST INTEGRAL WITH FOUNDATION WALL. REINFORCE WITH #4 #1 VERT AND #4 CLOSED TIES (3 AT 3' O.C. TOP, BALANCE AT 10"). HOOK VERT BARS AT TOP OF LEVEL 01 FRAMING AND PROVIDE MATCHING STRAIGHT DOWELS INTO DRILLED PIER. REFER TO DETAIL ON S503 FOR ADD'L INFO AND REINFORCING REQ'D. ORIENT PLASTER AS SHOWN AND CENTER UNDER STEEL COLUMN ABOVE.
- SPREAD FOOTING SIZE BASED ON 15 KSF ALLOWABLE BEARING CAPACITY IN WEATHERED BEDROCK. GEOTECH ENGINEER TO VERIFY ALLOWABLE BEARING CAPACITY BEFORE PLACEMENT OF FOOTING CONCRETE.
- PIT FOR LOADING DOCK LEVELER OR SCISSOR LIFT. VERIFY PIT DIMENSIONS WITH ACTUAL EQUIPMENT PURCHASED. COORDINATE PIT LOCATIONS WITH ARCH DWGS.
- METAL STAIR FOR LOADING DOCK ACCESS. REFER TO ARCH DWGS FOR ADD'L INFO.
- CENTER DRILLED PIER UNDER COLUMN AT L-8.
- LOCATE CENTER OF DRILLED PIER IN E-W DIRECTION AT 1'-6" WEST OF LINE 8.
- BOTTOM OF DRILLED PIER ELEVATION BASED ON MINIMUM 10 FOOT ROCK SOCKET DEPTH INTO 85 KSF COMPETENT BEDROCK AS REQ'D FOR UPLIFT RESISTANCE. DO NOT RAISE BOTTOM ELEVATION ABOVE THAT SHOWN BUT LOWER BOTTOM ELEVATION AS REQ'D TO ACHIEVE THE 10 FOOT ROCK SOCKET DEPTH.
- 18" THICK ISOLATED MECHANICAL EQUIPMENT PAD BELOW GENERATOR. REFER TO TYPICAL DETAIL ON S102 FOR PAD REINFORCING AND ADD'L INFO. COORDINATE EXACT SIZE AND LOCATION OF PAD WITH MECH DWGS.
- 18"x18" NOMINAL COLUMN CAST INTEGRAL WITH WALL. REINFORCE WITH #8 VERT AND #3 CLOSED TIES AT 6" O.C. PROVIDE MATCHING STRAIGHT DOWELS INTO DRILLED PIER AND EXTEND VERT BARS TO WITHIN 4" OF TOP OF LEVEL 01 SLAB AND HOOK.
- COLUMN TO SERVE AS IN-PLACE MOCK UP FOR ARCH FINISH TO BE USED ON EXPOSED COLUMNS LOCATED IN LOBBY AREA AT LEVEL 01. REFER TO ARCH DWGS FOR ADD'L INFO.
- AT GAMMA KNIFE ROOM: 12" SLAB ON GRADE ON VAPOR RETARDER OVER 14" MIN THICK COMPACTED GRANULAR BASE. REINFORCE WITH #4 #8 VERT AND #3 CLOSED TIES AT 6" O.C. PROVIDE MATCHING STRAIGHT DOWELS INTO DRILLED PIER AND EXTEND VERT BARS TO WITHIN 4" OF TOP OF LEVEL 01 SLAB AND HOOK.
- AT GAMMA KNIFE DELIVERY PATH: 10" SLAB ON GRADE ON VAPOR RETARDER OVER 14" MIN THICK COMPACTED GRANULAR BASE. REINFORCE WITH #5 AT 12" EACH WAY TOP AND BOT. COORDINATE FLOOR LEVELNESS REQUIREMENTS WITH GAMMA KNIFE SUPPLIER. COORDINATE SLAB DEPRESSIONS, TRENCHES AND PITS THAT ARE REQ'D FOR THE MEDICAL EQUIPMENT WITH FUTURE INTERIORS PACKAGE AND MEDICAL EQUIPMENT SUPPLIER.
- SLLEEVE WALL AS REQ'D FOR MEP PIPING / CONDUIT. REFER TO MEP DRAWINGS FOR EXACT SIZES, ROUTES, AND LOCATIONS.
- EXTEND LINACC GRADE BEAM AND REINFORCING TO LINE 4. HOOK ALL TOP AND BOT LONGITUDINAL BARS AT FAR EAST END OF PIER CAP ON LINE 4.
- EXTEND LINACC GRADE BEAM AND REINFORCING TO LINE 6. HOOK ALL TOP AND BOT LONGITUDINAL BARS AT FAR EAST END OF PIER CAP ON LINE 6.
- GRADE BEAM EXTENSION FOR SUPPORT OF LINACC DOOR FRAME. REFER TO DETAIL 33S303.
- GRADE BEAM PER DETAIL 9S301. REINFORCING CONT FROM NORTH END OF ADJACENT SHEAR WALL TO SOUTH EDGE OF FOUNDATION WALL ON LINE K, TYP U.N.O.
- AT EXTERIOR DOORWAY, PROVIDE KEYWAY, DBRS AND EXTERIOR SLAB REINFORCING PER DETAIL 4S401.
- WALL CONSTRUCTION JOINT WITH 2x6 KEY AND #6 x 6'-0" DBR TO MATCH AREA WAY WALL REINFORCING. SEE SECTION 43S403.



1  
S200D  
T/SLAB = 973'-8" U.N.O.  
**LEVEL 00 - AREA E**  
1/8" = 1'-0"



2  
S200D  
T/SLAB = 973'-8" U.N.O.  
**LEVEL 00 - AREA D**  
1/8" = 1'-0"



- PLAN NOTES:**
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY, WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADD'L SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADD'L INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADD'L INFO.
  - 8" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X14X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADD'L INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADD'L INFO.
  - HSS10X14X1/4. THSS = 2" BELOW TOP OF SLAB.
  - SITE RETAINING WALL. REFER TO ARCH AND LANDSCAPE DRAWINGS FOR ADD'L INFO.
  - 5" SLAB DEPRESSION FOR COOLER. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER. PROVIDE 1" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETALS.
  - 36" WIDE DISTRIBUTION RIB. REINFORCE WITH 5 #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS. BARS TO EXTEND TO EDGE OF FOUNDATION WALL WHERE APPLICABLE.
  - FORM FULL DEPTH POCKET IN TOP OF WALL TO RECEIVE BEAM. ALL WALL REINFORCING CONT THROUGH POCKET.
  - OPENING IN WALL BELOW FOR DOOR OR WINDOW. VERIFY EXACT SIZE AND LOCATION WITH ARCH DWGS. REINFORCE WALL AROUND OPENING PER TYPICAL DETAIL ON S103 U.N.O.
  - OPTIONAL VAULT WALL CONSTRUCTION JOINT.
  - REINFORCED CONCRETE LINACC ROOF SLAB.
  - WALL OPENING FOR DUCTWORK / PIPING BELOW. REFER TO ARCH AND MEP DWGS FOR EXACT OPENING SIZE AND LOCATION. REINFORCE WALL OPENING PER TYPICAL DETAIL ON S103.
  - INFILL THICK AREAS BETWEEN JOIST AND BEAM REINF WITH #5 AT 12" TOP AND BOT EACH WAY PLACED PARALLEL AND PERPENDICULAR TO PANS. LAP TOP BARS 2'-0" WITH SLAB MESH AND HOOK AT DISCONTINUOUS ENDS.
  - 5" TOPPING SLAB OVER LINACC VAULTS. SEE APPLICABLE DETAILS FOR EXTENTS. REINF WITH SYNTHETIC FIBERS PER TYPICAL SLAB ON GRADE DETAIL ON S102 (NOTE 6). PROVIDE SAVED CONTROL JOINTS (MAX SPACING = 16'-0") AND ISOLATION JOINTS AROUND COLUMNS PER TYPICAL DETAIL ON S102.
  - 5" SLAB DEPRESSION FOR MRI. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH MRI SUPPLIER.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENING WITH MEP DWGS.
  - POUR CONCRETE COLUMN ABOVE BEFORE PLACEMENT OF TOPPING SLAB. COLUMN TO BE PLACED ON FLAT. LEVEL SURFACE OVER ENTIRE AREA OF COLUMN.
  - 16" DEEP PANS AT MRI DELIVERY PATH. OMIT DRAPE ON MESH AND HOLD 3/4" CLR OF TOP OF SLAB. ADD #4 AT 12" O.C. EACH WAY IN BOTTOM OF THICKENED SLAB. PATHWAY DESIGNED FOR A MAXIMUM MRI MAGNET WEIGHT OF 20 KILOPS.
  - HSS GIRT FOR LOUVER WITH EMBED PLATE EACH END. SEE ELEVATION AS311.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW TOP OF SLAB.
  - PRE-ENGINEERED STEEL FRAMED CANOPY OVER LOADING DOCK. REFER TO ARCH DWGS FOR ADD'L INFO.
  - AT EXTERIOR DOORWAY. OMIT CURB BELOW DOOR AND REINFORCE EXTERIOR SLAB ON WALL LEDGE. PROVIDE DBRS AND EXTERIOR SLAB REINF PER DETAIL 4/8401.
  - AT EXTERIOR DOORWAY. OMIT CURB BELOW DOOR AND PROVIDE EPOXY COATED DOWELS FROM GRADE BEAM TO EXTERIOR AND INTERIOR SLABS PER DETAIL 5/8301.
  - EMBED PLATE FOR VERTICAL BRACE ABOVE. SEE ELEVATIONS ON S521.
  - EMBED PLATE AND LATERAL BRIDGE TIE. SEE DETAILS ON S512.

**ISSUANCES**

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5	BP-07 ADDENDUM #1	05/28/24

Drawn By: **SET**  
 Checked By: **TLS**  
 Client Number: 514  
 Project Number: 6926  
 Drawing Title: **LEVEL 01 FRAMING PLAN - AREA B**  
 SHEET NO.: **S201B**

**LEVEL 01 - AREA B**  
 T/SLAB = 993'-8" U.N.O.  
 1/8" = 1'-0"

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

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**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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**THP**  
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**CARMAN** LANDSCAPE ARCHITECTURE  
 URBAN PLANNING CIVIL ENGINEERING

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**WALSH CONSULTING GROUP**

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**bell engineering**

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**CDM Smith**

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**PIVOTAL lighting design**

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**UK HEALTHCARE**

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**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
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 UK Project Number 2563.0

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 Checked By: **TLS**  
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 Project Number: 6926  
 Drawing Title: **LEVEL 01 FRAMING PLAN - AREA B**  
 SHEET NO.: **S201B**

5/28/2024 3:25:16 PM

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 5/28/2024 3:25:16 PM  
 SET



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Client Number: 514  
Project Number: 6926

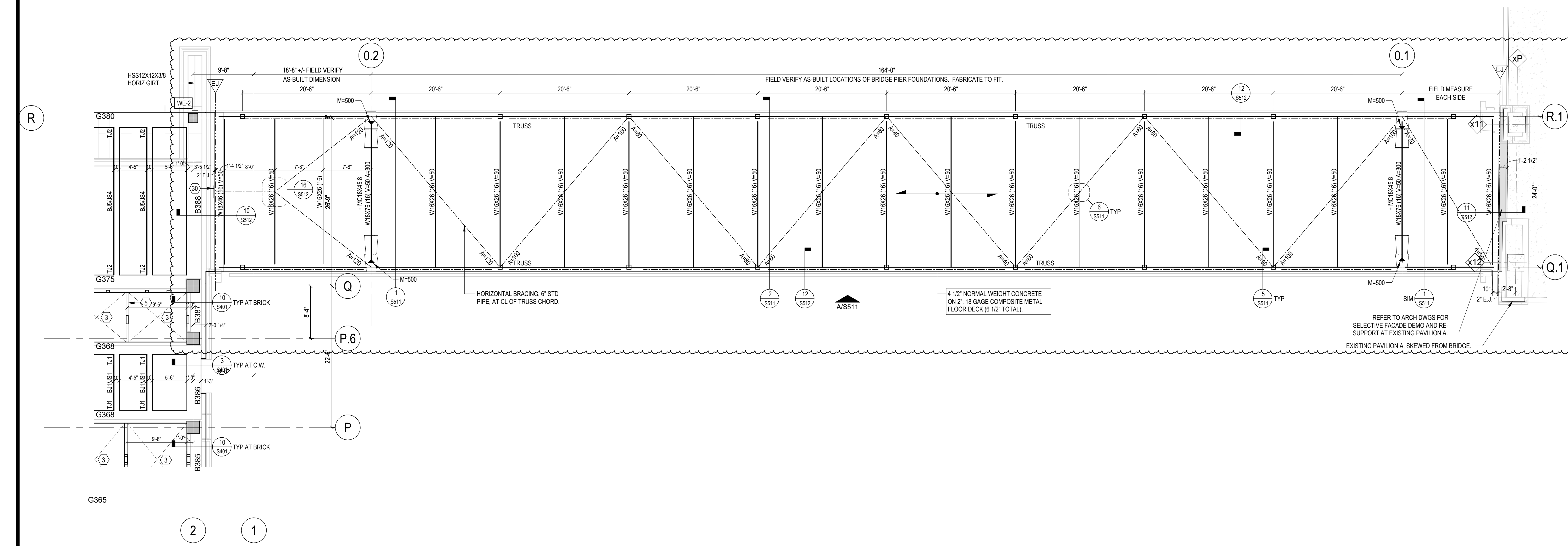
05/28/2024

DRAWING TITLE  
**LEVEL 01 FRAMING PLAN - AREAS D AND E**

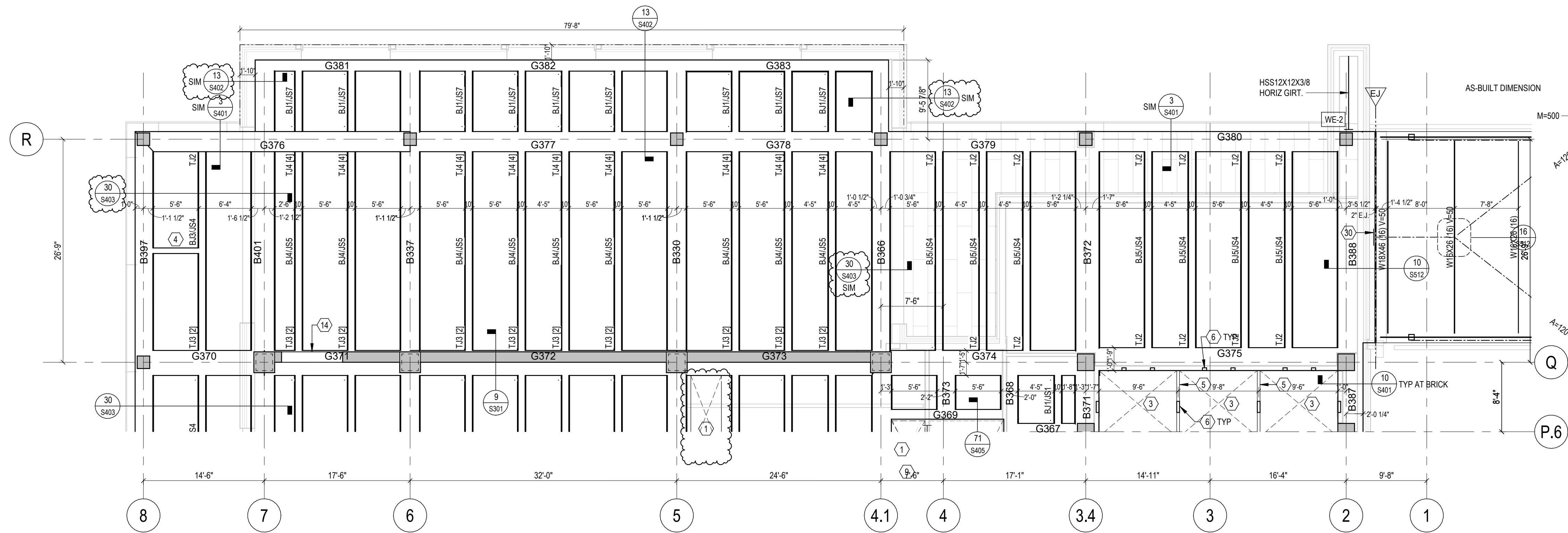
SHEET NO.  
**S201D**

PLAN NOTES:

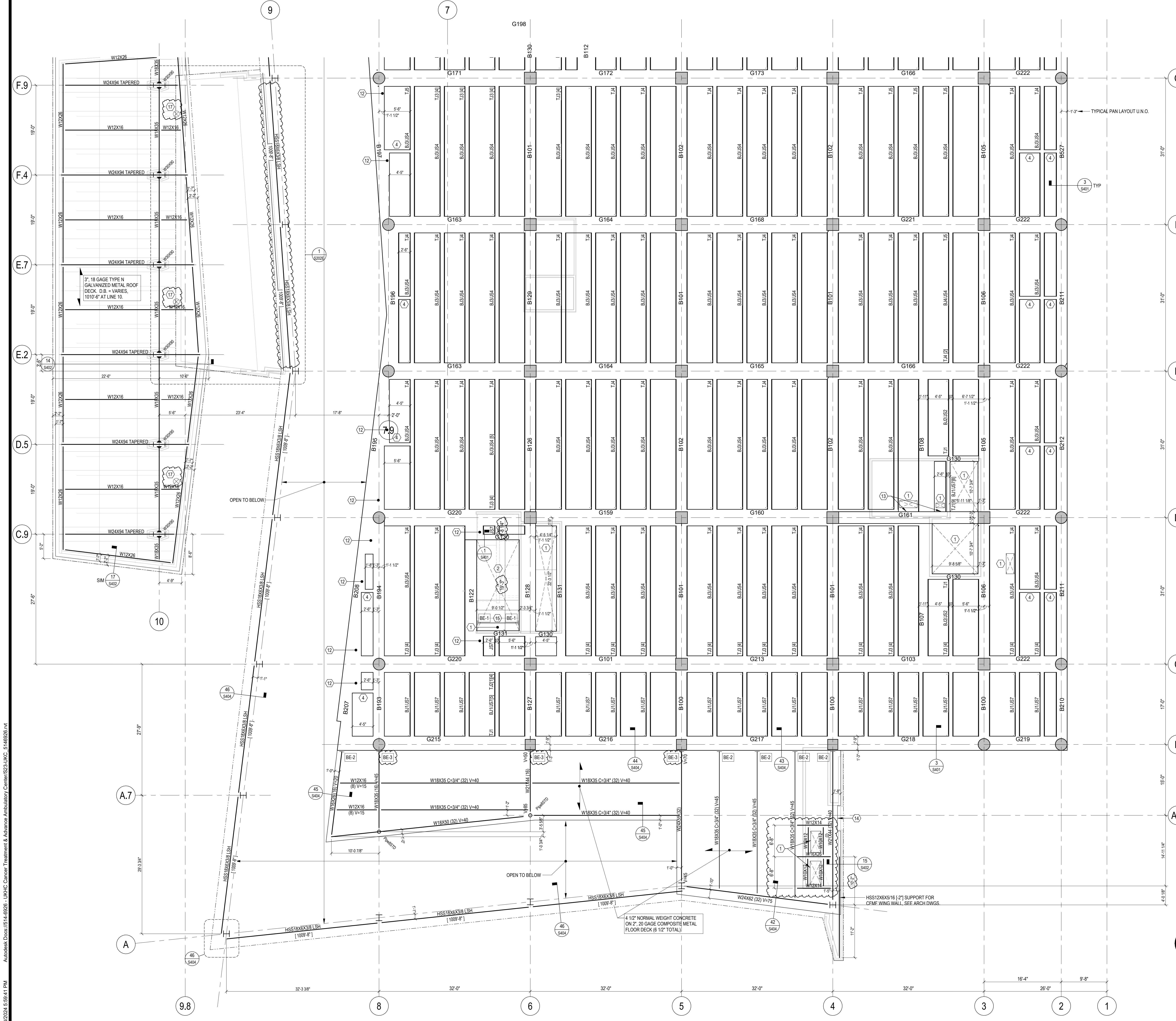
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY, WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADD'L SLAB EDGE INFO.
- STAIR SHAFT OPENING. REFER TO SECT 1/S401 FOR EMBED REQ'D AND ADD'L INFO.
- ELEVATOR SHAFT OPENING. REFER TO SECT 2/S401 FOR EMBED REQ'D AND ADD'L INFO.
- 8" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
- HSS10X4X14 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/S401 FOR ADD'L INFO.
- VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
- PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
- HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/S401 FOR ADD'L INFO.
- HSS10X4X14. THSS = 2" BELOW TOP OF SLAB.
- SITE RETAINING WALL. REFER TO ARCH AND LANDSCAPE DRAWINGS FOR ADD'L INFO.
- 5" SLAB DEPRESSION FOR COOLER. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH KITCHEN EQUIPMENT SUPPLIER. PROVIDE 14" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETAILS.
- 36" WIDE DISTRIBUTION RIB. REINFORCE WITH 5 #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS. BARS TO EXTEND TO EDGE OF FOUNDATION WALL WHERE APPLICABLE.
- FORM FULL DEPTH POCKET IN TOP OF WALL TO RECEIVE BEAM. ALL WALL REINFORCING CONT THROUGH POCKET.
- OPENING IN WALL BELOW FOR DOOR OR WINDOW. VERIFY EXACT SIZE AND LOCATION WITH ARCH DWGS. REINFORCE WALL AROUND OPENING PER TYPICAL DETAIL ON S103 U.N.O.
- OPTIONAL VAULT WALL CONSTRUCTION JOINT.
- REINFORCED CONCRETE LINACC ROOF SLAB.
- WALL OPENING FOR DUCTWORK / PIPING BELOW. REFER TO ARCH AND MEP DWGS FOR EXACT OPENING SIZE AND LOCATION. REINFORCE WALL OPENING PER TYPICAL DETAIL ON S103.
- INFILL THICK AREAS BETWEEN JOIST AND BEAM REINF WITH #5 AT 12" TOP AND BOT EACH WAY PLACED PARALLEL AND PERPENDICULAR TO PANS. LAP TOP BARS 2'-0" WITH SLAB MESH AND HOOK AT DISCONTINUOUS ENDS.
- 5" TOPPING SLAB OVER LINACC VAULTS. SEE APPLICABLE DETAILS FOR EXTENTS. REINF WITH SYNTHETIC FIBERS PER TYPICAL ARCH ON GRADE DETAIL ON S102 (NOTE 6). PROVIDE SAVED CONTROL JOINTS (MAX SPACING = 16'-0") AND ISOLATION JOINTS AROUND COLUMNS PER TYPICAL DETAIL ON S102.
- 9" SLAB DEPRESSION FOR MRI. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH MRI SUPPLIER.
- FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENING WITH MEP DWGS.
- POUR CONCRETE COLUMN ABOVE BEFORE PLACEMENT OF TOPPING SLAB. COLUMN TO BE PLACED ON FLAT, LEVEL SURFACE OVER ENTIRE AREA OF COLUMN.
- 16" DEEP PANS AT MRI DELIVERY PATH. OMIT DRAPE ON MESH AND HOLD 3/4" CLR OF TOP OF SLAB. ADD #4 AT 12" O.C. EACH WAY IN BOTTOM OF THICKENED SLAB. PATHWAY DESIGNED FOR A MAXIMUM MRI MAGNET WEIGHT OF 20 KILOPS.
- HSS GIRT FOR LOUVER WITH EMBED PLATE EACH END. SEE ELEVATION A/S311.
- HSS12X4X14 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW TOP OF SLAB.
- PRE-ENGINEERED STEEL FRAMED CANOPY OVER LOADING DOCK. REFER TO ARCH DWGS FOR ADD'L INFO.
- AT EXTERIOR DOORWAY. OMIT CURB BELOW DOOR AND BEAR EXTERIOR SLAB ON WALL LEDGE. PROVIDE DBRS AND EXTERIOR SLAB REINF PER DETAIL 4/S401.
- AT EXTERIOR DOORWAY. OMIT CURB BELOW DOOR AND PROVIDE EPOXY COATED DOWELS FROM GRADE BEAM TO EXTERIOR AND INTERIOR SLABS PER DETAIL 5/S301.
- EMBED PLATE FOR VERTICAL BRACE ABOVE. SEE ELEVATIONS ON S521.
- EMBED PLATE AND LATERAL BRIDGE TIE. SEE DETAILS ON S512.



1  
S201D  
T/SLAB = 993'-8" U.N.O.  
**LEVEL 01 - AREA E**  
1/8" = 1'-0"



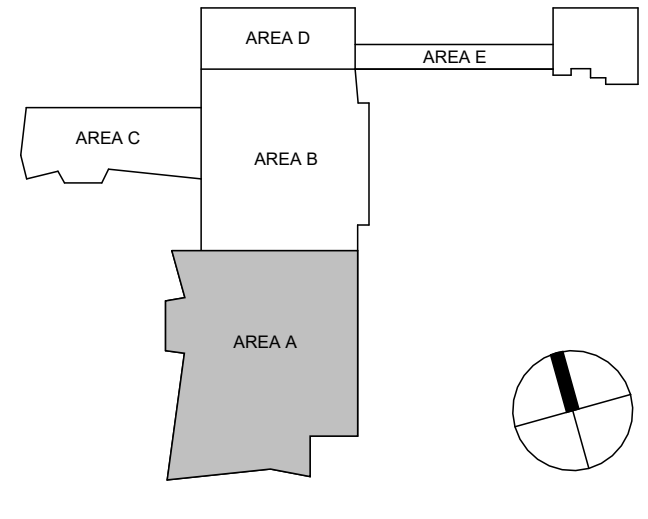
2  
S201D  
T/SLAB = 993'-8" U.N.O.  
**LEVEL 01 - AREA D**  
1/8" = 1'-0"



- PLAN NOTES:**
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  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - 8" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - HSS10X4X1/4. THSS = 2" BELOW T/S LAB.
  - 5" SLAB DEPRESSION FOR COOLER. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH EQUIPMENT SUPPLIER. PROVIDE 1/4" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETAILS.
  - 36" WIDE DISTRIBUTION RIB. REINFORCE WITH 5 #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - INFILL THICK AREAS BETWEEN JOIST AND BEAM REINFORCING WITH #5 AT 12" O.C. TOP AND BOTTOM EACH WAY PLACED PARALLEL AND PERPENDICULAR TO PANS. LAP TOP BARS 2'-0" WITH SLAB MESH AND HOOK AT DISCONTINUOUS ENDS.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENING WITH MEP DWGS.
  - INSET BENT PLATE AND SLAB EDGE AT WINDOW. SEE ARCH DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL.
  - PROVIDE ROOF OPENING ANGLE FRAME PER TYPICAL DETAIL ON S104 FOR ROOF DRAINS, SMALL OPENINGS AND FANS. TYPICALLY. COORDINATE ACTUAL SIZE, LOCATION AND QUANTITY WITH MEP AND ARCHITECTURAL DRAWINGS AND TRADE CONTRACTORS.
  - REINFORCE SLAB ON METAL DECK AT ALL ROOF DRAINS AND OPENINGS. SEE SLAB OPENING DETAIL ON S104.

1  
S202A

T/SLAB = 1009' 8" U.O.  
**LEVEL 02 - AREA A**  
1/8" = 1'-0"



**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
Affiliated Engineers

**CMTA**  
**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
URBAN PLANNING  
CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

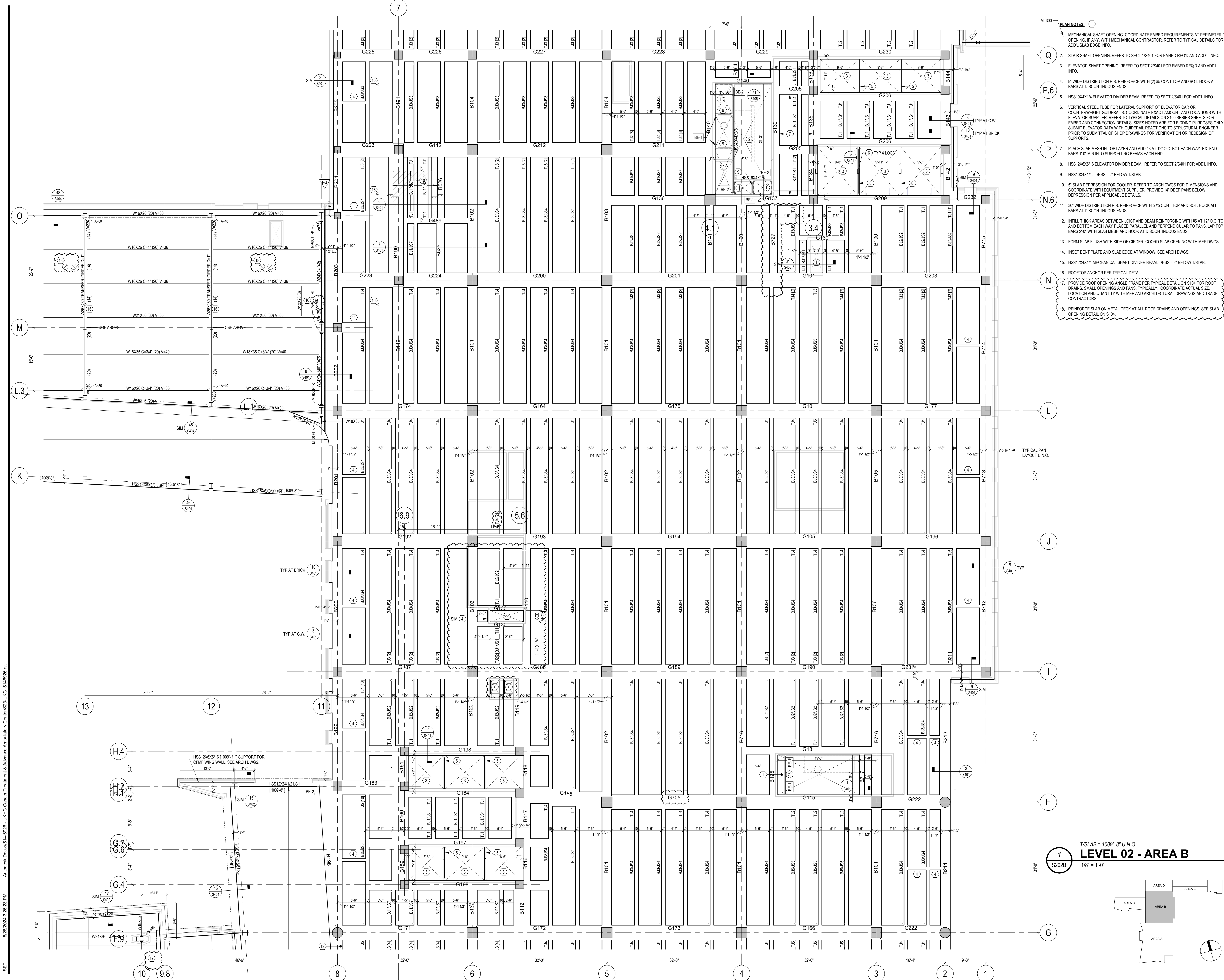
**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**  
Checked By **TLS**  
Client Number 514  
Project Number 6926

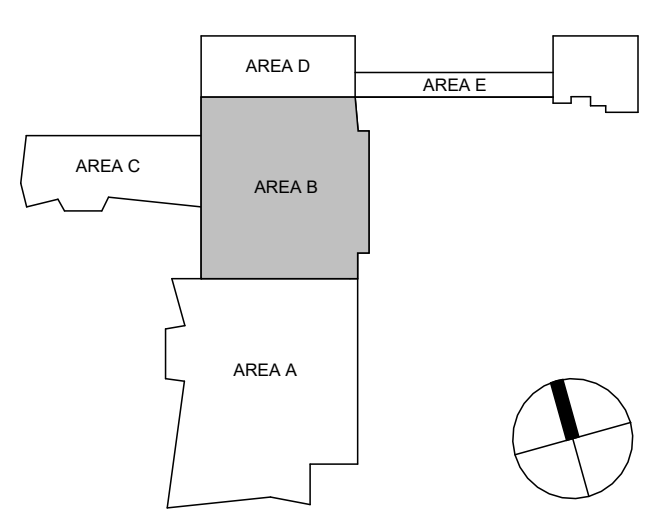
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**LEVEL 02 FRAMING PLAN - AREA A**  
SHEET NO.  
**S202A**

5/28/2024 3:26:23 PM Autodesk Docs://14-6926 - UKHC Cancer Treatment & Advance Ambulatory Center/S202B-UKC-516626-1



- PLAN NOTES:**
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  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADD'L INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADD'L INFO.
  - 8" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
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  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADD'L INFO.
  - HSS10X4X1/4. THSS = 2" BELOW T/SLAB.
  - SLAB DEPRESSION FOR COOLER. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH EQUIPMENT SUPPLIER. PROVIDE 14" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETAILS.
  - 36" WIDE DISTRIBUTION RIB. REINFORCE WITH 5 #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - INFILL THICK AREAS BETWEEN JOIST AND BEAM REINFORCING WITH #5 AT 12" O.C. TOP AND BOTTOM EACH WAY PLACED PARALLEL AND PERPENDICULAR TO PANS. LAP TOP BARS 2'-0" WITH SLAB MESH AND HOOK AT DISCONTINUOUS ENDS.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENING WITH MEP DWGS.
  - INSET BENT PLATE AND SLAB EDGE AT WINDOW. SEE ARCH DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/SLAB.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL.
  - PROVIDE ROOF OPENING ANGLE FRAME PER TYPICAL DETAIL ON S104 FOR ROOF DRAINS, SMALL OPENINGS AND FANS. TYPICALLY. COORDINATE ACTUAL SIZE, LOCATION AND QUANTITY WITH MEP AND ARCHITECTURAL DRAWINGS AND TRADE CONTRACTORS.
  - REINFORCE SLAB ON METAL DECK AT ALL ROOF DRAINS AND OPENINGS. SEE SLAB OPENING DETAIL ON S104.

T/SLAB = 1009' 8" U.O.  
**LEVEL 02 - AREA B**  
 1/8" = 1'-0"



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
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**bell engineering**  
**CDM Smith**

**PIVOTAL** lighting design

**UK HEALTHCARE**

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 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**  
 Checked By **TLS**  
 Client Number 514  
 Project Number 6926  
 DRAWING TITLE  
**LEVEL 02 FRAMING PLAN - AREA B**  
 SHEET NO.  
**S202B**

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ISSUANCES

No.	Description	Date
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2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**SET**

Checked By  
**TLS**

Client Number  
514

Project Number  
6926

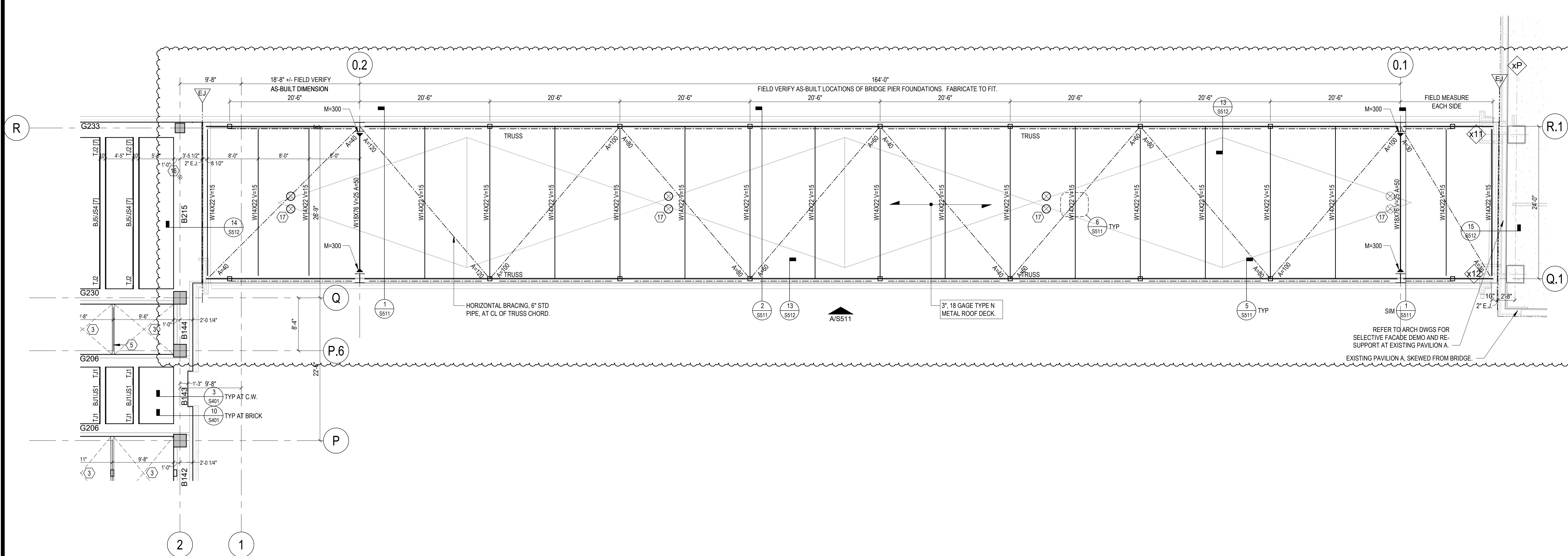
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DRAWING TITLE  
**LEVEL 02 FRAMING  
PLAN - AREAS D AND  
E**

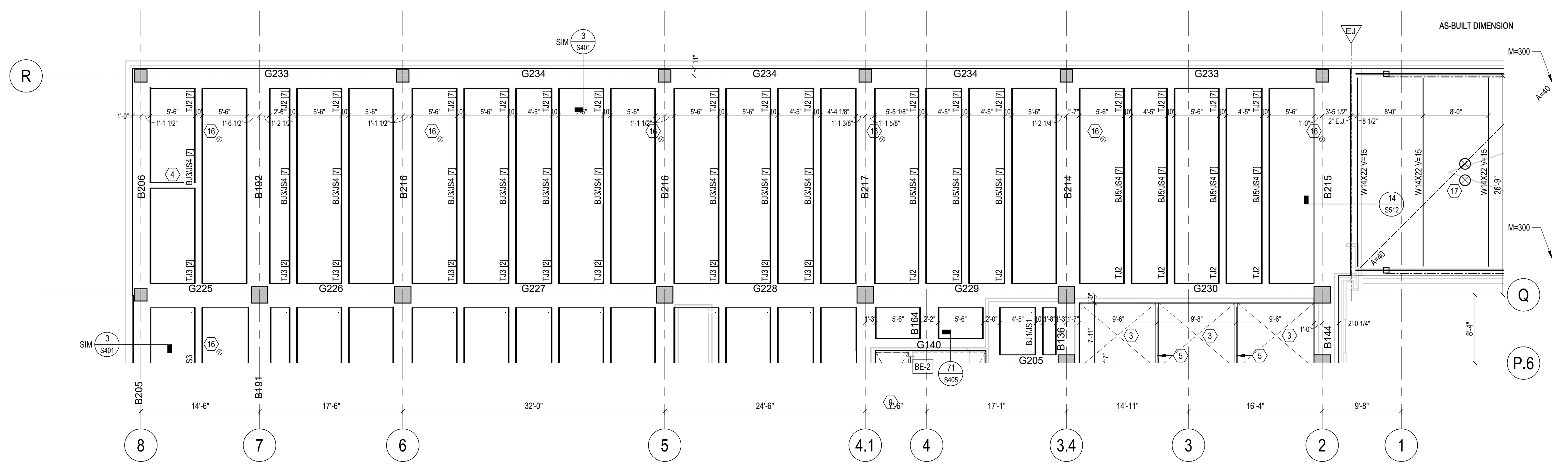
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PLAN NOTES:

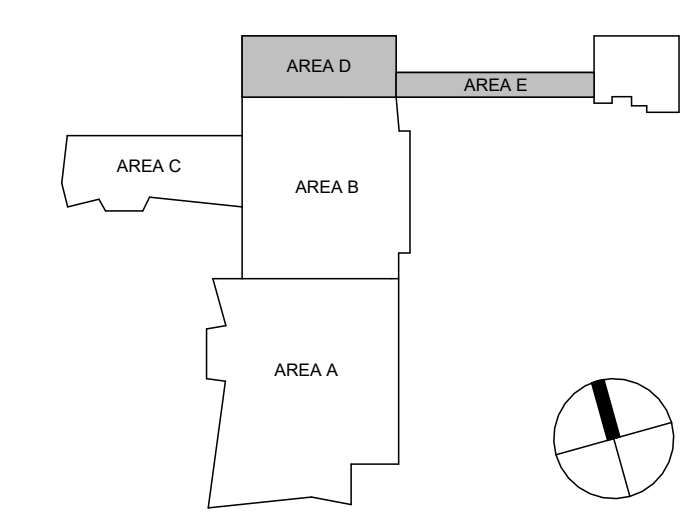
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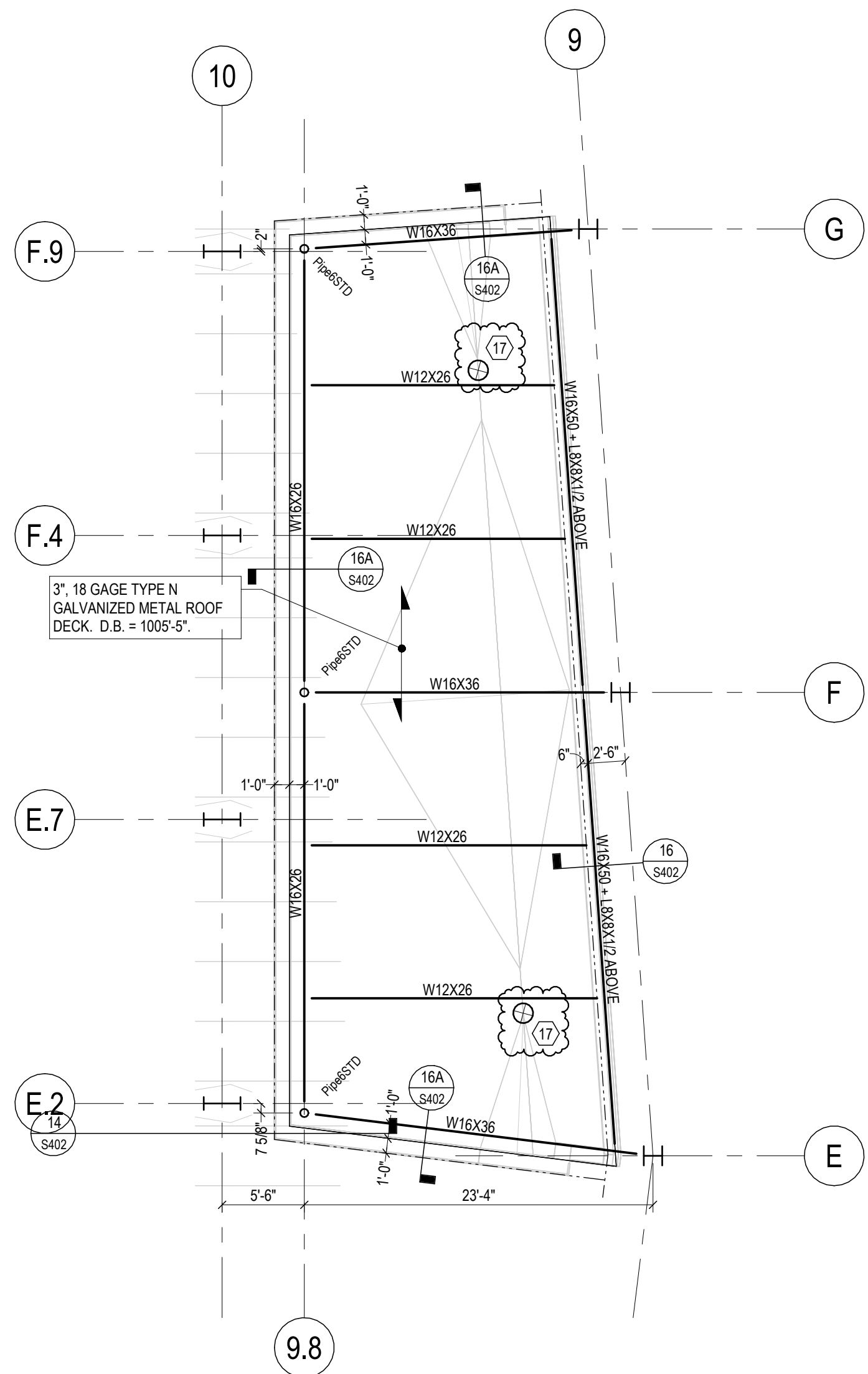


1  
S202D  
T/SLAB = 1009' 8" U.N.O.  
**LEVEL 02 - AREA E**  
1/8" = 1'-0"

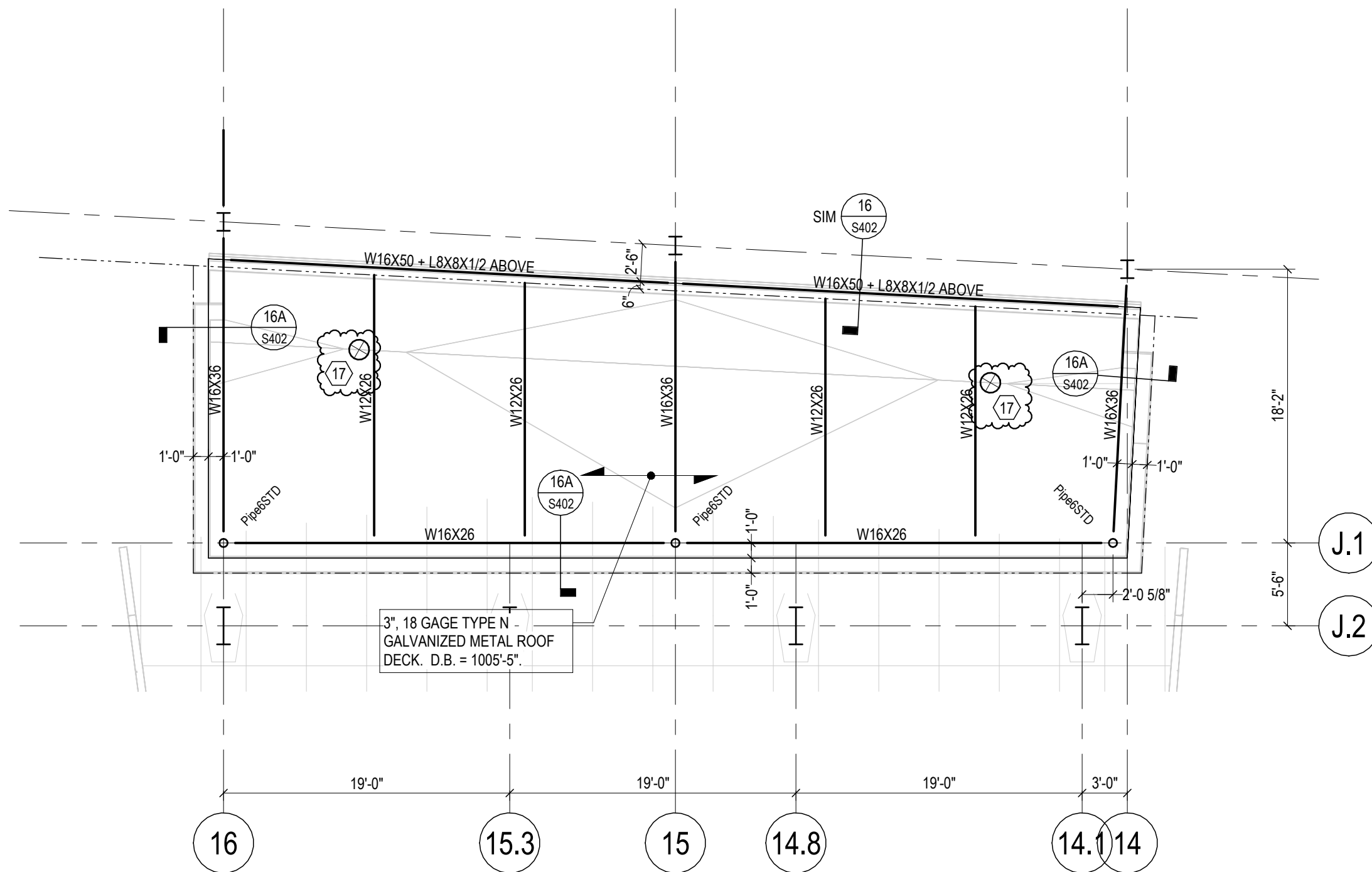


2  
S202D  
T/SLAB = 1009' 8" U.N.O.  
**LEVEL 02 - AREA D**  
1/8" = 1'-0"





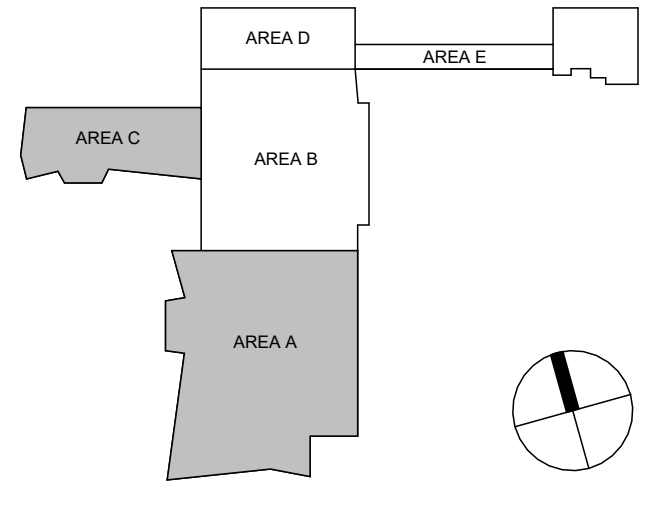
**1 SOUTH VESTIBULE FRAMING PLAN**  
S202E 1/8" = 1'-0"



**2 NORTH VESTIBULE FRAMING PLAN**  
S202E 1/8" = 1'-0"

**PLAN NOTES:**

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- 3" SLAB DEPRESSION FOR COOLER. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH EQUIPMENT SUPPLIER. PROVIDE 1/4" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETAILS.
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CINCINNATI, OH 45202  
T 513.241.4474  
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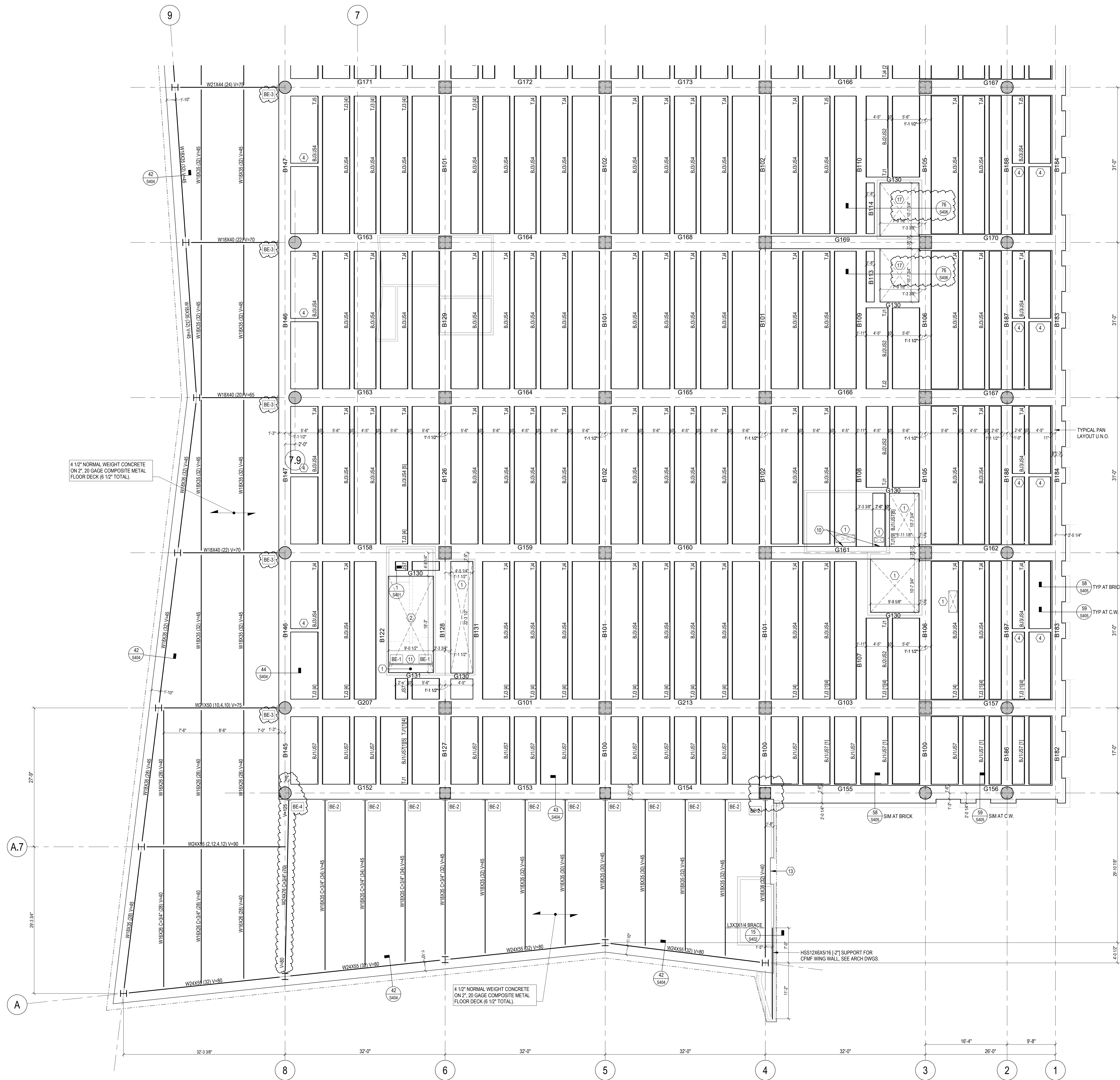
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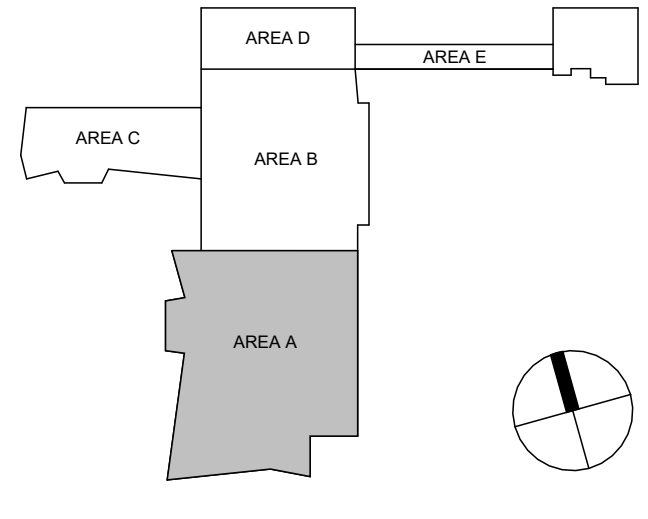
DRAWING TITLE: **LEVEL 02 PARTIAL FRAMING PLANS**  
SHEET NO.: **S202E**



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  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/5401 FOR EMBED REQ'D AND ADDL. INFO.
  - 8" WIDE DISTRIBUTION RB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/5401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/5401 FOR ADDL. INFO.
  - HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENINGS WITH MEP DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  - GALVANIZED HSS10X10X5/16 STUB FOR SUPPORT OF METAL PANEL / CFMF VERTICAL FIN. THSS = 7" BELOW T/S LAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD WELD TUBE TO EMBED WITH 5/16" FILLET WELDS ALL AROUND. REPAIR DAMAGED GALV AFTER WELDING WITH COLD GALV COMPENS PER SPECS. PROVIDE CAP PLATE AT OPEN END OF TUBE. SEAL WELD ALL AROUND.
  - INSET BENT PLATE AND SLAB EDGE AT WINDOW. SEE ARCH DWGS.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL.
  - HORIZONTAL BRACE 5" STD PIPE. CENTER LINE OF PIPE 8" BELOW T/S LEVEL, SIMILAR TO SECTIONS 5 AND 6 ON S511. WITH 5" MIN WELD 4 SIDES. DESIGN END CONNECTIONS FOR A = 30K.
  - PROVIDE ROOF OPENING ANGLE FRAME PER TYPICAL DETAIL ON S104 FOR ROOF DRAINS, SMALL OPENINGS AND FANS. TYPICALLY. COORDINATE ACTUAL SIZE, LOCATION AND QUANTITY WITH MEP AND ARCHITECTURAL DRAWINGS AND TRADE CONTRACTORS.
  - MECHANICAL SHAFT OPENING TO BE INFILLED WITH CONCRETE. INFILL CONCRETE TO BE REINFORCED AROUND DUCTS / DAMPERS. REFER TO DETAIL 76S406 FOR ADDL. INFO.

1  
S203A

T/SLAB = 1025' 8" U.O.  
**LEVEL 03 - AREA A**  
1/8" = 1'-0"



**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
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**CMTA**  
**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
URBAN PLANNING  
CIVIL ENGINEERING

**WALSH CONSULTING GROUP**  
**bell engineering**  
**CDM Smith**  
**PIVOTAL lighting design**

**UK HEALTHCARE**

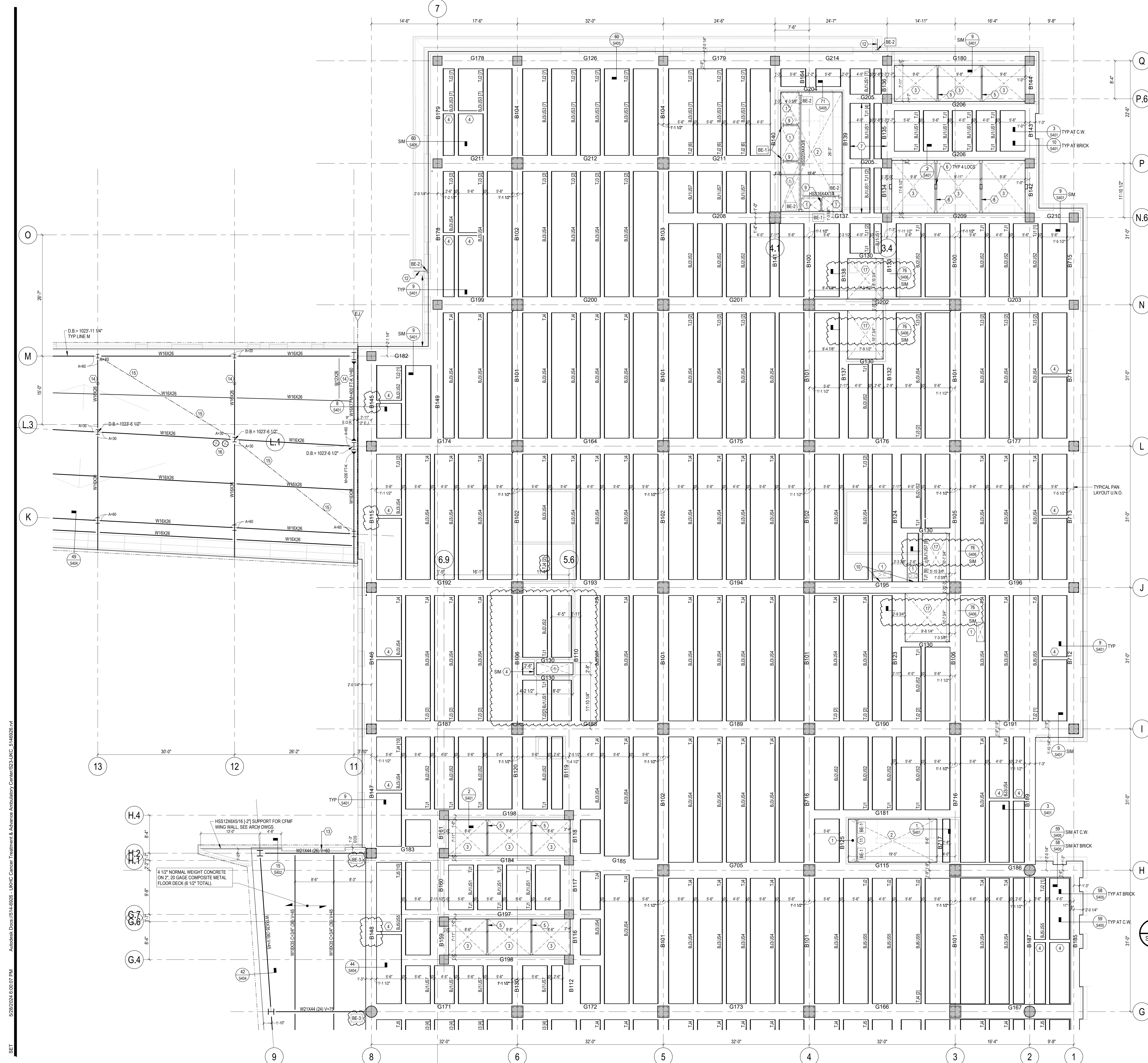
**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**  
Checked By **TLS**  
Client Number 514  
Project Number 6926

DRAWING TITLE  
**LEVEL 03 FRAMING PLAN - AREA A**  
SHEET NO.  
**S203A**



- PLAN NOTES:**
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADDL. SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - 8" WIDE DISTRIBUTION RB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENINGS WITH MEP DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  - GALVANIZED HSS10X10X5/16 STUB FOR SUPPORT OF METAL PANEL / CFMF VERTICAL FIN. THSS = 7" BELOW T/S LAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD WELLS TUBE TO EMBED WITH 3/16" FILLET WELLS ALL AROUND. REPAIR DAMAGED GALV AFTER WELDING WITH COLD CHALC COMPENS PER SPECS. PROVIDE CAP PLATE AT OPEN END OF TUBE. SEAL WELD ALL AROUND.
  - INSERT BENT PLATE AND SLAB EDGE AT WINDOW. SEE ARCH DWGS.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL.
  - HORIZONTAL BRACE 5" STD PIPE. CENTER LINE OF PIPE 8" BELOW T/S TUBE. SIMILAR TO SECTIONS 5 AND 6 ON S511. WITH 5" MIN WELD 4 SIDES. DESIGN END CONNECTIONS FOR A=30K.
  - PROVIDE ROOF OPENING ANGLE FRAME PER TYPICAL DETAIL ON S104 FOR ROOF DRAINS. SMALL OPENINGS AND FANS. TYPICALLY. COORDINATE ACTUAL SIZE, LOCATION AND QUANTITY WITH MEP AND ARCHITECTURAL DRAWINGS AND TRADE CONTRACTORS.
  - MECHANICAL SHAFT OPENING TO BE INFILLED WITH CONCRETE. INFILL CONCRETE TO BE REINFORCED AROUND DUCTS / DAMPERS. REFER TO DETAIL 76S406 FOR ADDL. INFO.

**PLAN NOTES:**

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720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

AEI Affiliated Engineers

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bell engineering

PIVOTAL lighting design

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4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**

Checked By **TLS**

Client Number 514

Project Number 6926

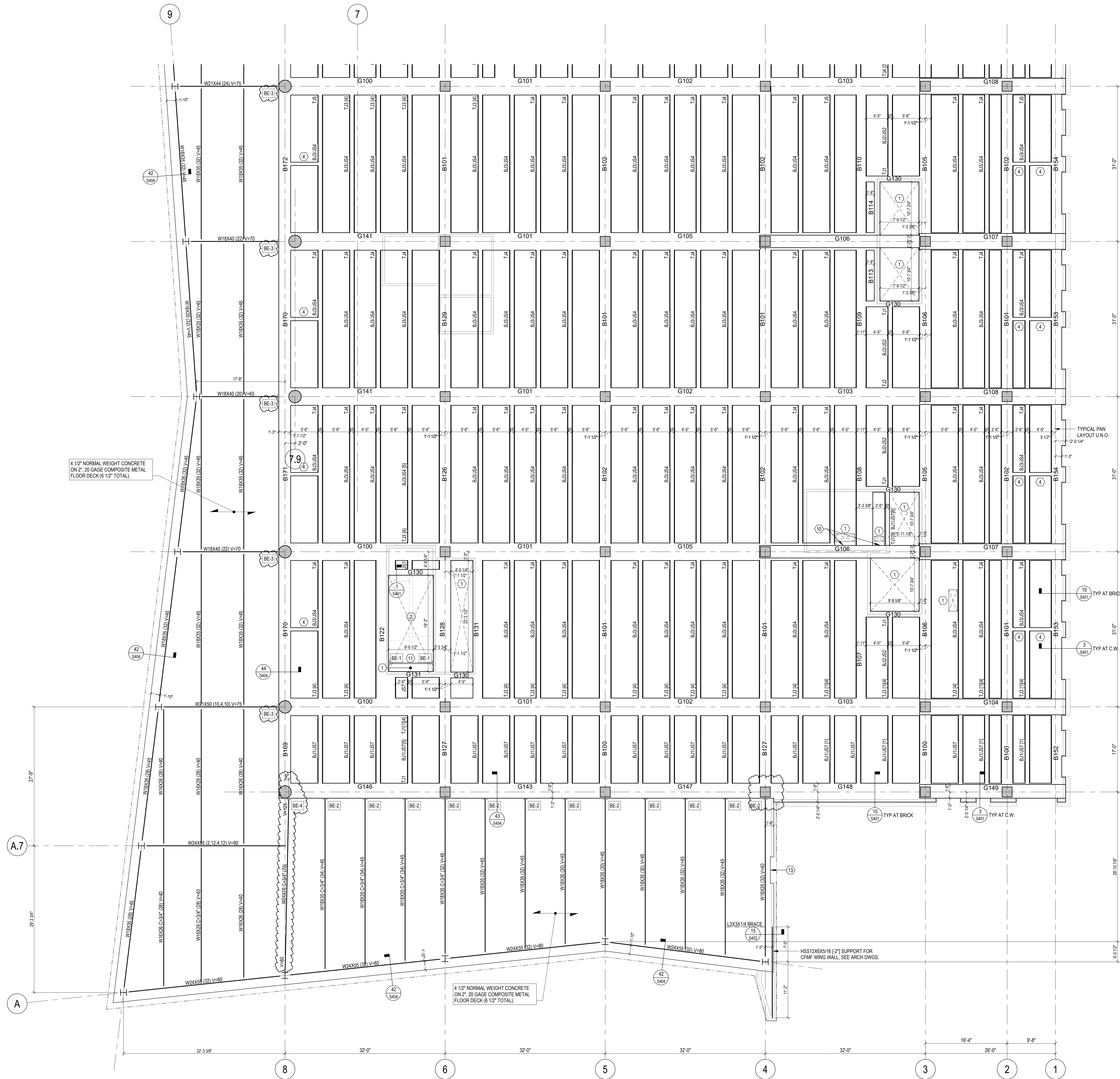
DRAWING TITLE

**LEVEL 03 FRAMING PLAN - AREA B**

SHEET NO. **S203B**

5/28/2024 6:00:07 PM Autodesk Docs://14-6926 - UKHC Cancer Treatment & Advance Ambulatory Center/S23-LKVC\_5146926.rvt SET 5/28/2024 6:00:07 PM

5/28/2024 6:00:07 PM



- PLAN NOTES:**
1. MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADDL. SLAB EDGE INFO.
  2. STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  3. ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  4. 8" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  5. HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  6. VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  7. PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  8. HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  9. HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  10. FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENINGS WITH MEP DWGS.
  11. HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  12. GALVANIZED HSS10X10X5/16 STUB FOR SUPPORT OF METAL PANEL / CFMF VERTICAL FIN. THSS = 1" BELOW T/S LAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD. WELD TUBE TO EMBED WITH 5/16" FILLET WELDS ALL AROUND. REPAIR DAMAGED GALV AFTER WELDING WITH COLD GALV COMPOUND PER SPECS. PROVIDE CAP PLATE AT OPEN END OF TUBE. SEAL WELD ALL AROUND.
  13. INSET BENT PLATE AND SLAB EDGE AT WINDOW. SEE ARCH DWGS.

T/SLAB = 1041' 0" U.O.  
**LEVEL 04 - AREA A**  
 1/8" = 1'-0"

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
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**PIVOTAL**  
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 UK Project Number 2563.0

**ISSUANCES**

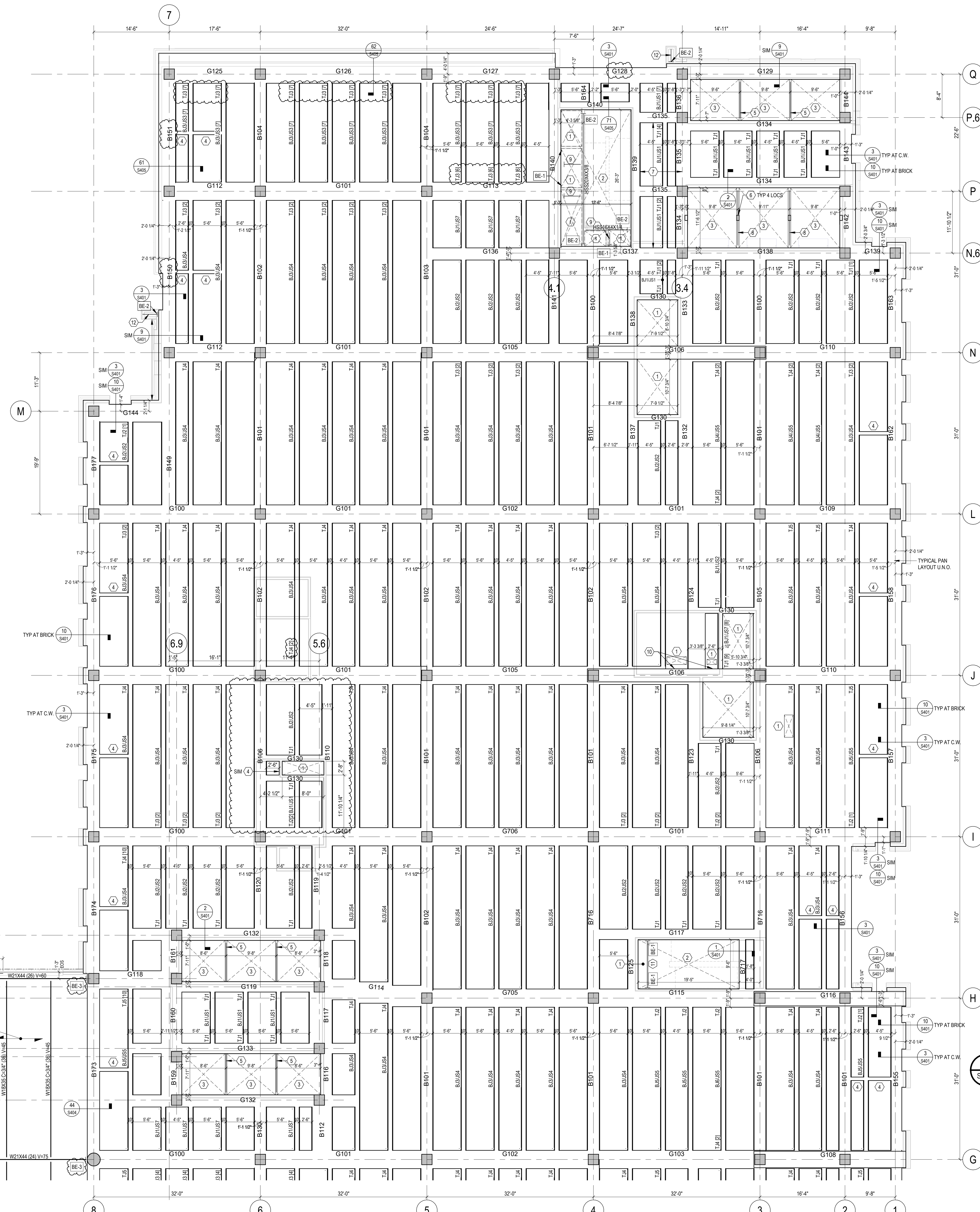
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2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**SET**  
 Checked By  
**TLS**  
 Client Number  
 514  
 Date  
 05/28/2024

DRAWING TITLE  
**LEVEL 04 FRAMING  
 PLAN - AREA A**

SHEET NO.  
**S204A**





- PLAN NOTES:**
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADDL. SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - 8" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENINGS WITH MEP DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  - GALVANIZED HSS10X10X5/16 STUB FOR SUPPORT OF METAL PANEL / CFMF VERTICAL FIN. THSS = 7" BELOW T/S LAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD. WELD TUBE TO EMBED WITH 5/16" FILLET WELDS ALL AROUND. REPAIR DAMAGED GALV AFTER WELDING WITH COLD GALV COMPENS PER SPECS. PROVIDE CAP PLATE AT OPEN END OF TUBE. SEAL WELD ALL AROUND.
  - INSET BENT PLATE AND SLAB EDGE AT WINDOW. SEE ARCH DWGS.

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 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
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**PIVOTAL**  
 lighting design

**UK HEALTHCARE**

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Drawn By **SET**

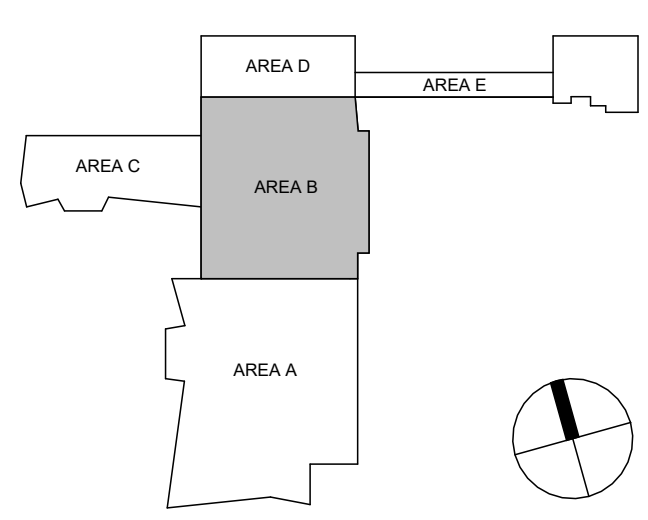
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 Date 05/28/2024

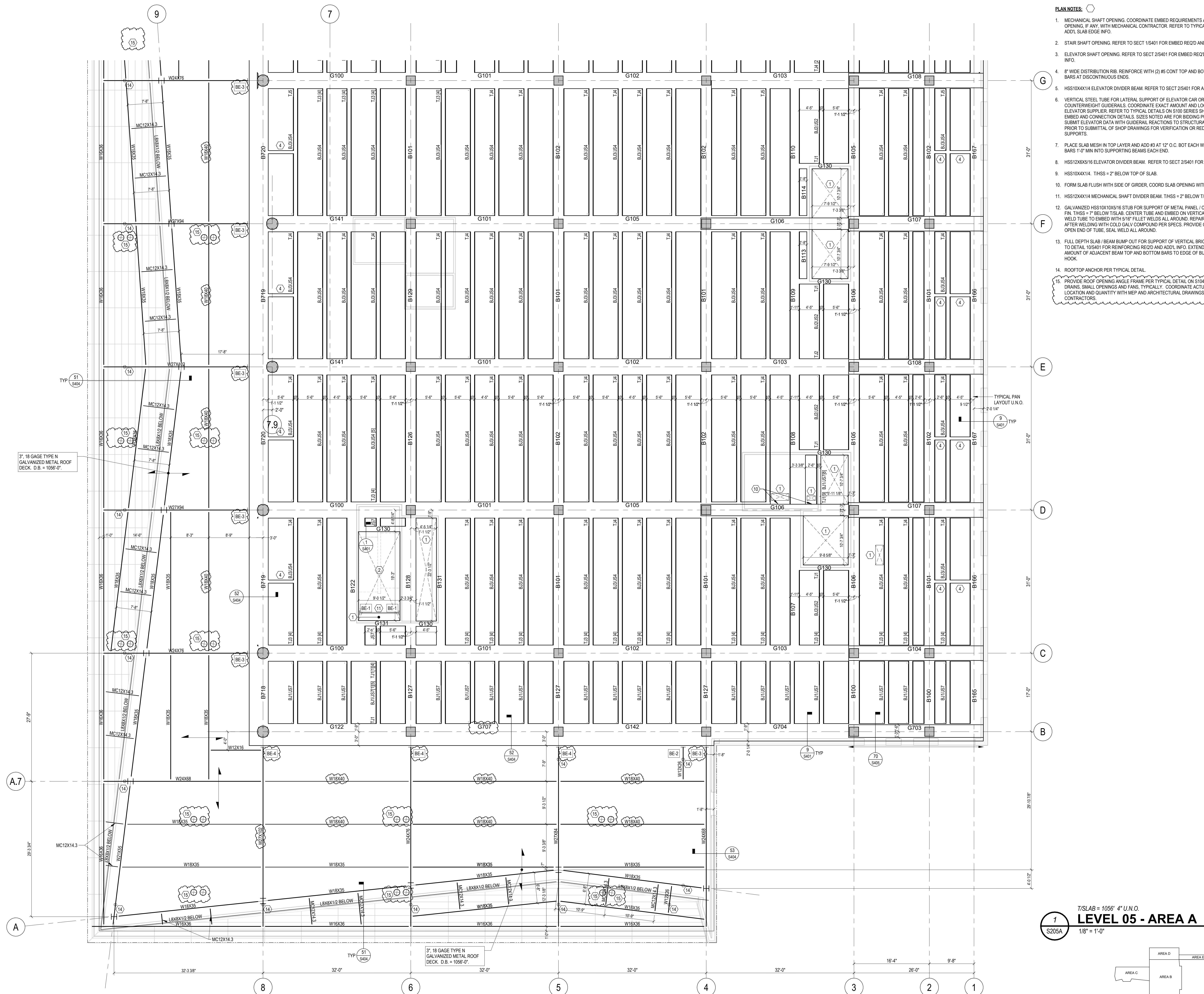
Project Number 6926

DRAWING TITLE  
**LEVEL 04 FRAMING PLAN - AREA B**

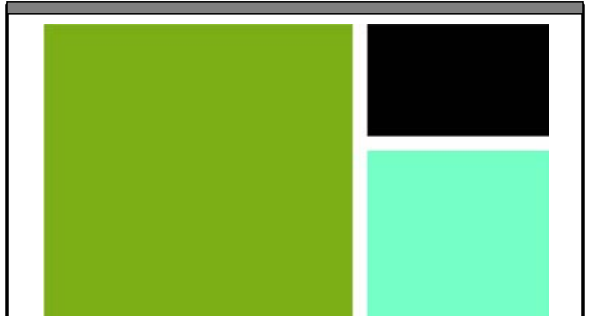
SHEET NO.  
**S204B**



T/SLAB = 104" 0" U.O.  
**LEVEL 04 - AREA B**  
 1/8" = 1'-0"



- PLAN NOTES:
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADDL. SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - 8" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON \$100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENINGS WITH MEP DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/SLAB.
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  - FILL DEPTH SLAB / BEAM BUMP OUT FOR SUPPORT OF VERTICAL BRICK PIER. REFER TO DETAIL 10/8401 FOR REINFORCING REQ'D AND ADDL. INFO. EXTEND MAXIMUM AMOUNT OF ADJACENT BEAM TOP AND BOTTOM BARS TO EDGE OF BUMP-OUT AND HOOK.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL.
  - PROVIDE ROOF OPENING ANGLE FRAME PER TYPICAL DETAIL ON \$104 FOR ROOF DRAINS. SMALL OPENINGS AND FANS. TYPICALLY. COORDINATE ACTUAL SIZE, LOCATION AND QUANTITY WITH MEP AND ARCHITECTURAL DRAWINGS AND TRADE CONTRACTORS.



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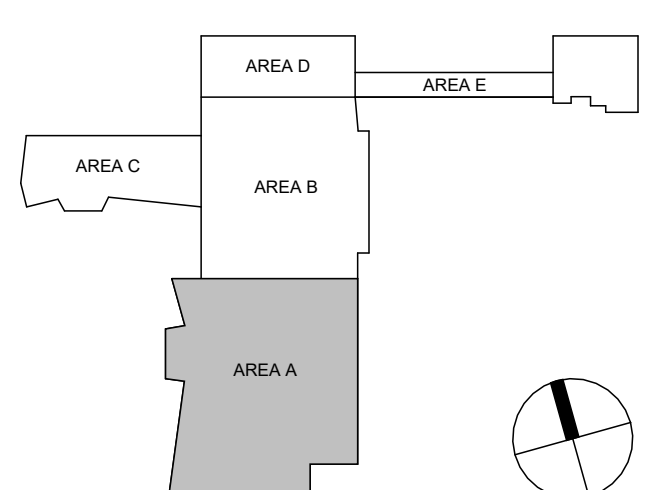
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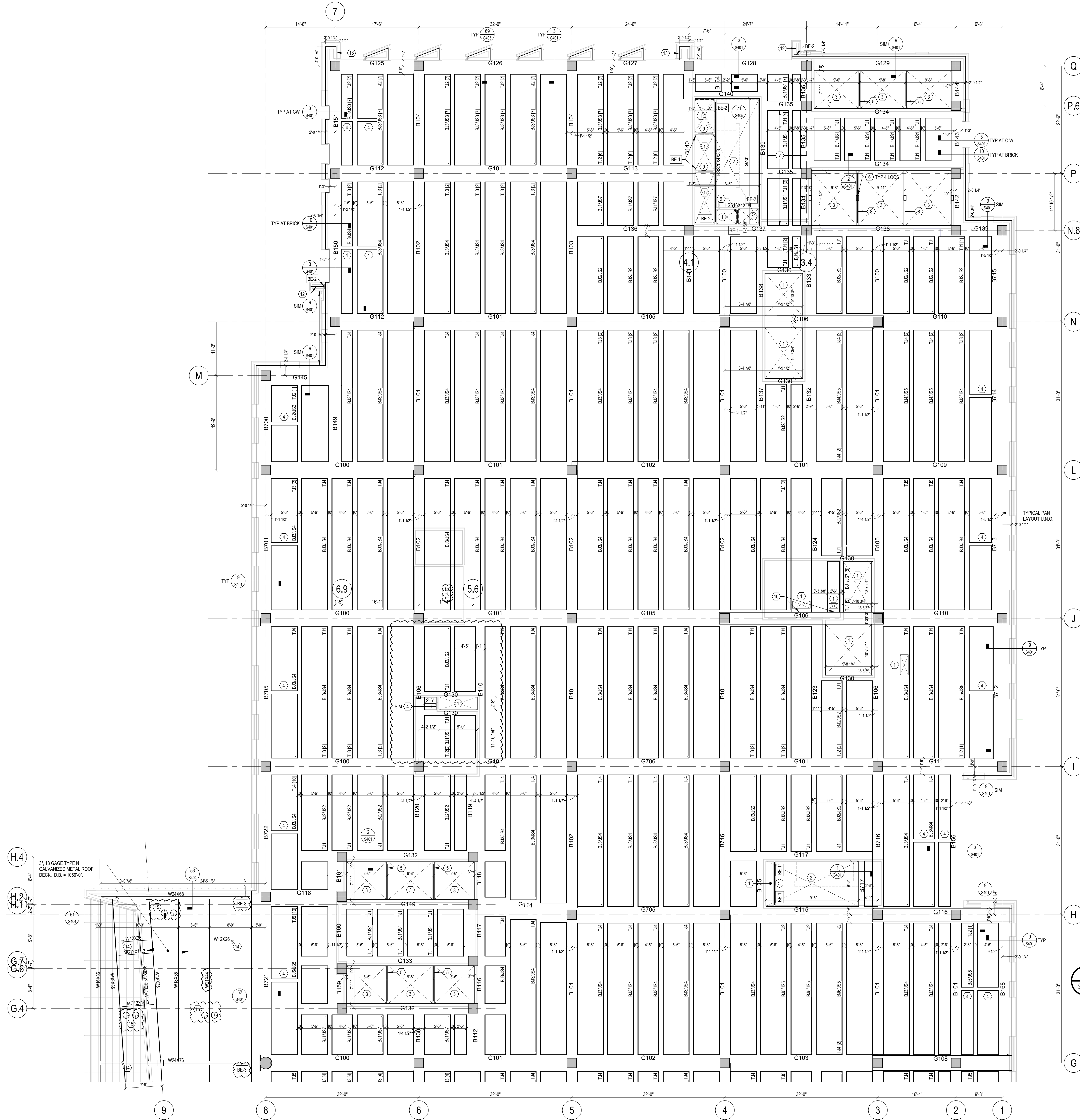
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Drawn By: **SET**  
 Checked By: **TLS**  
 Client Number: 514  
 Project Number: 6926  
 DRAWING TITLE: **LEVEL 05 FRAMING PLAN - AREA A**  
 SHEET NO.: **S205A**

SEAL: THOMAS L. SHUMATE, P.E., 6-24-098

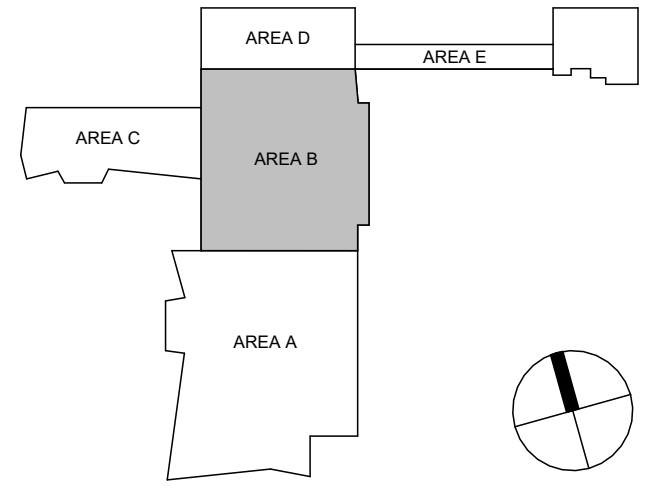
1 T/SLAB = 1056" 4" U.N.O.  
**LEVEL 05 - AREA A**  
 1/8" = 1'-0"





- PLAN NOTES:**
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T/SLAB = 1056" 4" U.O.  
**LEVEL 05 - AREA B**  
 1/8" = 1'-0"



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**WALSH**  
 CONSULTING GROUP

**bell engineering**

**CDM Smith**

**PIVOTAL**  
 lighting design

**UK HEALTHCARE**

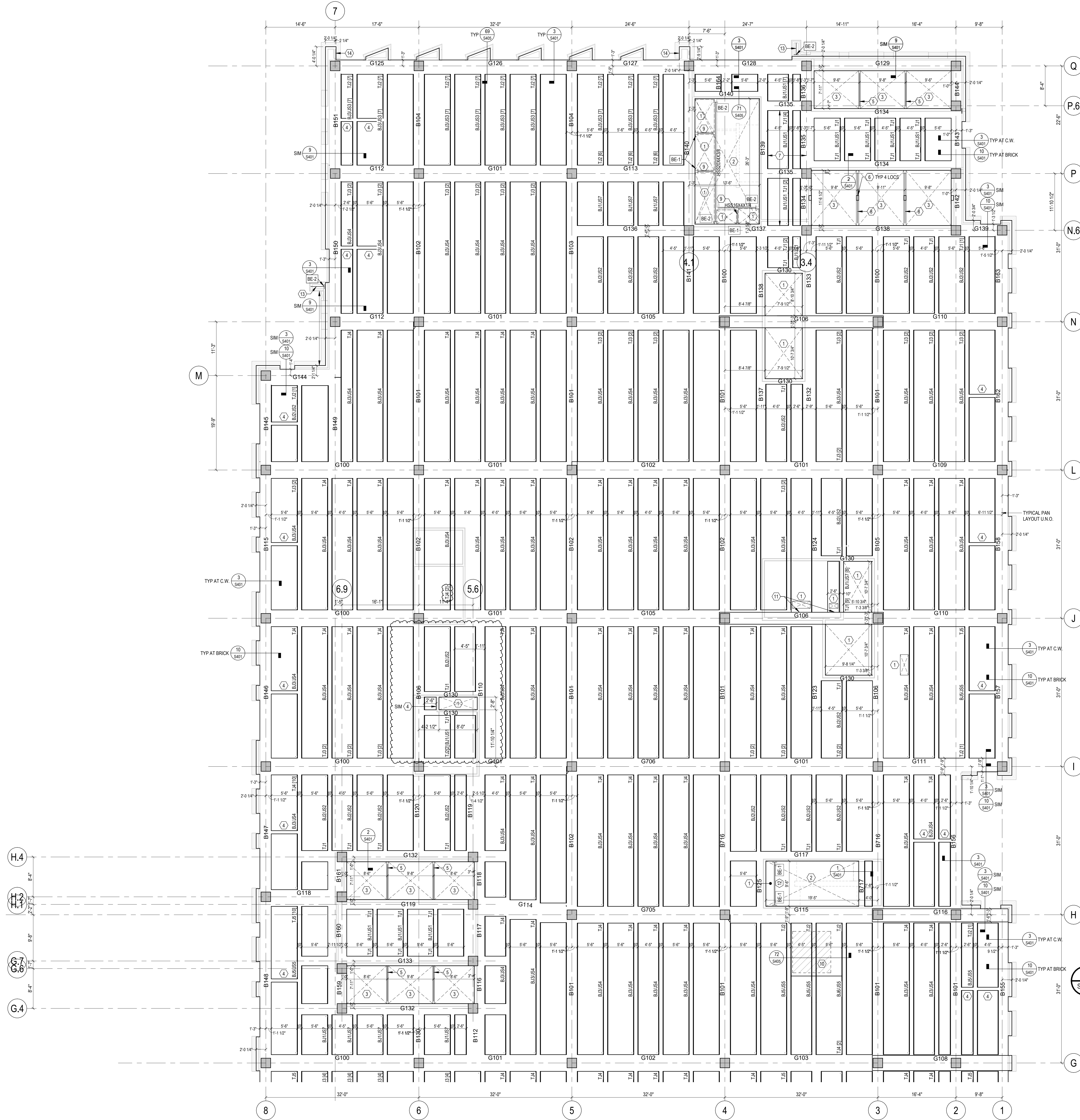
**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

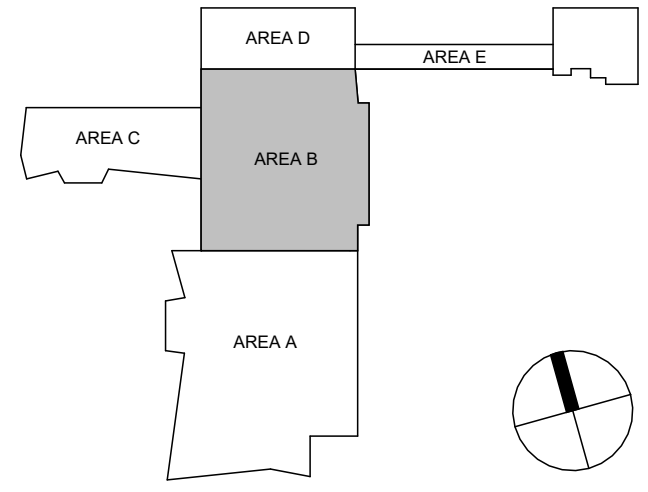
No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**  
 Checked By **TLS**  
 Client Number 514  
 Project Number 6926  
 DRAWING TITLE  
**LEVEL 05 FRAMING PLAN - AREA B**  
 SHEET NO.  
**S205B**



- PLAN NOTES:**
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADDL. SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - 8" WIDE DISTRIBUTION RB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X14X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - HSS10X14X1/4. THSS = 2" BELOW TOP OF SLAB.
  - SLAB DEPRESSION AT AUDIOLOGY ROOM. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH EQUIPMENT SUPPLIER. PROVIDE 14" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETAILS.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENING WITH MEP DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/SLAB.
  - GALVANIZED HSS10X10X5/16 STUB FOR SUPPORT OF METAL PANEL / CFMF VERTICAL FIN. THSS = 7" BELOW T/SLAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD. WELD TUBE TO CARBS WITH 5/16" FILLET WELDS ALL AROUND. REPAIR DAMAGED GALV. AFTER WELDING WITH COLD GALV COMPOUND PER SPECS. PROVIDE CAP PLATE AT OPEN END OF TUBE. SEAL WELD ALL AROUND.
  - FULL DEPTH SLAB / BEAM BUMP OUT FOR SUPPORT OF VERTICAL BRICK PIER. REFER TO DETAIL 10/8401 FOR REINFORCING REQ'D AND ADDL. INFO. EXTEND MAXIMUM AMOUNT OF ADJACENT BEAM TOP AND BOTTOM BARS TO EDGE OF BUMP-OUT AND HOOK.

T/SLAB = 107 1/8" 8" U.O.  
**LEVEL 06 - AREA B**  
 1/8" = 1'-0"



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 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
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**ISSUANCES**

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1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
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4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**

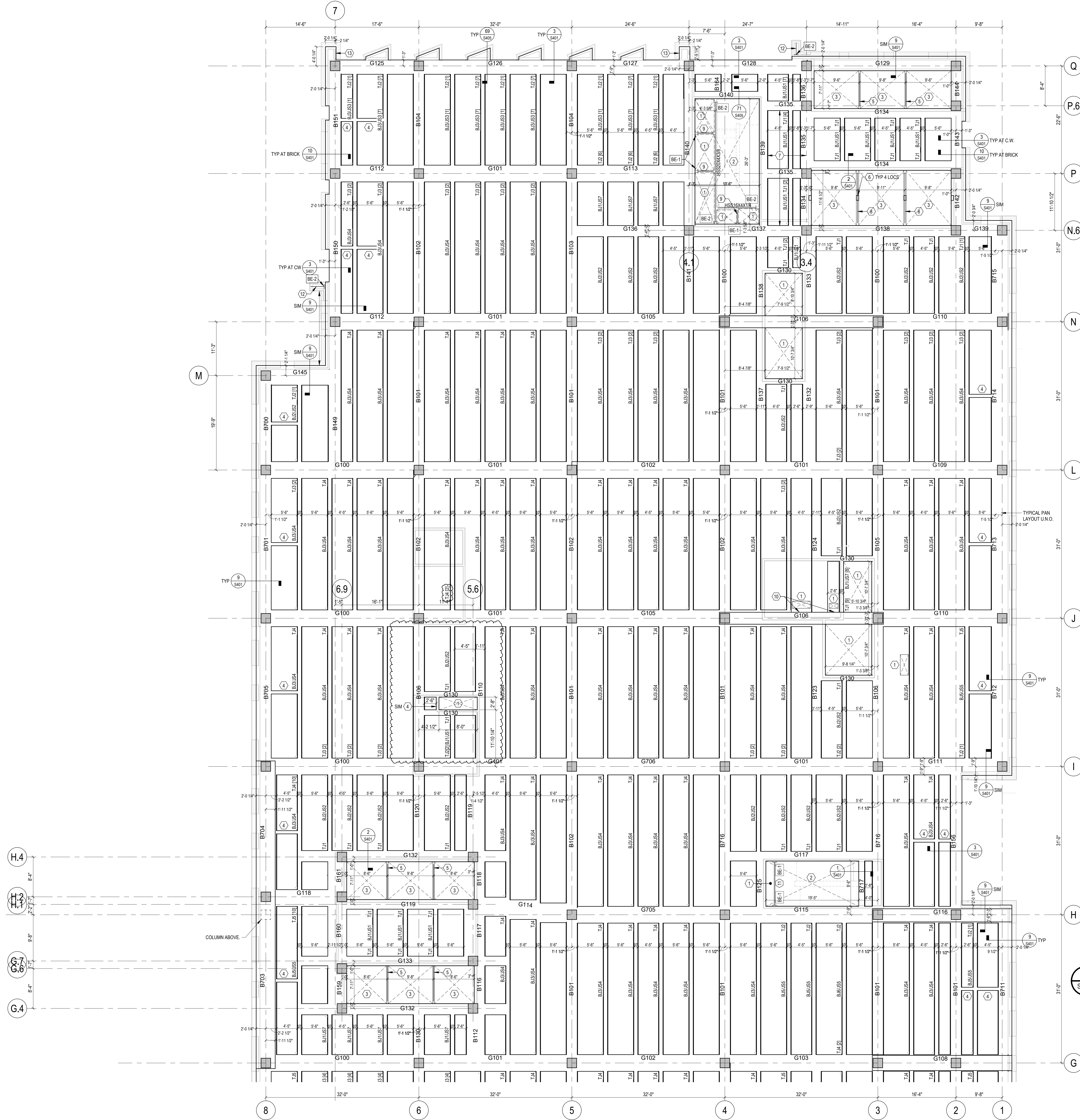
Checked By **TLS**

Client Number 514  
 Date 05/28/2024

Project Number 6926

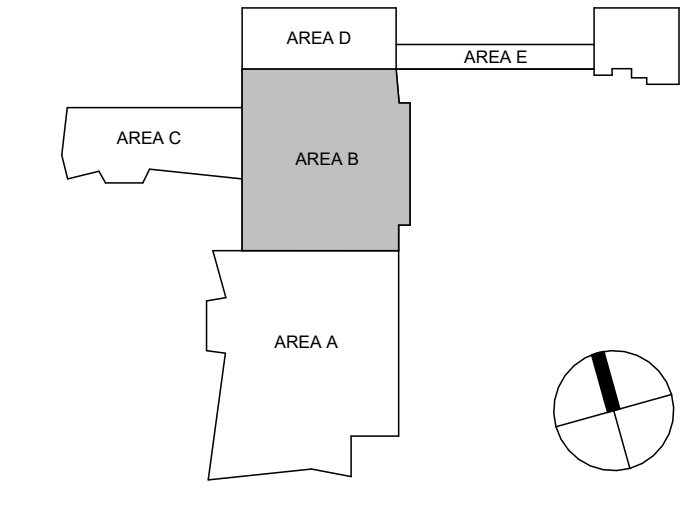
DRAWING TITLE  
**LEVEL 06 FRAMING PLAN - AREA B**

SHEET NO.  
**S206B**



- PLAN NOTES:**
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADDL. SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - 8" WIDE DISTRIBUTION RB. REINFORCE WITH (2) #5 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENINGS WITH MEP DWGS.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  - GALVANIZED HSS10X10X5/16 STUB FOR SUPPORT OF METAL PANEL / CFME VERTICAL FIN. THSS = 7" BELOW T/S LAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD. WELD TUBE TO EMBED WITH 5/16" FILLET WELDS ALL AROUND. REPAIR DAMAGED GALV AFTER WELDING WITH COLD GALV COMPENS PER SPECS. PROVIDE CAP PLATE AT OPEN END OF TUBE. SEAL WELD ALL AROUND.
  - FULL DEPTH SLAB / BEAM BUMP OUT FOR SUPPORT OF VERTICAL BRICK PIER. REFER TO DETAIL 10/8401 FOR REINFORCING REQ'D AND ADDL. INFO. EXTEND MAXIMUM AMOUNT OF ADJACENT BEAM TOP AND BOTTOM BARS TO EDGE OF BUMP-OUT AND HOOK.

T/SLAB = 1087' 0" U.N.O.  
**LEVEL 07 - AREA B**  
 1/8" = 1'-0"



**CHAMPLIN ARCHITECTURE**  
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 CINCINNATI, OH 45202  
 T 513.241.4474  
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 Telephone 612.758.4000

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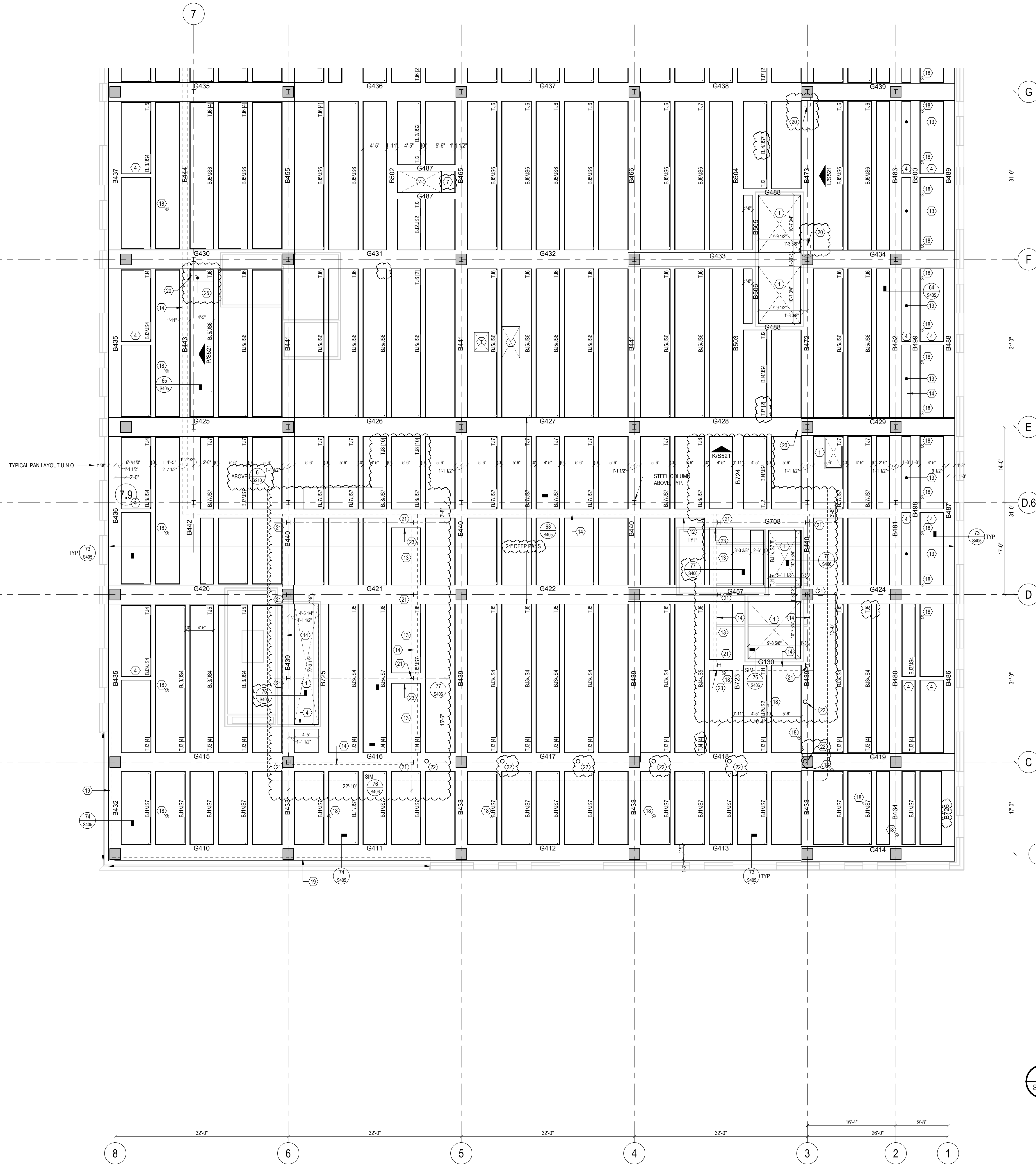
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**CDM Smith**  
**PIVOTAL**  
 lighting design

**UK HEALTHCARE**  
**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

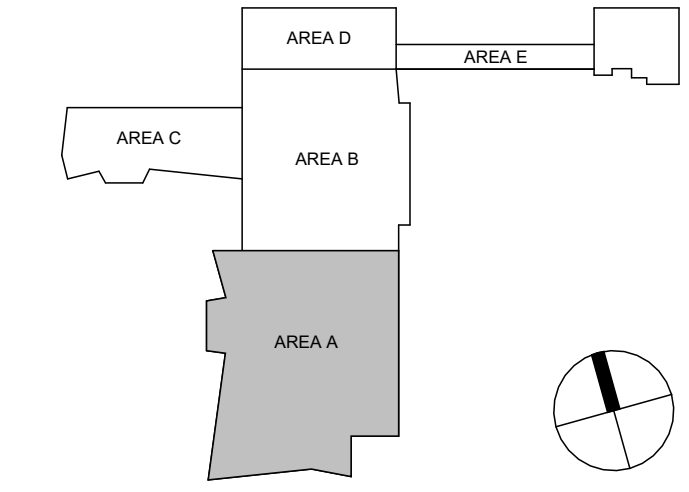
No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**  
 Checked By **TLS**  
 Client Number 514  
 Project Number 6926  
 DRAWING TITLE  
**LEVEL 07 FRAMING PLAN - AREA B**  
 SHEET NO.  
**S207B**



- PLAN NOTES:**
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADD'L SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADD'L INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADD'L INFO.
  - 10" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #6 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADD'L INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BIDDING PURPOSES ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADD'L INFO.
  - HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  - 2" SLAB DEPRESSION FOR SHOWER. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH SHOWER SUPPLIER. PROVIDE 16" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETAILS.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENING WITH MEP DWGS.
  - 20" WIDE DISTRIBUTION RIB UNDER CURB ABOVE. SEE DETAIL 63/S405.
  - 9" SLAB BETWEEN JOISTS UNDER CURB ABOVE.
  - CONCRETE CURB ABOVE. SEE APPLICABLE DETAIL.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  - GALVANIZED HSS10X10X5/16 STUB FOR SUPPORT OF METAL PANEL / CMF VERTICAL FIN. THSS = 1" BELOW T/S LAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD. WELD TUBE TO EMBED WITH 5/16" FILLET WELDS ALL AROUND. REPAIR DAMAGED GALV. AFTER WELDING WITH COLD GALV COMPOUND PER SPECS. PROVIDE CAP PLATE AT OPEN END OF TUBE. SEAL WELD ALL AROUND.
  - FULL DEPTH SLAB / BEAM BUMP OUT FOR SUPPORT OF VERTICAL BRICK PIER. REFER TO DETAIL 10/S401 FOR REINFORCING REQ'D AND ADD'L INFO. EXTEND MAXIMUM AMOUNT OF ADJACENT BEAM TOP AND BOTTOM BARS TO EDGE OF BUMP-OUT AND HOOK.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL.
  - CMU PARAPET WALL. REFER TO SECTION 73/S405.
  - EMBED PLATE FOR VERTICAL BRACE ABOVE. SEE ELEVATIONS ON S21.
  - W8X31 POST ABOVE FOR DOGHOUSE FRAMING.
  - 8" DIA STD PIPE POST ABOVE FOR SCREENWALL FRAMING.
  - 24" WIDE BEAM CENTERED BELOW DOGHOUSE POST. REINFORCE WITH (5) #6 TOP AND BOT AND #4 CLOSED STRRUPS AT 10" O.C. HOOK BOT BARS EACH END AND EXTEND TOP BARS 4'-0" INTO ADJACENT SLAB EACH END.
  - CUSTOM FORM PAN OUT OF WOOD SO AS TO NOT IMPEDE BEAM CAGE ON LINE 4.1.
  - 16" DEEP PAN AT EMBED PLATE. ADD #4 AT 12" O.C. AT BOT OF THICKENED SLAB.

T/SLAB = 1102' 4" U.N.O.  
**LEVEL 08 - AREA A**  
 1/8" = 1'-0"



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 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
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**bell**  
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**CDM Smith**

**PIVOTAL**  
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**UK HEALTHCARE**

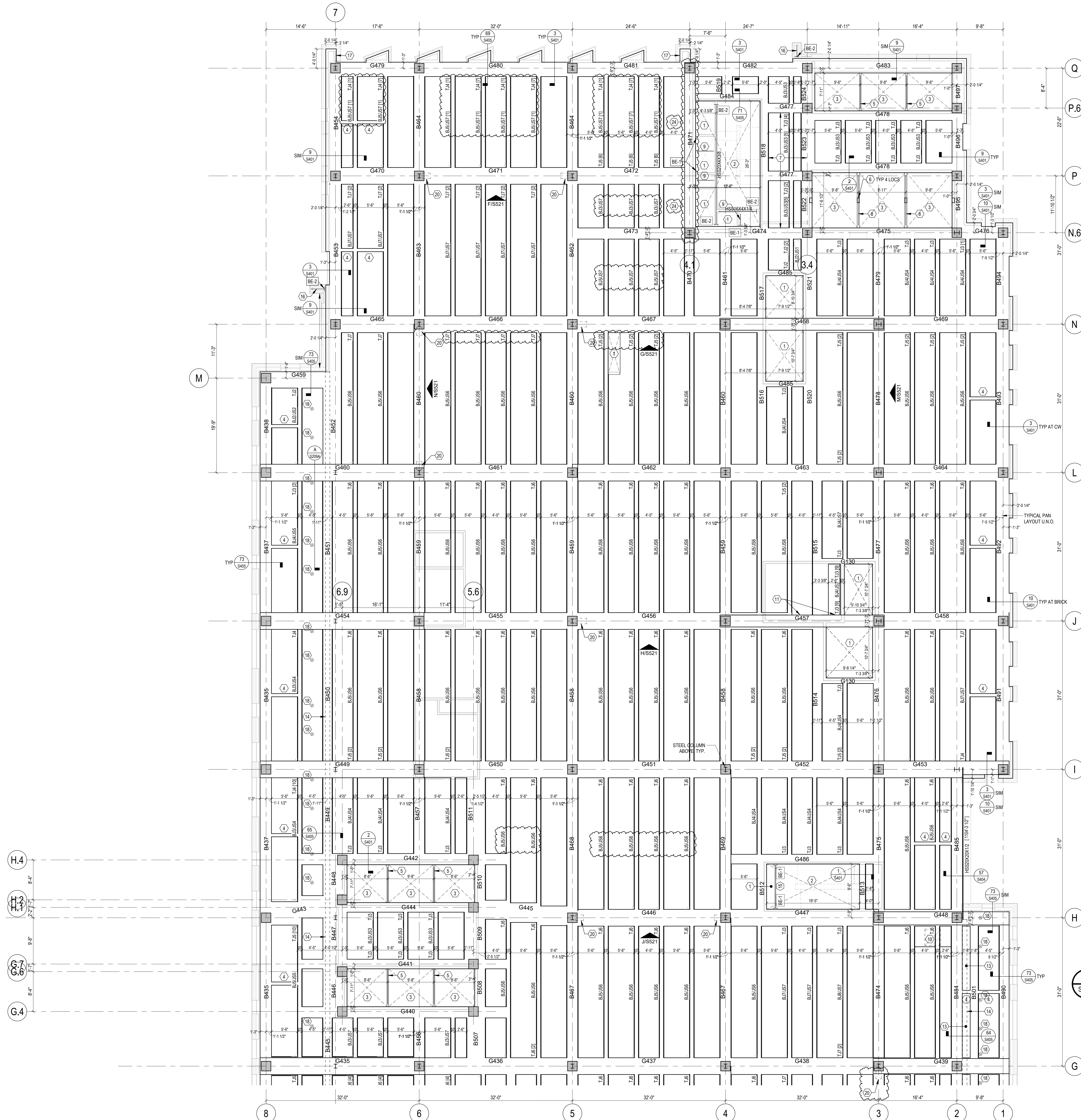
**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
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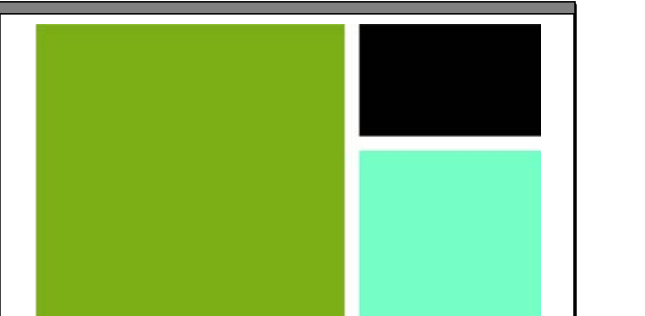
Drawn By **SET**  
 Checked By **TLS**  
 Client Number **514**  
 Project Number **6926**

DRAWING TITLE  
**LEVEL 08 FRAMING PLAN - AREA A**  
 SHEET NO.  
**S208A**



- PLAN NOTES:**
- MECHANICAL SHAFT OPENING. COORDINATE EMBED REQUIREMENTS AT PERIMETER OF OPENING. IF ANY. WITH MECHANICAL CONTRACTOR. REFER TO TYPICAL DETAILS FOR ADDL. SLAB EDGE INFO.
  - STAIR SHAFT OPENING. REFER TO SECT 1/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - ELEVATOR SHAFT OPENING. REFER TO SECT 2/8401 FOR EMBED REQ'D AND ADDL. INFO.
  - 10" WIDE DISTRIBUTION RIB. REINFORCE WITH (2) #6 CONT TOP AND BOT. HOOK ALL BARS AT DISCONTINUOUS ENDS.
  - HSS10X4X1/4 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - VERTICAL STEEL TUBE FOR LATERAL SUPPORT OF ELEVATOR CAR OR COUNTERWEIGHT GUIDERAILS. COORDINATE EXACT AMOUNT AND LOCATIONS WITH ELEVATOR SUPPLIER. REFER TO TYPICAL DETAILS ON S100 SERIES SHEETS FOR EMBED AND CONNECTION DETAILS. SIZES NOTED ARE FOR BEING PUNCHED ONLY. SUBMIT ELEVATOR DATA WITH GUIDERAIL REACTIONS TO STRUCTURAL ENGINEER PRIOR TO SUBMITTAL OF SHOP DRAWINGS FOR VERIFICATION OR REDESIGN OF SUPPORTS.
  - PLACE SLAB MESH IN TOP LAYER AND ADD #3 AT 12" O.C. BOT EACH WAY. EXTEND BARS 1'-0" MIN INTO SUPPORTING BEAMS EACH END.
  - HSS12X6X5/16 ELEVATOR DIVIDER BEAM. REFER TO SECT 2/8401 FOR ADDL. INFO.
  - HSS10X4X1/4. THSS = 2" BELOW TOP OF SLAB.
  - 2" SLAB DEPRESSION FOR SHOWER. REFER TO ARCH DWGS FOR DIMENSIONS AND COORDINATE WITH SHOWER SUPPLIER. PROVIDE 16" DEEP PANS BELOW DEPRESSION PER APPLICABLE DETAILS.
  - FORM SLAB FLUSH WITH SIDE OF GIRDER. COORD SLAB OPENING WITH MEP DWGS.
  - 20" WIDE DISTRIBUTION RIB UNDER CURB ABOVE. SEE DETAIL 63/8405.
  - 9" SLAB BETWEEN JOISTS UNDER CURB ABOVE.
  - CONCRETE CURB ABOVE. SEE APPLICABLE DETAIL.
  - HSS12X4X1/4 MECHANICAL SHAFT DIVIDER BEAM. THSS = 2" BELOW T/S LAB.
  - GALVANIZED HSS10X10X3/16 STUB FOR SUPPORT OF METAL PANEL / CFMF VERTICAL FIN. THSS = 7" BELOW T/S LAB. CENTER TUBE AND EMBED ON VERTICAL FIN AND FIELD. WELD TUBE TO EMBED WITH 5/16" FILLET WELDS ALL AROUND. REPAIR DAMAGED GALV AFTER WELDING WITH COLD GALV COMPOUND PER SPECS. PROVIDE CAP PLATE AT END OF TUBE. SEAL WELD ALL AROUND.
  - FULL DEPTH SLAB / BEAM BUMP OUT FOR SUPPORT OF VERTICAL BRICK PIER. REFER TO DETAIL 10/8401 FOR REINFORCING REQ'D AND ADDL. INFO. EXTEND MAXIMUM AMOUNT OF ADJACENT BEAM TOP AND BOTTOM BARS TO EDGE OF BUMP-OUT AND HOOK.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL.
  - CMU PARAPET WALL. REFER TO SECTION 73/8405.
  - EMBED PLATE FOR VERTICAL BRACE ABOVE. SEE ELEVATIONS ON S521.
  - W8X31 POST ABOVE FOR DOGHOUSE FRAMING.
  - 8" DIA STD PIPE POST ABOVE FOR SCREENWALL FRAMING.
  - 24" WIDE BEAM CENTERED BELOW DOGHOUSE POST. REINFORCE WITH (5) #6 TOP AND BOT AND #4 CLOSED STIRRUPS AT 10" O.C. HOOK BOT BARS EACH END AND EXTEND TOP BARS 4'-0" INTO ADJACENT SLAB EACH END.
  - CUSTOM FORM PAN OUT OF WOOD SO AS TO NOT IMPERE BEAM CAGE ON LINE 4.1.
  - 16" DEEP PAN AT EMBED PLATE. ADD #4 AT 12" O.C. AT BOT OF THICKENED SLAB.

T/SLAB = 1102' 4" U.N.O.  
**LEVEL 08 - AREA B**  
 1/8" = 1'-0"




**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
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**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000




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**WALSH CONSULTING GROUP**



**bell engineering**



**CDM Smith**



**PIVOTAL lighting design**



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Drawn By: **SET**

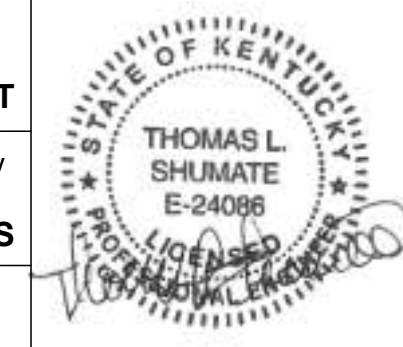
Checked By: **TLS**

Client Number: 514

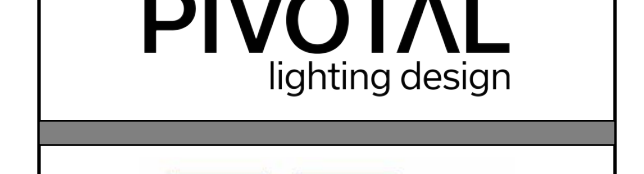
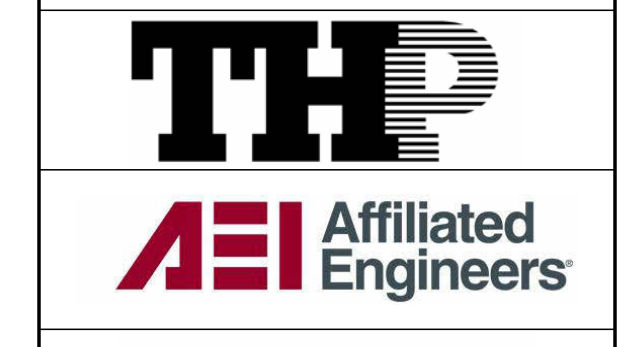
Project Number: 6926

DRAWING TITLE: **LEVEL 08 FRAMING PLAN - AREA B**

SHEET NO.: **S208B**



5/28/2024 3:29:41 PM Autodesk Docs://14-6926 - UKHC Cancer Treatment & Advanced Ambulatory Center/S209A.LWG\_5146926.rvt



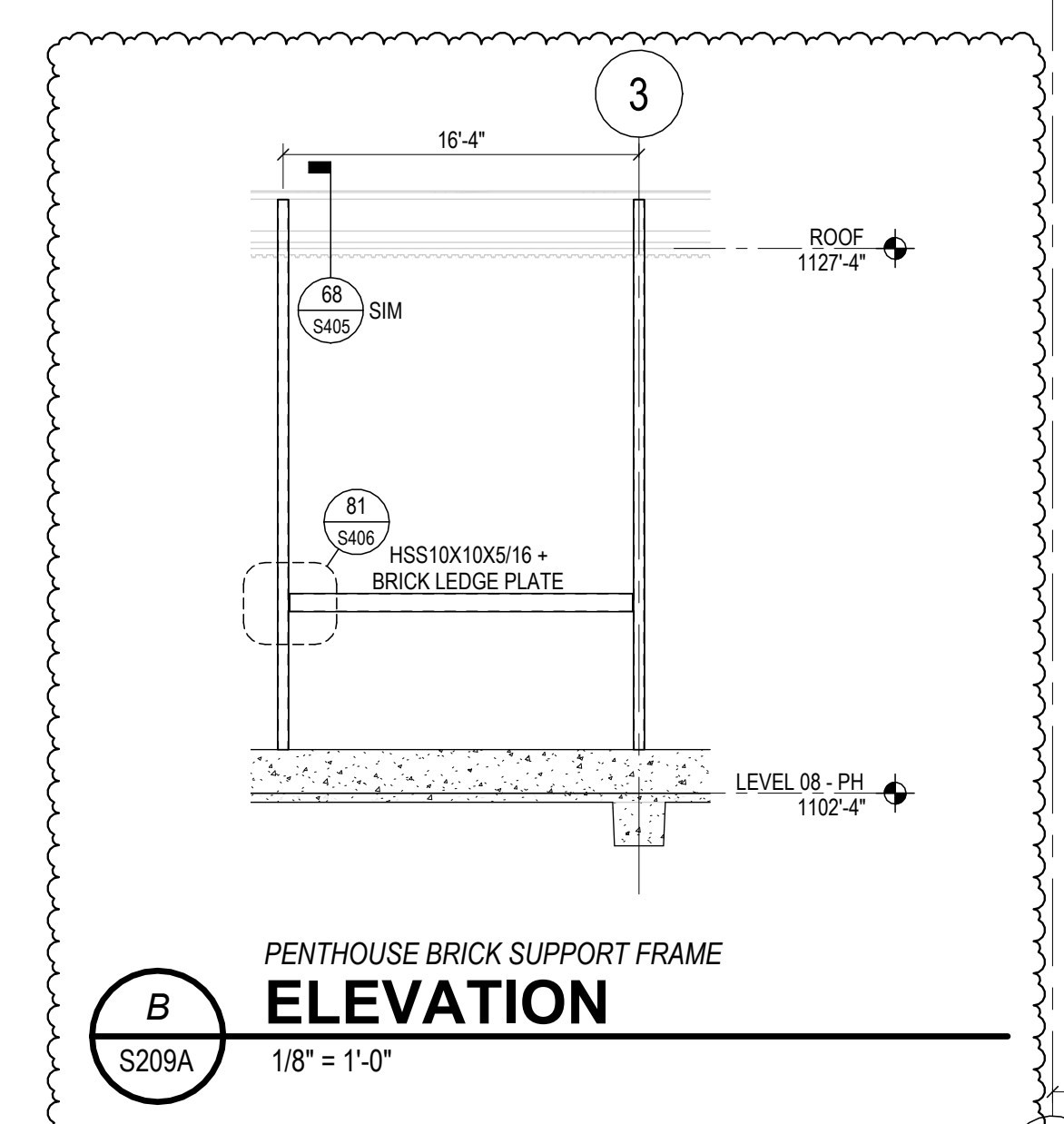
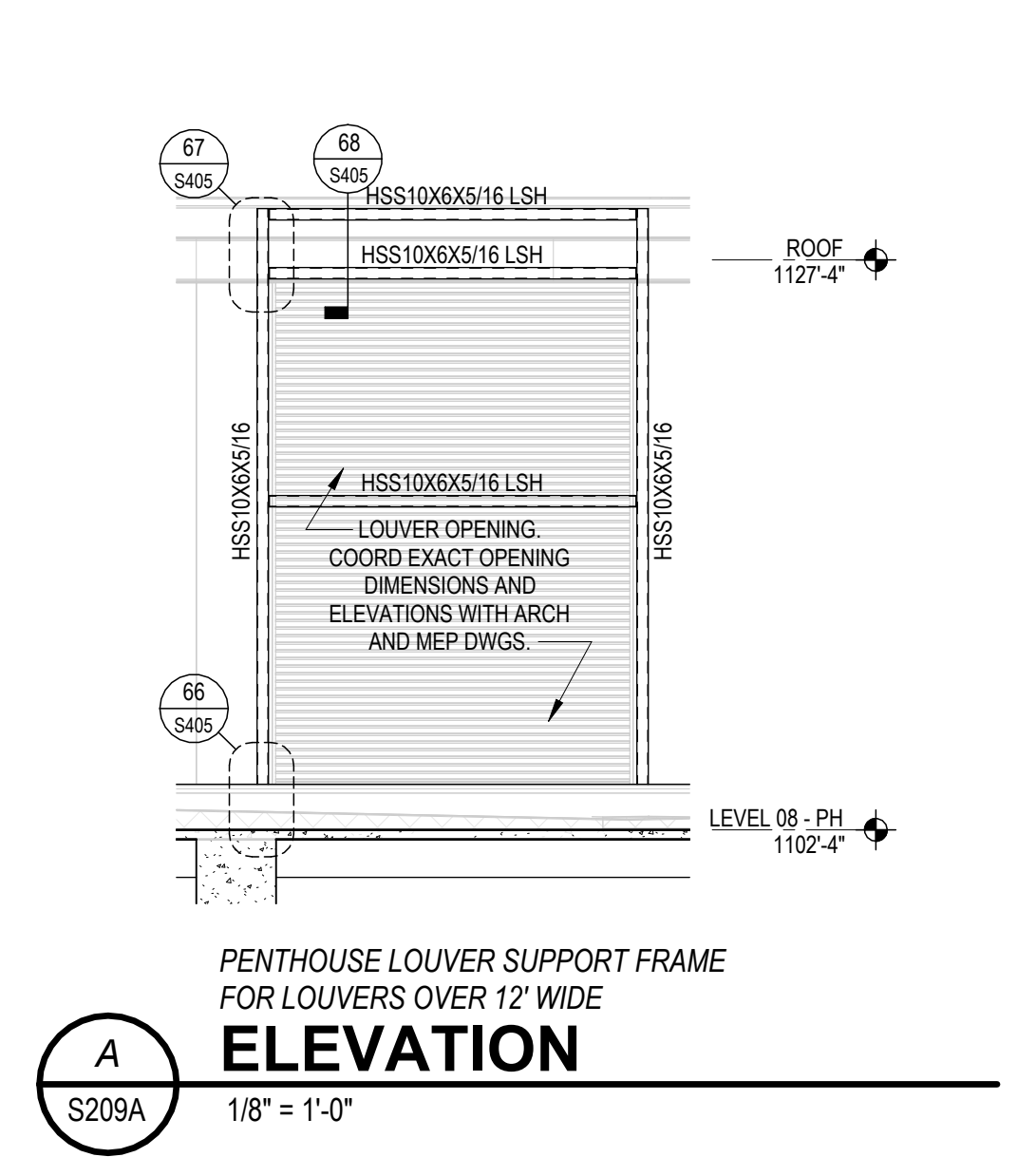
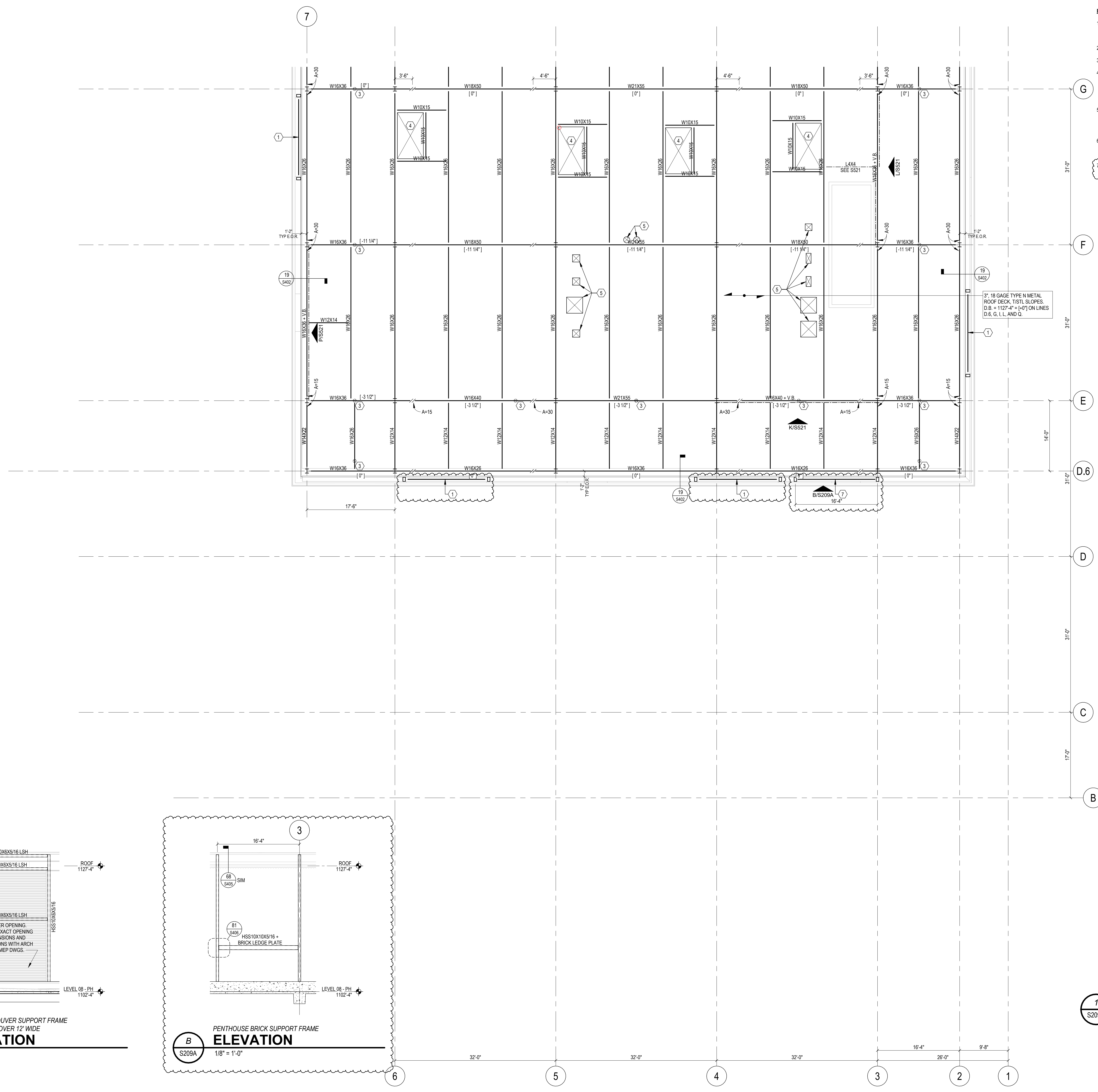
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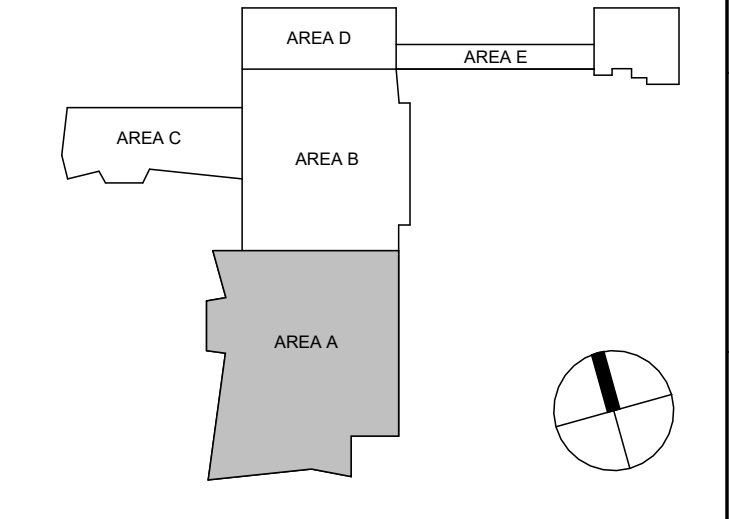
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3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By: SET  
Checked By: TLS  
Client Number: 514  
Project Number: 6926  
Date: 05/28/2024  
DRAFTING: THOMAS L. SHUMATE  
DATE: 5-24-09  
STATE OF KENTUCKY  
REGISTERED PROFESSIONAL ENGINEER  
No. 15319  
EXP. DATE 05-24-2025

- PLAN NOTES:**
- HSS LOUVER SUPPORT FRAME. COORDINATE EXACT OPENING DIMENSIONS, ELEVATIONS, AND LOCATION WITH ARCH AND MEP DWGS. REFER TO ELEVATION A-S209A.
  - ELEVATOR HOIST BEAM. COORD. LOCATION WITH ELEVATOR.
  - ROOFTOP ANCHOR PER TYPICAL DETAIL ON S104.
  - PROVIDE FRAMING AT PERIMETER OF ROOF OPENING TO SUPPORT EDGE OF DECK AND EQUIPMENT OR ITEM ABOVE. COORDINATE WITH CONTRACTOR SUPPLYING ITEM FOR DATA SHEETS. WITH ACTUAL DIMENSIONS AND DETAILS TO LOCATE BEAMS. SUBMIT DATA SHEETS WITH AFFECTED STRUCTURAL SHOP DRAWINGS FOR REVIEW.
  - PROVIDE ROOF OPENING ANGLE FRAME PER TYPICAL DETAIL ON S104 FOR ROOF DRAINS, SMALL OPENINGS AND FANS, TYPICALLY. COORDINATE ACTUAL SIZE, LOCATION AND QUANTITY WITH MEP AND ARCHITECTURAL DRAWINGS AND TRADE CONTRACTORS.
  - PROVIDE SUPPORT CHANNEL ABOVE DECK, NESTED IN DECK RIBS, TO SUPPORT ITEM ABOVE. SEE TYPICAL DETAIL ON S103 AND COORDINATE WITH SUPPLYING TRADE CONTRACTOR.
  - HSS BRICK SUPPORT FRAME. COORDINATE WITH ARCH DWGS. REFER TO ELEVATION B-S209A.



**1** LEVEL 09 - AREA A  
S209A 1/8" = 1'-0"



DRAWING TITLE  
**LEVEL 09 FRAMING PLAN - AREA A**  
SHEET NO.  
**S209A**

5/28/2024 3:29:41 PM







**ISSUANCES**

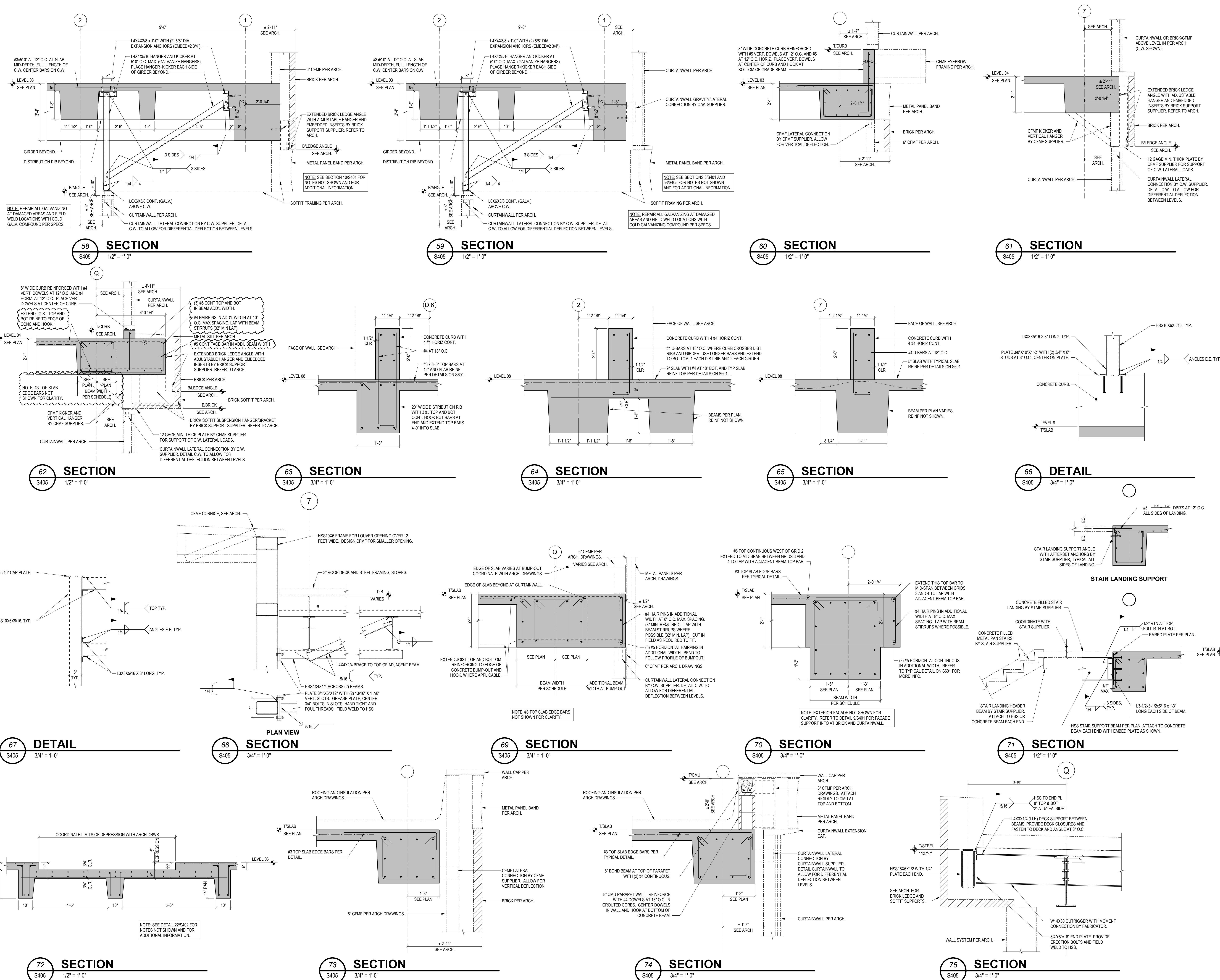
No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**  
Checked By **TLS**  
Client Number **514**  
Project Number **6926**

**FRAMING DETAILS**

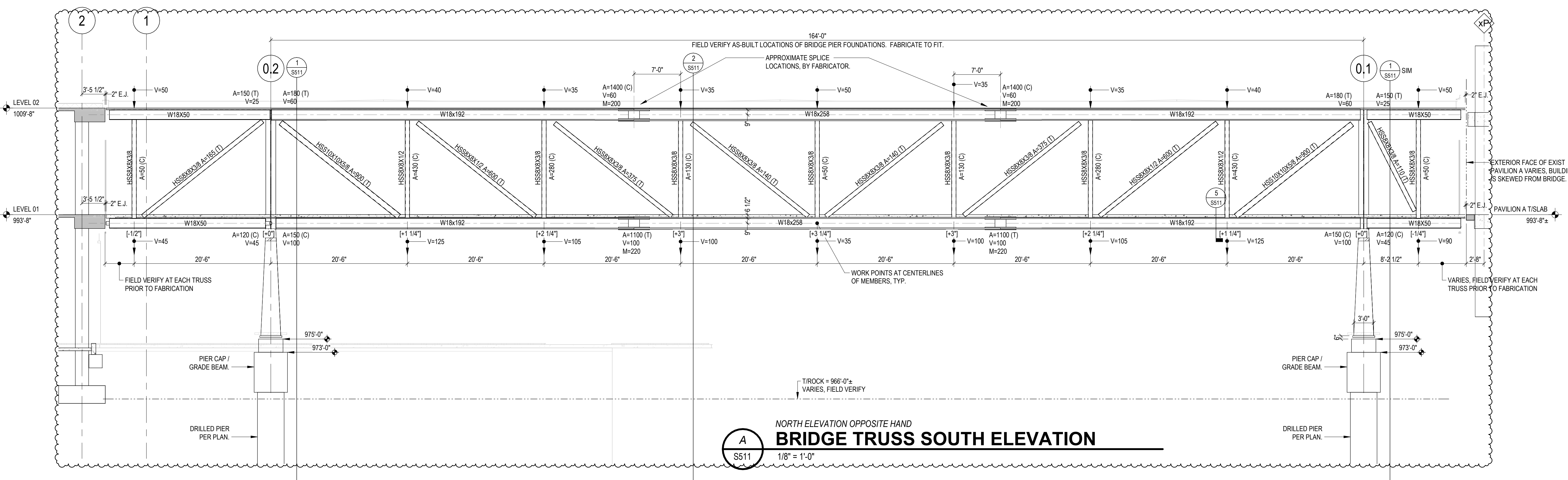
SHEET NO. **S405**

5/28/2024 3:30:06 PM



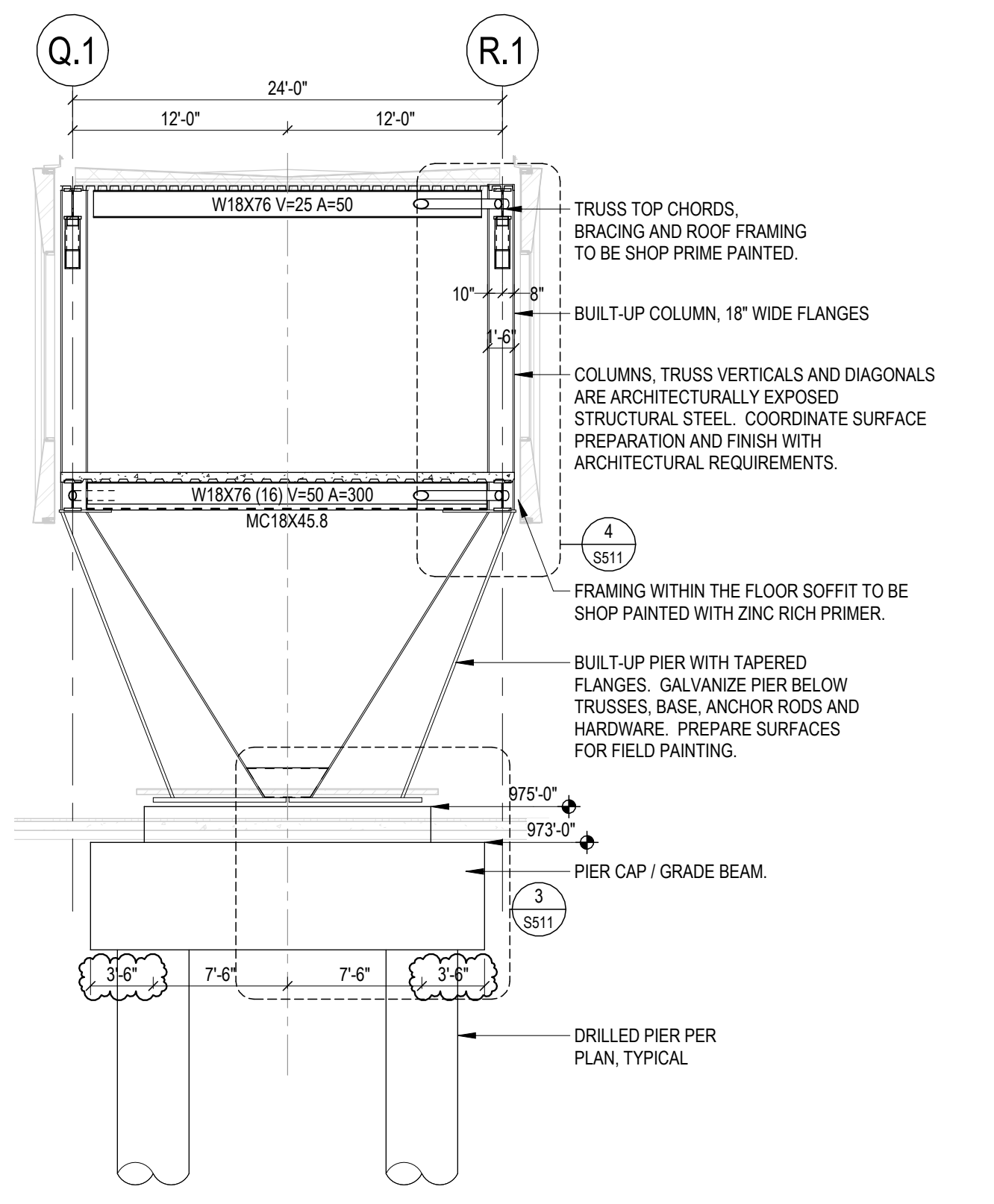
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5/28/2024 3:30:06 PM  
SET



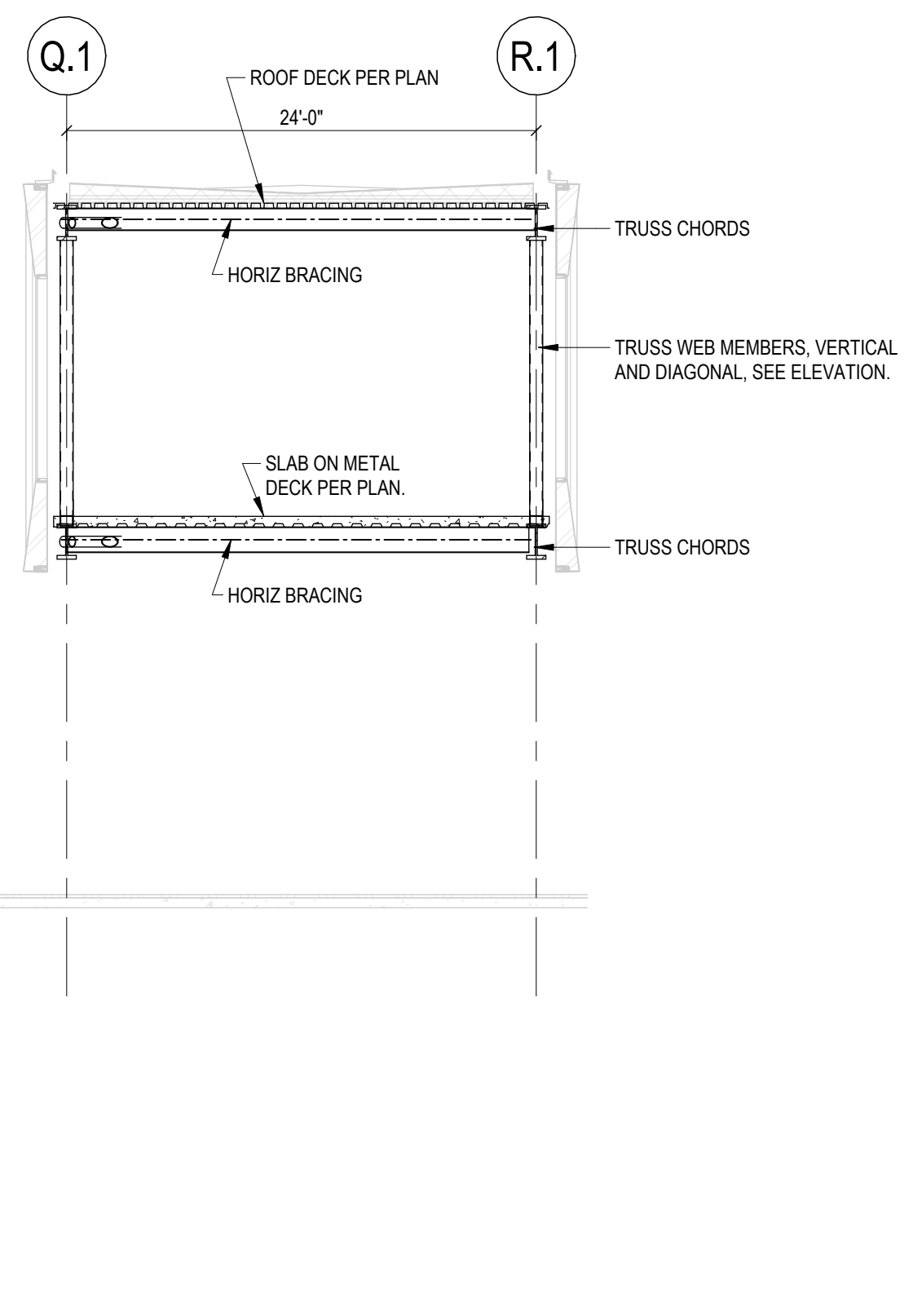


- TRUSS NOTES:**
- FABRICATOR IS TO DESIGN ALL CONNECTIONS FOR THE LRFD STRENGTH LEVEL FORCES SHOWN ON THE PLANS AND TRUSS ELEVATION. CONNECTION CONFIGURATIONS TO BE USED AND MINIMUM REQUIREMENTS ARE SHOWN ON THE DETAILS. GUSSET PLATES ARE TO BE DESIGNED ACCORDING TO THE EFFECTIVE WIDTH METHOD AS RECOMMENDED BY WHITMORE AND STRESSES AT ALL CRITICAL SECTIONS CALCULATED BY BEAM FORMULAS SHALL SATISFY ULTIMATE STRENGTH LIMITS.
  - AXIAL END REACTION KIPS:
    - V= VERTICAL END REACTION, KIPS
    - M= END MOMENT, FOOT KIPS
    - (T) INDICATES TENSION
    - (C) INDICATES COMPRESSION
  - CENTERS OF GRAVITY OF TRUSSES AND BRACING MEMBERS SHALL INTERSECT AT ALL PANEL POINTS. ALL CONNECTIONS AND GUSSET PLATES SHALL BE DESIGNED TO RESIST MOMENTS RESULTING FROM THE ECCENTRICITY OF THE MEMBER CENTERS OF GRAVITY AND THE PLANE OF THE CONNECTION.
  - PRELIMINARY CONNECTION DESIGN SHALL BE SUBMITTED FOR ADVANCE REVIEW OF ANY CONDITIONS WHERE ALTERNATIVE CONFIGURATION OR SPICE LOCATIONS ARE SUGGESTED OR WHERE DISCREPANCIES ARE ANTICIPATED.
  - SHOP CONNECTIONS ARE TO BE WELDED. FIELD CONNECTIONS ARE TO BE BOLTED UNLESS INDICATED OTHERWISE. WHERE CONNECTIONS ARE WELDED, ERECTION BOLTS MAY BE USED FOR FIT UP IF THE BOLTS ARE PLACED WHERE THEY DO NOT REDUCE THE CAPACITY OF THE MEMBER AFTER WELDING THE CONNECTION.
  - ALL MEMBERS OF THE VERTICAL TRUSSES, BUILT UP COLUMNS AND PIERS ARE FRACTURE CRITICAL AND SHALL HAVE LAMINATION INSPECTION AS REQUIRED. SEE PROJECT SPECIFICATIONS FOR SPECIAL MATERIALS TESTING REQUIREMENTS.
  - TRUSSES ARE TO BE FABRICATED AND ERECTED WITH APPROPRIATE CAMBER SO THAT THE TRUSSES ARE PLUMB AND THE FLOOR AND ROOF LEVELS ALONG THE ENTIRE LENGTH OF THE CONCOURSE AFTER ALL DEAD LOADS ARE IN PLACE. CAMBERS AT PANEL POINTS ARE INDICATED IN THE TRUSS ELEVATION FOR THE UNFACTORED DESIGN DEAD LOAD ONLY. DO NOT ROUND PER FOOT ON EACH TRUSS. ALL CAMBERS ARE GIVEN IN INCHES. POSITIVE TESTED CAMBERS UPWARD.
  - ALL PORTIONS OF THE TRUSSES EXPOSED TO VIEW IN THE FINISHED WORK IS ARCHITECTURALLY EXPOSED STRUCTURAL STEEL.
  - TOTAL DEAD LOAD INCLUDES ALL STRUCTURE FRAMING, METAL DECK, CONCRETE SLAB, CURTAINWALL, ARCHITECTURAL ELEMENTS, ROOFING, CEILING, AND AN ALLOWANCE FOR MEP.

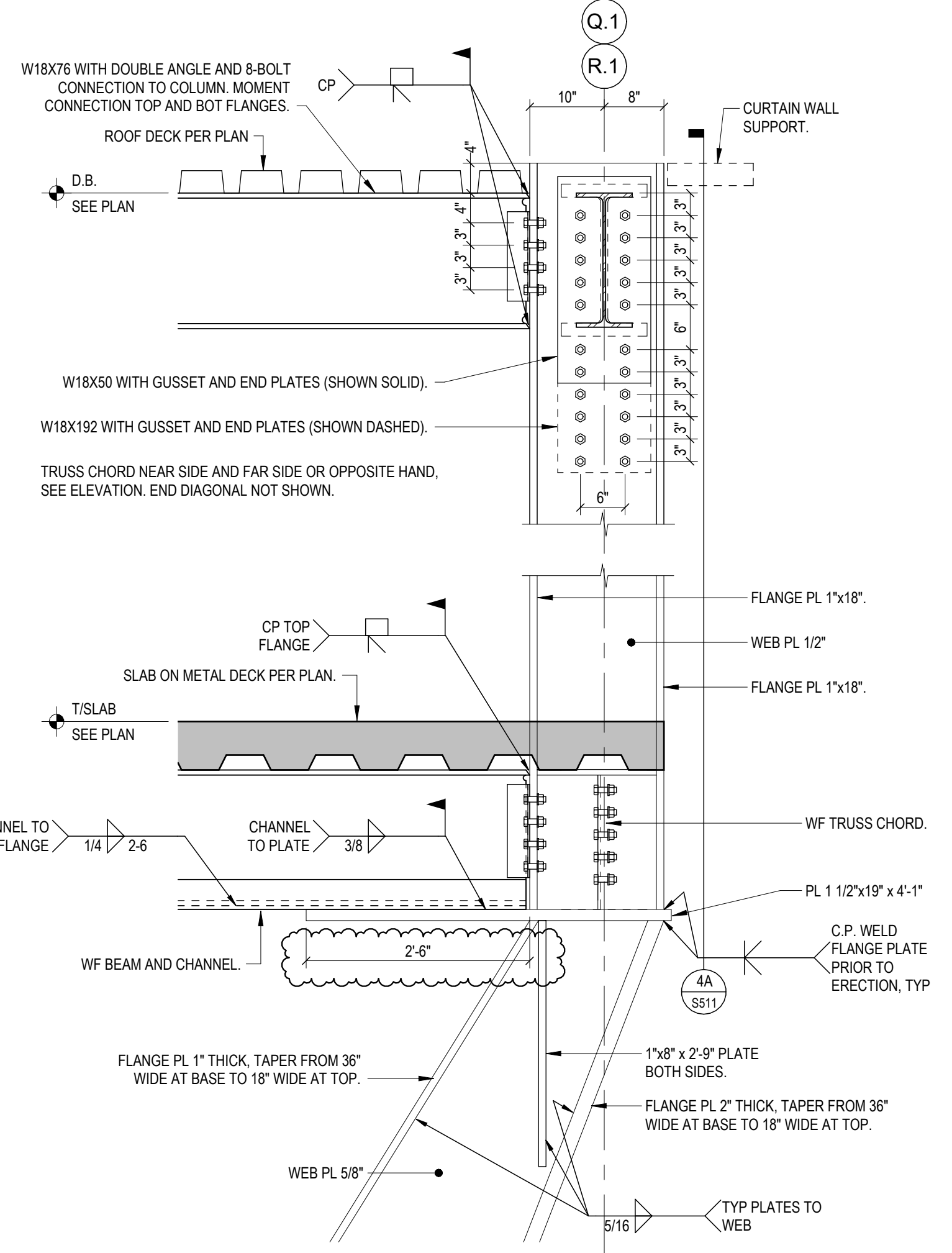
**NORTH ELEVATION OPPOSITE HAND  
BRIDGE TRUSS SOUTH ELEVATION**  
1/8" = 1'-0"



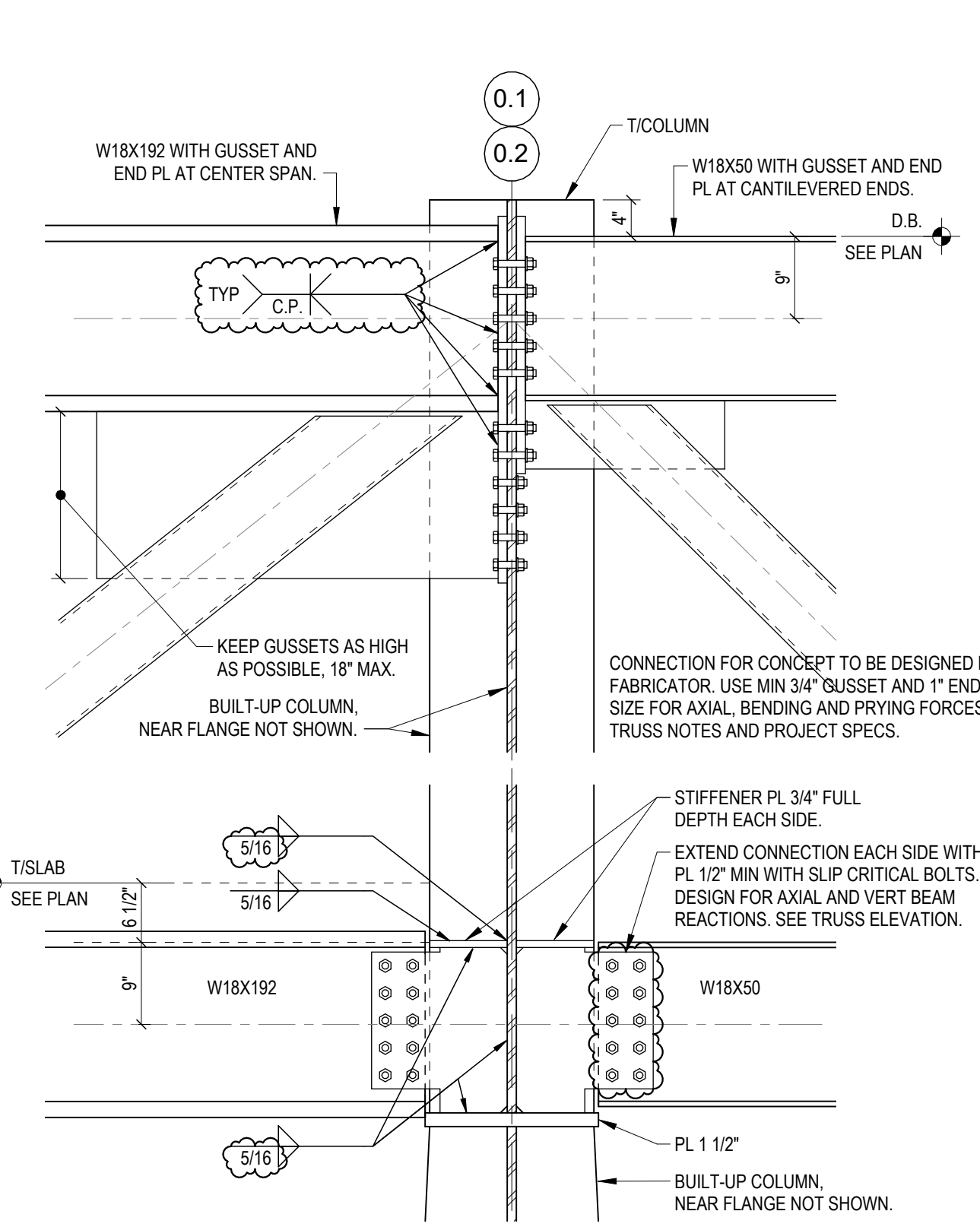
**1 BRIDGE PIER SECTION**  
1/8" = 1'-0"



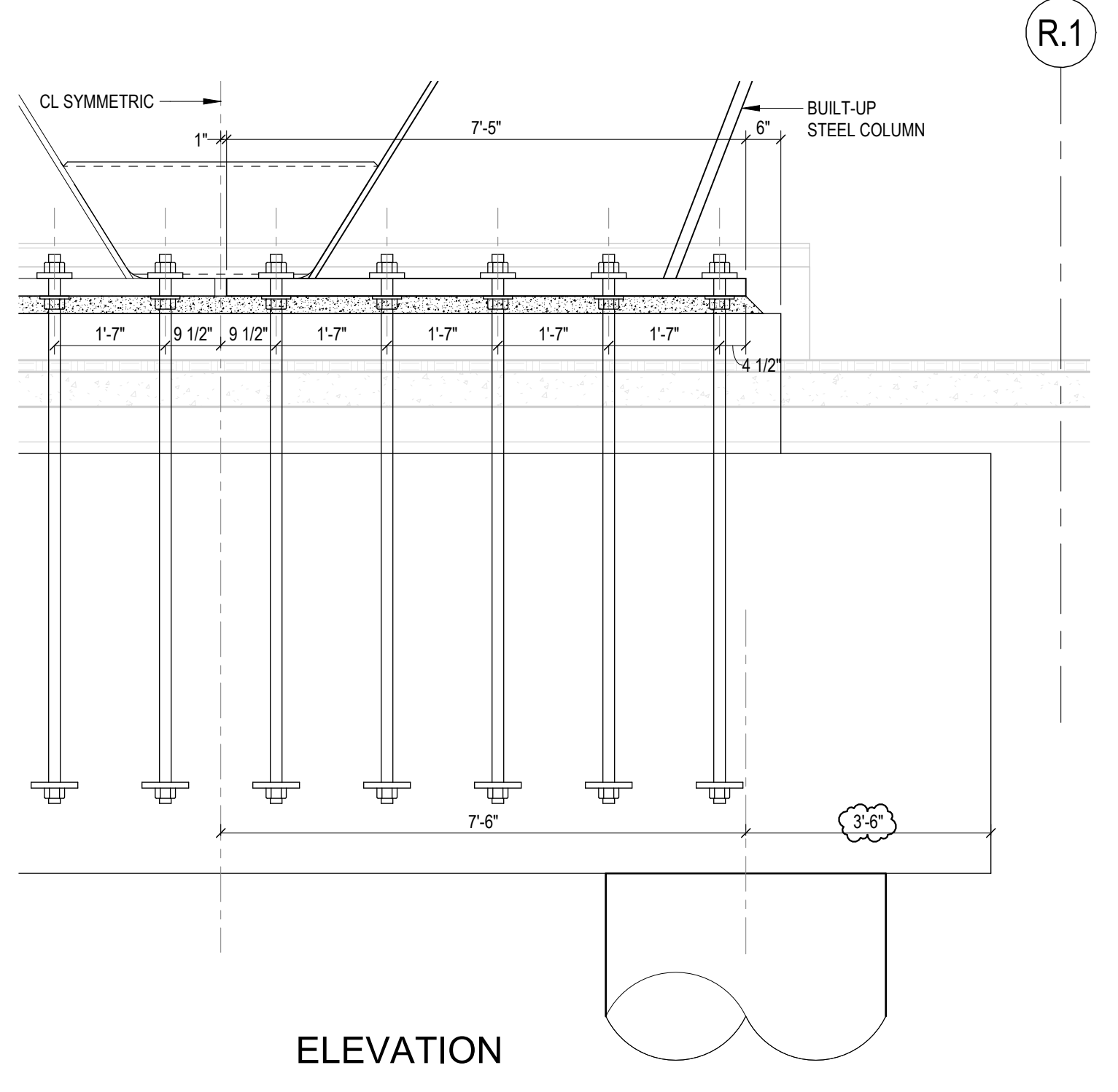
**2 BETWEEN PIERS  
BRIDGE SECTION**  
1/8" = 1'-0"



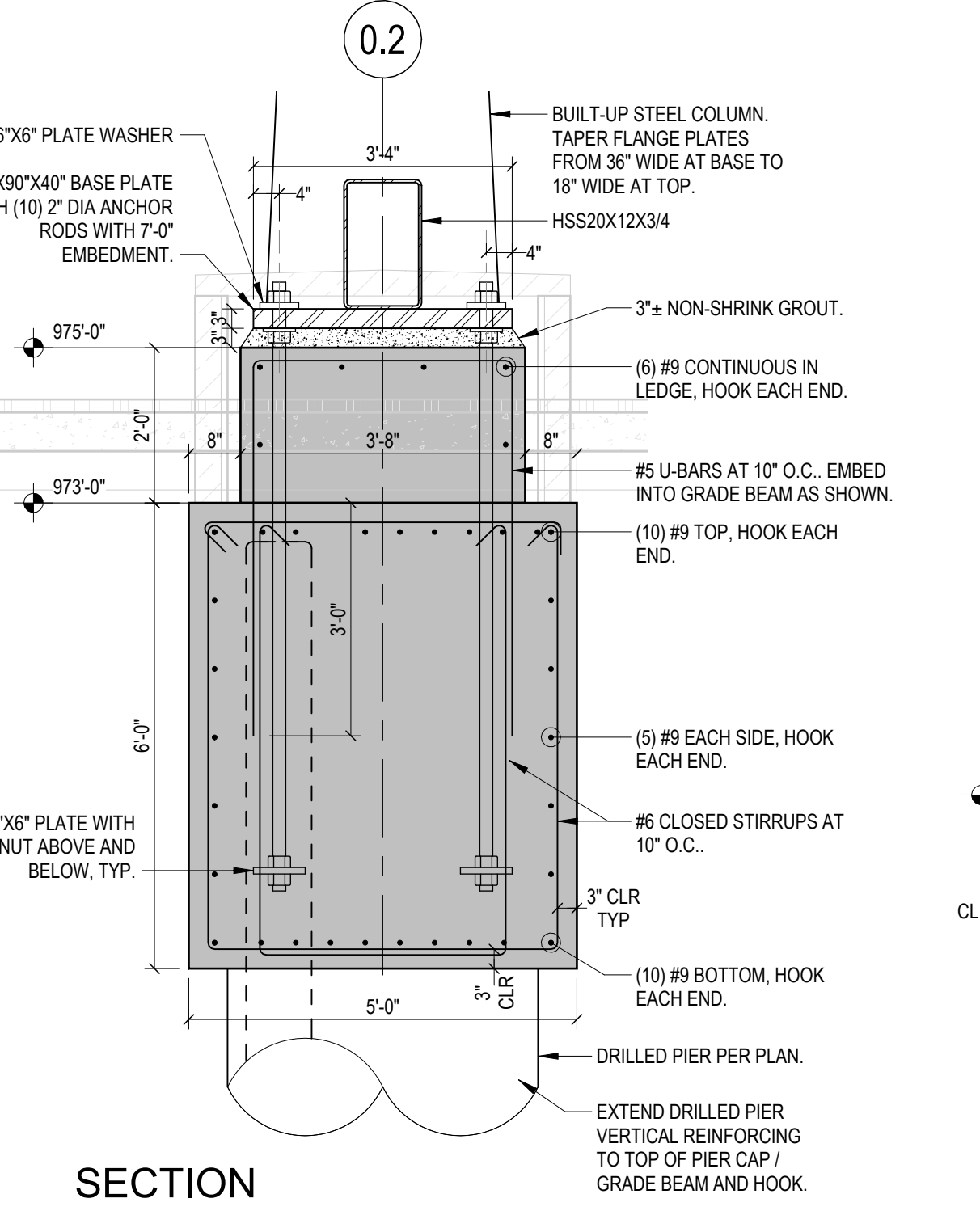
**4 DETAIL**  
3/4" = 1'-0"



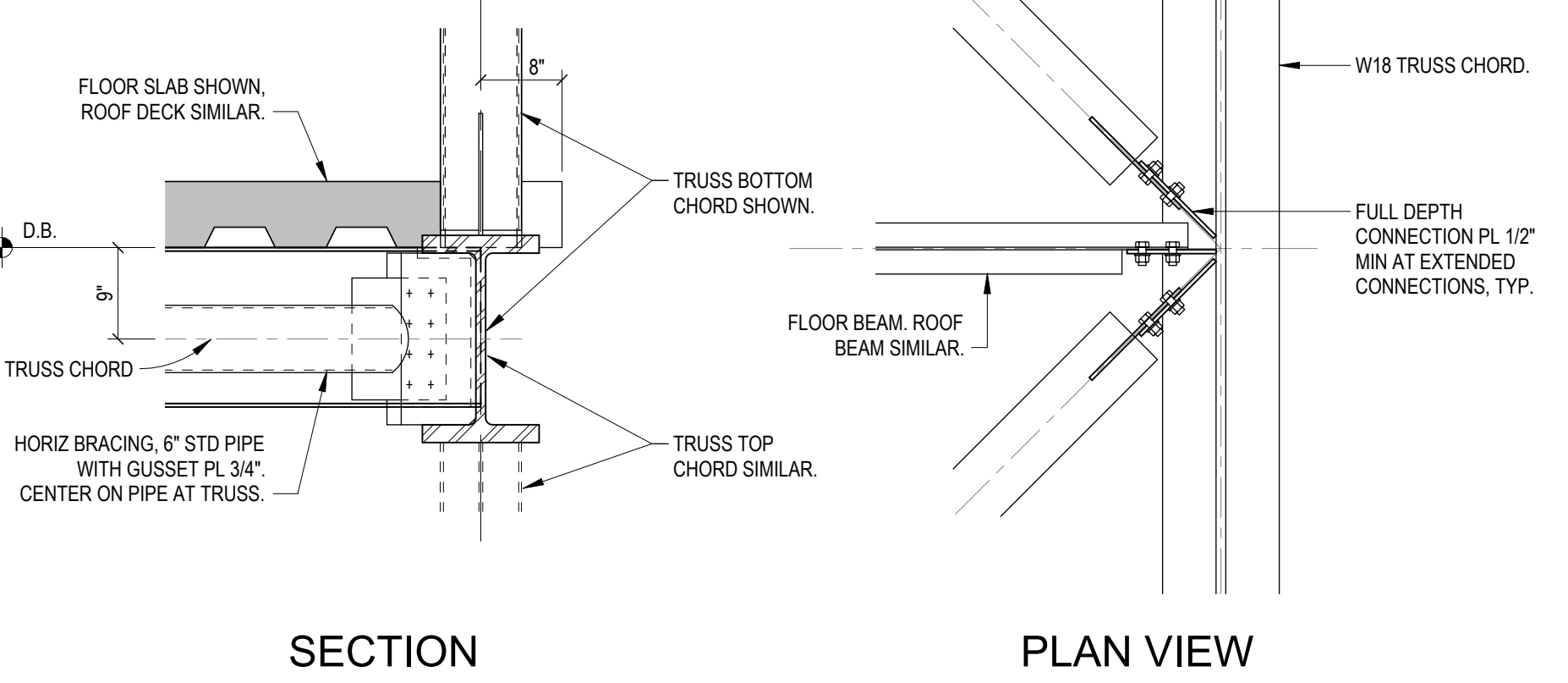
**4A SECTION**  
3/4" = 1'-0"



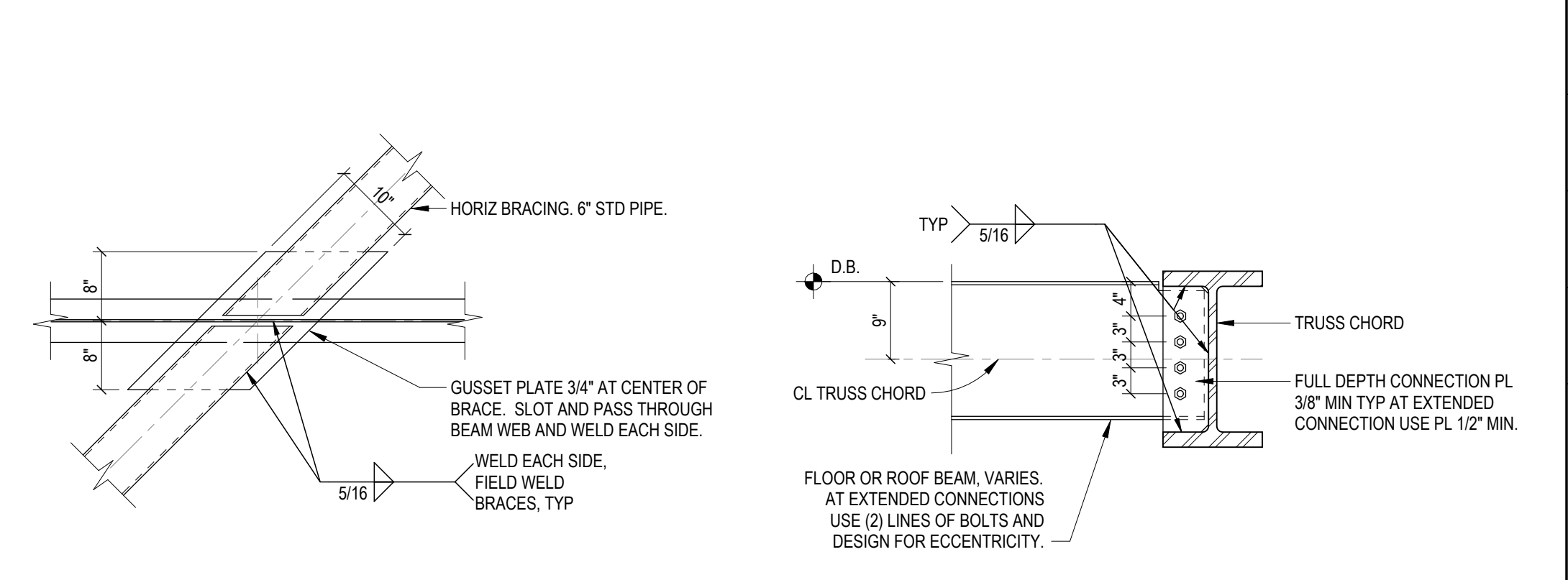
**3 DETAIL**  
1/2" = 1'-0"



**5 DETAIL**  
3/4" = 1'-0"



**6 PLAN DETAIL**  
3/4" = 1'-0"



**7 SECTION**  
3/4" = 1'-0"

**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
AEI Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
URBAN PLANNING  
CIVIL ENGINEERING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	BP-04 FOR BID & PERMIT	01/24/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **SET**  
Checked By **TLS**  
Client Number **514**  
Project Number **6926**  
Date **05/28/2024**

DRAWING TITLE  
**BRIDGE FRAMING ELEVATIONS AND DETAILS**

SHEET NO.  
**S511**

5/28/2024 3:44:17 PM Autodesk Docs://14-6926 - UKHC Cancer Treatment & Advance Ambulatory Center/S511-LKC-5146926.rvt

5/28/2024 3:44:17 PM



CONCRETE GIRDER SCHEDULE - PART 1

Table with columns: MARK, BEAM SIZE, BEAM TYPE, REINFORCING, STRIRUPS, NOTES. Contains detailed specifications for concrete girders G100 through G229.

CONCRETE GIRDER SCHEDULE - PART 2

Table with columns: MARK, BEAM SIZE, BEAM TYPE, REINFORCING, STRIRUPS, NOTES. Contains detailed specifications for concrete girders G230 through G433.

NOTES:

- List of 61 construction notes detailing reinforcement requirements, splice locations, and beam specifications.

NOTE: ALL SHADED VALUES IN THE SCHEDULE ON THIS SHEET HAVE CHANGED FOR BR-07 ADDENDUM #1 DATED 05/28/24

Project information including logos for CHAMPLIN ARCHITECTURE, HGA, THP Affiliated Engineers, CMTA, OLIN, CARMAN, WALSH CONSULTING GROUP, bell engineering, CDM Smith, PIVOTAL lighting design, HEALTHCARE, Cancer Treatment Center + Advanced Ambulatory Center, ISSUANCES table, and drawing title CONCRETE GIRDER SCHEDULE S602.

CONCRETE GIRDER SCHEDULE - PART 3

MARK	BEAM SIZE		BEAM TYPE	REINFORCING										STIRRUPS		NOTES			
	WIDTH	DEPTH		B1	B2	B3	T1	T2	T4	T5	T6	T7	F	SIZE	TYPE				
G434	38	40	3	(6) #9	--	(6) #9	--	--	--	--	--	(8) #11	(4) #5	#4	ST-4	AT 10' O.C. FULL LENGTH OF BEAM AND CANTILEVER	3, 6, 12, 20		
G435	42	40	1	(6) #11	--	--	--	(6) #9	--	--	(10) #11	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 10		
G436	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 10		
G437	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	10 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1		
G438	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	10 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1, 10		
G439	38	40	3	(6) #9	--	(6) #9	--	--	--	--	--	(8) #11	(4) #5	#4	ST-4	AT 10' O.C. FULL LENGTH OF BEAM AND CANTILEVER	3, 6, 12		
G440	28	25	6	(5) #9	--	(5) #9	--	--	--	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH OF BEAM AND CANTILEVER	1, 2, 6	
G441	24	25	6	(5) #9	--	(5) #9	--	--	--	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH OF BEAM AND CANTILEVER	1, 2, 6	
G442	28	25	6	(5) #9	--	(5) #9	--	--	--	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH OF BEAM AND CANTILEVER	1, 2, 6	
G443	42	25	1	(6) #9	--	--	--	(6) #9	--	--	--	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 25		
G444	24	25	2	(4) #9	--	--	--	(6)	--	--	(4) #9	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	1, 10		
G445	42	25	2	(6) #9	--	--	--	--	--	--	(5) #9	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 10		
G446	42	25	2	(6) #11	(6)	--	--	--	--	--	(6) #11	--	--	#4	ST-2	10 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1		
G447	42	25	2	(6) #9	(6)	--	--	--	--	--	(6) #9	--	(2) #5	#4	ST-4	10 AT 10' O.C. FULL LENGTH	1, 23, 24		
G448	33	40	3	(6) #9	--	(6) #9	--	--	--	--	--	--	(4) #5	#4	ST-4	AT 10' O.C. FULL LENGTH OF BEAM AND AT 10' O.C. IN CANTILEVER	3, 6, 12		
G449	42	40	1	(6) #11	--	--	--	(6) #9	--	--	(2) #11	(6) #11	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 10	
G450	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	12 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1, 10		
G451	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	12 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1		
G452	42	25	2	(6) #9	--	--	--	--	--	--	--	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 10		
G453	42	33	1	(6) #9	--	--	--	(6) #9	--	--	--	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1, 10, 33		
G454	42	40	1	(6) #11	(2) #11	--	--	(6) #9	--	--	(2) #11	(6) #11	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 10	
G455	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	12 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1, 10		
G456	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	10 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1, 17, 18		
G457	30	30	2	(6) #11	(6)	--	--	--	--	--	--	--	(2) #5	#4	ST-4	10 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1, 19		
G458	42	25	1	(6) #11	(6)	--	--	(6) #7	--	--	(6) #11	--	--	#4	ST-2	10 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1, 36, 37		
G459	41	25	4	(3) #7	--	--	--	(3) #7	--	--	--	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1, 10		
G460	42	40	1	(6) #11	(2) #11	--	--	(6) #9	--	--	(6) #11	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 10		
G461	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	12 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1		
G462	42	25	2	(6) #11	(6)	--	--	--	--	--	(6) #11	--	--	#4	ST-2	12 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1		
G463	42	25	2	(6) #11	(6)	--	--	--	--	--	--	--	--	#4	ST-2	12 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1		
G464	42	25	1	(6) #11	(6)	--	--	(6) #7	--	--	(6) #11	--	--	#4	ST-2	10 AT 10' O.C. LEFT END, BALANCE AT 10' O.C.	1		
G465	42	25	1	(6) #9	--	--	--	(6) #9	--	--	(6) #11	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 2		
G466	42	25	2	(6) #11	(2) #9	--	--	(6) #11	--	--	(2) #11	(6) #11	--	--	#4	ST-2	12 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1	
G467	42	25	2	(6) #11	(6)	--	--	--	--	--	(6) #11	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 17, 18		
G468	30	30	2	(6) #11	(6)	--	--	--	--	--	--	--	(2) #5	#4	ST-4	AT 12' O.C. FULL LENGTH	1, 19		
G469	42	25	1	(6) #9	(6)	--	--	(6) #7	--	--	(2) #7	(6) #11	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 36, 37	
G470	42	25	1	(6) #9	--	--	--	(6) #9	--	--	(6)	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1, 2		
G471	42	25	2	(6) #11	(6)	--	--	--	--	--	(6) #11	--	--	#4	ST-2	10 AT 10' O.C. EACH END, BALANCE AT 10' O.C.	1, 2		
G472	42	25	1	(6) #9	(6)	--	--	(6) #11	--	--	(6)	--	--	#4	ST-2	AT 10' O.C. FULL LENGTH	1		
G473	28	25	1	(4) #9	--	--	--	(4) #7	--	--	(6)	--	--	#4	ST-3	12 AT 10' O.C. EACH END	1		
G474	28	25	2	(4) #11	--	--	--	--	--	--	(4) #11	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	1, 35, 43		
G475	28	25	2	(4) #9	--	--	--	--	--	--	(6)	--	--	#4	ST-3	AT 10' O.C. FULL LENGTH	1		
G476	28	25	1	(4) #7	--	--	--	(4) #9	--	--	(4) #9	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	1, 2, 7, 8		
G477	24	25	4	(3) #7	--	--	--	(3) #7	--	--	(3) #7	--	--	#4	ST-3	AT 10' O.C. FULL LENGTH	2, 8		
G478	24	25	4	(4) #11	--	--	--	(4) #9	--	--	(4) #9	--	--	#4	ST-3	AT 10' O.C. FULL LENGTH	2, 8		
G479	36	25	1	(6) #9	--	--	--	(6) #11	--	--	(6) #11	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1, 2, 7, 8		
G480	36	25	2	(6) #9	--	--	--	--	--	--	--	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1, 7		
G481	36	25	2	(6) #9	--	--	--	--	--	--	(6) #11	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1, 7		
G482	36	25	2	(6) #9	--	--	--	--	--	--	--	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1, 7, 39		
G483	27	25	1	(4) #9	--	--	--	(4) #9	--	--	(4) #11	--	--	#4	ST-4	20 AT 6' O.C. EACH END, BALANCE AT 10' O.C. FULL LENGTH	1, 7, 8, 45		
G484	18	25	4	(3) #9	--	--	--	(3) #7	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	2		
G485	14	25	4	(3) #7	--	--	--	(3) #5	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	9, 15		
G486	24	25	4	(3) #11	--	--	--	(3) #9	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	9, 15		
G487	14	25	4	(3) #9	--	--	--	(3) #9	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	9, 15		
G488	14	25	4	(3) #7	--	--	--	(3) #5	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	9, 15		
G489	16	25	1	(5) #7	--	--	--	(3) #7	--	--	--	--	--	#4	ST-1	(6) AT 10' O.C. EACH END	1		
G700	45.25	25	1	(4) #9	(2) #9	--	--	(2) #7	(4) #7	--	--	(3) #9	(5) #9	--	--	#4	ST-4	AT 10' O.C. FULL LENGTH	1
G701	45.25	25	2	(4) #9	(1) #7	--	--	(2) #7	(4) #7	--	--	--	--	#4	ST-4	AT 10' O.C. FULL LENGTH	1		
G702	42.25	25	2	(4) #9	(1) #7	--	--	--	--	--	--	--	--	#4	ST-4	AT 10' O.C. FULL LENGTH	1		
G703	33	40	3	(6) #9	--	(6) #9	--	--	--	--	(1) #7	(6) #9	--	(6) #9	#4	ST-3	AT 12' O.C. FULL LENGTH OF BEAM AND CANTILEVER	3, 6, 12	
G704	45.25	25	2	(4) #9	(1) #7	--	--	--	--	--	--	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1, 10		
G705	42	25	2	(4) #11	(1) #11	--	--	--	--	--	--	--	--	#4	ST-2	15 AT 10' O.C. EACH END	1		
G706	42	25	2	(4) #11	(1) #11	--	--	--	--	--	(3) #9	(5) #11	--	--	#4	ST-2	15 AT 10' O.C. EACH END	1	
G707	57	25	2	(5) #9	(2) #7	--	--	--	--	--	--	--	(2) #5	#4	ST-4	AT 10' O.C. FULL LENGTH	1		
G708	24	29	4	(4) #9	--	--	--	(4) #7	--	--	--	--	(2) #5	#4	ST-3	AT 10' O.C. FULL LENGTH	9, 15		

NOTES:

- ALL B1 BARS TO RECEIVE CLASS B TENSION LAPS AT SUPPORTS.
- TOP BARS CONTINUOUS OVER SPAN. FABRICATE T2 AND T5 BARS AS ONE PIECE. DO NOT SPLICE.
- TOP BARS CONTINUOUS OVER SPAN. FABRICATE T5 AND T7 BARS AS ONE PIECE. DO NOT SPLICE. EXTEND TOP BARS INTO ADJACENT SPAN TO LAP WITH ADJACENT SPAN TOP BARS.
- TOP BARS CONTINUOUS OVER SPAN. FABRICATE T5 BARS AS ONE PIECE. DO NOT SPLICE.
- FABRICATE T5 AND T4 BARS CONTINUOUS ACROSS SPAN AND INTO ADJACENT BEAMS.
- BOTTOM BARS CONTINUOUS OVER SPAN. FABRICATE B1 AND B3 BARS AS ONE PIECE. DO NOT SPLICE.
- BEAM WITH ADDITIONAL WIDTH (SEE PLAN SHEETS FOR DIMENSIONS). PLACE SCHEDULED BARS WITHIN SCHEDULED BEAM WIDTH. PLACE ADDITIONAL LONGITUDINAL AND TRANSVERSE BARS PER TYPICAL BEAM WITH ADDITIONAL WIDTH DETAIL ON SHEET S601, OR PER APPLICABLE EDGE DETAIL. (SEE PLAN).
- EXTEND TOP AND BOTTOM BARS TO EDGE OF SLAB AND HOOK.
- FABRICATE TOP AND BOTTOM BARS AS ONE PIECE. DO NOT SPLICE.
- EXTEND B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN INTO ADJACENT DEEPER BEAM WHERE APPLICABLE.
- EXTEND B1 BOTTOM BARS 7'-0" PAST CENTERLINE OF COLUMN INTO ADJACENT DEEPER BEAM.
- EXTEND BOTTOM BARS PAST CENTERLINE OF COLUMN AND/OR TO FAR EDGE OF CANTILEVER AT EACH END OF DEEP BEAM. PROVIDE ALTERNATING HOOKS ON B1 BARS AT EACH END OF BEAM.
- BEAM WIDTH VARIES. FABRICATE STIRRUP CAGE FOR NARROW BEAM WIDTH AND PLACE ALL SCHEDULED BARS WITHIN NARROW BEAM WIDTH.
- PLACE ALL SCHEDULED BOTTOM BARS WITHIN SCHEDULED BEAM WIDTH TO LAP WITH SCHEDULED BOTTOM BARS IN ADJACENT BEAMS.
- EXTEND TOP BARS 5'-0" PAST CENTERLINE OF SUPPORT INTO ADJACENT SLAB.
- EXTEND TOP BARS 6'-0" PAST CENTERLINE OF SUPPORT INTO ADJACENT SLAB.
- AT EAST END OF BEAM, EXTEND CENTER (4) TOP T5 BARS INTO ADJACENT NARROW BEAM TO LAP AT MIDSPAN WITH ADJACENT BEAM TOP BARS. HOOK NORTHERN-MOST (1) AND SOUTHERN-MOST (1) T5 TOP BARS AT CHANGE OF BEAM WIDTH.
- EXTEND CENTER (4) B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN AT LINE 4 INTO ADJACENT DEEPER BEAM. HOOK NORTHERN-MOST (1) AND SOUTHERN-MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH WHERE APPLICABLE.
- EXTEND B1 BOTTOM BARS 7'-0" PAST CENTERLINE OF COLUMN AT LINE 5 (OR LINE 3) INTO ADJACENT DEEPER BEAM. HOOK NORTHERN-MOST (1) AND SOUTHERN-MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH.
- TOP BARS CONTINUOUS OVER SPAN. FABRICATE #11 T5 AND T7 BARS AS ONE PIECE. DO NOT SPLICE. EXTEND CENTER (5) TOP BARS INTO ADJACENT SPAN TO LAP WITH ADJACENT SPAN TOP BARS. HOOK NORTHERN-MOST (1) #5 AND SOUTHERN-MOST (1) #5 T7 TOP BARS AT CHANGE OF BEAM WIDTH.
- EXTEND EASTERN-MOST (2) B1 BOTTOM BARS TO LAP WITH ADJACENT JOIST BOTTOM BARS. TERMINATE WESTERN-MOST (1) B1 BOTTOM BAR AT FACE OF SUPPORT.
- TOP BARS CONTINUOUS OVER ADJACENT SHORT SPAN. EXTEND EASTERN-MOST (2) TOP BARS INTO JOIST SOUTH OF LINE G TO LAP WITH JOIST TOP BARS. WESTERN-MOST (1) TOP BAR TO EXTEND 5'-0" PAST CENTERLINE OF SUPPORT INTO SLAB SOUTH OF LINE C.
- NORTHERN-MOST (1) T5 TOP BAR AND SOUTHERN-MOST (1) T5 TOP BAR TO BE CONTINUOUS ACROSS SPAN AND EXTEND 6'-0" PAST CENTERLINE OF COLUMN ON LINE 3 INTO ADJACENT SLAB. REMAINING TOP BARS TO LAP AT MIDSPAN OF THIS BEAM WITH ADJACENT NARROWER DEEPER BEAM TOP BARS.
- EXTEND CENTER (4) B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN AT LINE 3 INTO ADJACENT DEEPER BEAM. HOOK NORTHERN-MOST (1) AND SOUTHERN-MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH.
- FABRICATE NORTHERN-MOST (4) T2 TOP BARS FULL LENGTH OF BEAM AND HOOK AT SLAB EDGE. FABRICATE SOUTHERN-MOST (2) T2 TOP BARS CONTINUOUS AS ONE PIECE. NO SPLICE. WITH NORTHERN-MOST (2) T5 TOP BARS FROM ADJACENT BEAM.
- FABRICATE NORTHERN-MOST (2) T5 TOP BARS CONTINUOUS AS ONE PIECE. NO SPLICE. WITH SOUTHERN-MOST (2) T5 TOP BARS FROM ADJACENT BEAM.
- EXTEND WESTERN-MOST (2) T5 TOP BARS SOUTH INTO ADJACENT JOIST AND HOOK AT FAR END OF JOIST. EXTEND EASTERN-MOST (1) T5 TOP BAR SOUTH 5'-0" INTO ADJACENT SLAB.
- EXTEND WESTERN-MOST (2) T5 TOP BARS NORTH INTO ADJACENT JOIST TO LAP WITH JOIST TOP BARS. EXTEND EASTERN-MOST (1) T5 TOP BAR NORTH 5'-0" INTO ADJACENT SLAB.
- PLACE SCHEDULED TOP BARS EVENLY SPACED IN PORTION OF BEAM WEST OF COLUMN SUPPORT CENTERLINE.
- WESTERN-MOST (1) TOP BAR TO EXTEND 5'-0" PAST CENTERLINE OF SUPPORT INTO SLAB NORTH OF LINE I.
- SPLICE TOP BARS 10'-0" SOUTH OF COLUMN LINE E.
- EXTEND EASTERN-MOST (2) T5 TOP BARS NORTH INTO ADJACENT JOIST TO LAP WITH NORTH JOIST TOP BARS. EXTEND EASTERN-MOST (2) T5 TOP BARS SOUTH CONTINUOUS THOROUGH ADJACENT JOIST AND HOOK AT SLAB EDGE. EXTEND WESTERN



CONCRETE BEAM SCHEDULE - PART 1

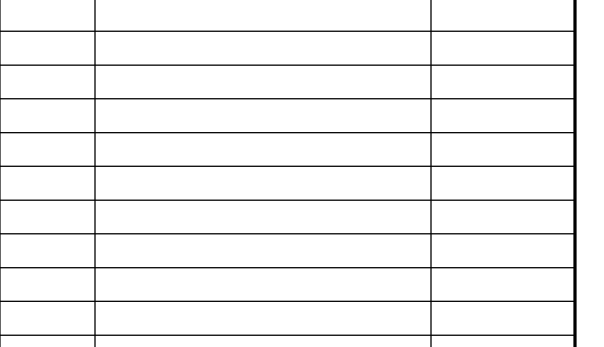
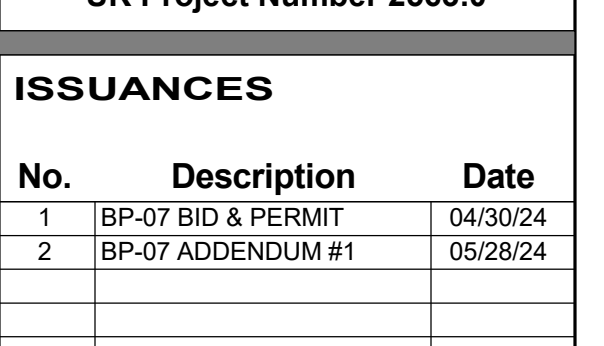
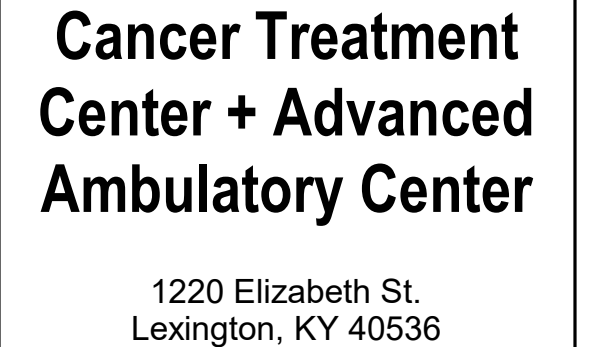
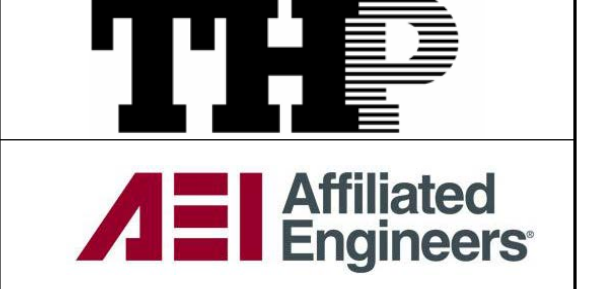
Table with columns: MARK, BEAM SIZE, BEAM TYPE, REINFORCING (B1, B2, B3, T1, T2, T3, T4, T5, T6, T7, F), STIRRUPS (SIZE, TYPE, SPACING), and NOTES. Contains detailed reinforcement specifications for various beam sizes and types.

CONCRETE BEAM SCHEDULE - PART 2

Table with columns: MARK, BEAM SIZE, BEAM TYPE, REINFORCING (B1, B2, B3, T1, T2, T3, T4, T5, T6, T7, F), STIRRUPS (SIZE, TYPE, SPACING), and NOTES. Contains detailed reinforcement specifications for various beam sizes and types.

NOTES:

- 1. ALL B1 BARS TO RECEIVE CLASS B TENSION LAPS AT SUPPORTS.
2. TOP BARS CONTINUOUS OVER SPAN. FABRICATE T2 AND T5 BARS AS ONE PIECE, DO NOT SPLICE.
3. TOP BARS CONTINUOUS OVER SPAN. FABRICATE T5 AND T7 BARS AS ONE PIECE, DO NOT SPLICE. EXTEND TOP BARS INTO ADJACENT SPAN TO LAP WITH ADJACENT SPAN TOP BARS.
4. TOP BARS CONTINUOUS OVER SPAN. FABRICATE T5 BARS AS ONE PIECE, DO NOT SPLICE.
5. FABRICATE T5 AND T4 BARS CONTINUOUS ACROSS SPAN AND INTO ADJACENT BEAMS.
6. BOTTOM BARS CONTINUOUS OVER SPAN. FABRICATE B1 AND B3 BARS AS ONE PIECE, DO NOT SPLICE.
7. BEAM WITH ADDITIONAL WIDTH (SEE PLAN SHEETS FOR DIMENSIONS), PLACE SCHEDULED BARS WITH SCHEDULED WIDTH. PLACE ADDITIONAL LONGITUDINAL AND TRANSVERSE BARS PER TYPICAL BEAM WITH ADDITIONAL WIDTH DETAIL ON SHEET S601, OR PER APPLICABLE EDGE DETAIL. (SEE PLAN).
8. EXTEND TOP AND BOTTOM BARS TO EDGE OF SLAB AND HOOK.
9. FABRICATE TOP AND BOTTOM BARS AS ONE PIECE, DO NOT SPLICE.
10. EXTEND B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN INTO ADJACENT DEEPER BEAM WHERE APPLICABLE.
11. EXTEND B1 BOTTOM BARS 7'-0" PAST CENTERLINE OF COLUMN INTO ADJACENT DEEPER BEAM AT EACH END OF DEEP BEAM. PROVIDE ALTERNATING HOOKS ON B1 BARS AT EACH END OF BEAM.
12. EXTEND BOTTOM BARS PAST CENTERLINE OF COLUMN AND/OR TO FAR EDGE OF CANTILEVER AT EACH END OF DEEP BEAM. PROVIDE ALTERNATING HOOKS ON B1 BARS AT EACH END OF BEAM.
13. BEAM WITH VARIOUS FABRICATE STIRRUP CAGE FOR NARROW BEAM WIDTH AND PLACE ALL SCHEDULED BARS WITHIN NARROW BEAM WIDTH.
14. PLACE ALL SCHEDULED BOTTOM BARS WITHIN SCHEDULED BEAM WIDTH TO LAP WITH SCHEDULED BOTTOM BARS IN ADJACENT BEAMS.
15. EXTEND TOP BARS 5'-0" PAST CENTERLINE OF SUPPORT INTO ADJACENT SLAB.
16. EXTEND TOP BARS 6'-0" PAST CENTERLINE OF SUPPORT INTO ADJACENT SLAB.
17. AT EAST END OF BEAM, EXTEND CENTER (4) TOP T5 BARS INTO ADJACENT NARROW BEAM TO LAP AT MIDSPAN WITH ADJACENT BEAM TOP BARS. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) T5 TOP BARS FROM ADJACENT BEAM.
18. EXTEND CENTER (4) B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN AT LINE 4 INTO ADJACENT DEEPER BEAM. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH WHERE APPLICABLE.
19. EXTEND B1 BOTTOM BARS 7'-0" PAST CENTERLINE OF COLUMN AT LINE 5 (OR LINE 3) INTO ADJACENT DEEPER BEAM. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH.
20. TOP BARS CONTINUOUS OVER SPAN. FABRICATE #11 T5 AND T7 BARS AS ONE PIECE, DO NOT SPLICE. EXTEND CENTER (5) TOP BARS INTO ADJACENT SPAN TO LAP WITH ADJACENT SPAN TOP BARS. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) T5 TOP BARS AT CHANGE OF BEAM WIDTH.
21. EXTEND EASTERN MOST (2) B1 BOTTOM BARS TO LAP WITH ADJACENT JOIST BOTTOM BARS. TERMINATE WESTERN MOST (1) B1 BOTTOM BAR AT FACE OF SUPPORT.
22. TOP BARS CONTINUOUS OVER ADJACENT SHORT SPAN, EXTEND EASTERN MOST (2) TOP BARS INTO JOIST SOUTH OF LINE G TO LAP WITH JOIST TOP BARS. WESTERN MOST (1) TOP BAR TO EXTEND 5'-0" PAST CENTERLINE OF SUPPORT INTO ADJACENT SLAB.
23. NORTHERN MOST (1) T5 TOP BAR AND SOUTHERN MOST (1) T5 TOP BAR TO BE CONTINUOUS ACROSS SPAN AND EXTEND 6'-0" PAST CENTERLINE OF COLUMN ON LINE 4 INTO ADJACENT SLAB. REMAINING TOP BARS TO LAP AT MIDSPAN OF THIS BEAM WITH ADJACENT NARROWER DEEPER BEAM TOP BARS.
24. EXTEND CENTER (4) B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN AT LINE 3 INTO ADJACENT DEEPER BEAM. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH.
25. FABRICATE NORTHERN MOST (4) T2 TOP BARS FULL LENGTH OF BEAM AND HOOK AT SLAB EDGE. FABRICATE SOUTHERN MOST (2) T2 TOP BARS CONTINUOUS AS ONE PIECE, NO SPLICE, WITH NORTHERN MOST (2) T2 TOP BARS FROM ADJACENT BEAM.
26. FABRICATE NORTHERN MOST (2) T5 TOP BARS CONTINUOUS AS ONE PIECE, NO SPLICE, WITH SOUTHERN MOST (2) T5 TOP BARS FROM ADJACENT BEAM.
27. EXTEND WESTERN MOST (2) T5 TOP BARS SOUTH INTO ADJACENT JOIST AND HOOK AT FAR END OF JOIST. EXTEND EASTERN MOST (1) T5 TOP BAR NORTH 5'-0" INTO ADJACENT SLAB.
28. EXTEND WESTERN MOST (2) T5 TOP BARS NORTH INTO ADJACENT JOIST TO LAP WITH JOIST TOP BARS. EXTEND EASTERN MOST (1) T5 TOP BAR NORTH 5'-0" INTO ADJACENT SLAB.
29. PLACE SCHEDULED TOP BARS EVENLY SPACED IN PORTION OF BEAM WEST OF COLUMN SUPPORT CENTERLINE.
30. WESTERN MOST (1) TOP BAR TO EXTEND 5'-0" PAST CENTERLINE OF SUPPORT INTO SLAB NORTH OF LINE I.
31. SPLICE TOP BARS 10'-0" SOUTH OF COLUMN LINE E.
32. EXTEND EASTERN MOST (2) T5 TOP BARS NORTH INTO ADJACENT JOIST TO LAP WITH NORTHERN JOIST TOP BARS. EXTEND EASTERN MOST (2) T5 TOP BARS SOUTH CONTINUOUS THROUGH ADJACENT JOIST AND HOOK AT SLAB EDGE. EXTEND WESTERN MOST (1) T5 TOP BAR 5'-0" INTO ADJACENT SLAB AT BOTH ENDS OF BEAM.
33. EXTEND WESTERN MOST (2) T5 TOP BARS NORTH INTO ADJACENT JOIST TO LAP WITH NORTHERN JOIST TOP BARS. EXTEND WESTERN MOST (2) T5 TOP BARS SOUTH CONTINUOUS THROUGH ADJACENT JOIST AND HOOK AT SLAB EDGE. EXTEND EASTERN MOST (2) T5 TOP BARS 5'-0" INTO ADJACENT SLAB AT BOTH ENDS OF BEAM.
34. EXTEND WESTERN MOST (2) T5 TOP BARS INTO ADJACENT JOIST TO LAP WITH JOIST TOP BARS. EXTEND EASTERN MOST (2) T5 TOP BAR 5'-0" INTO ADJACENT SLAB.
35. EXTEND WESTERN MOST (2) T5 TOP BARS INTO ADJACENT JOISTS AT BOTH ENDS OF BEAM TO LAP WITH ADJACENT JOIST TOP BARS. EXTEND EASTERN MOST (1) T5 TOP BAR 5'-0" INTO ADJACENT SLAB AT BOTH ENDS OF BEAM.
36. EXTEND END OF BEAM, EXTEND CENTER (4) TOP T5 BARS INTO ADJACENT NARROW BEAM TO LAP AT MIDSPAN WITH ADJACENT BEAM TOP BARS. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) T5 TOP BAR AT CHANGE OF BEAM WIDTH.
37. EXTEND CENTER (4) B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN AT LINE 3 INTO ADJACENT DEEPER BEAM. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH.
38. BEAM WITH VARIOUS, SEE PLAN FOR DIMENSIONS, AT EAST END OF BEAM, PLACE SCHEDULED TOP AND BOTTOM BARS IN NARROWER BEAM WIDTH AT WEST END OF BEAM, PLACE TOP BARS IN WIDER BEAM WIDTH. PLACE ADDITIONAL #9 TOP AND BOTTOM BAR AT OUTSIDE FACE OF BEAM TO MAINTAIN BEAM WIDTH. FABRICATE CONTINUOUS ACROSS SPAN AND EXTEND TO EDGE OF SLAB TO HOOK AT CHANGE OF BEAM WIDTH.
39. (3) T5L BARS AND ALL T5R BARS SHOULD BE KINKED TO BE CONTINUOUS INTO ADJACENT BEAM AND CONTINUE 6'-0" PAST COLUMN LINE. KINK ALL B1 BOTTOM BARS TO BE CONTINUOUS WITH ADJACENT BARS, EXTEND 6'-0" PAST COLUMN LINE INTO ADJACENT BEAMS.
40. NOT USED
41. NOT USED
42. HOOK B1 BOTTOM BARS AT BOTH SUPPORTS.
43. EXTEND CENTER (4) B1 BOTTOM BARS 6'-0" PAST CENTERLINE OF COLUMN AT LINE 3 INTO ADJACENT DEEPER BEAM. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) B1 BOTTOM BAR AT CHANGE OF BEAM WIDTH.
44. HOOK BOTTOM BARS AT STEP IN BEAM.
45. AT SOUTH END OF BEAM, PLACE T5 BARS WITHIN BEAM CAGE OF ADJACENT NARROWER BEAM AND PLACE T4 BAR AT FAR EAST EDGE OF BEAM AND EXTEND INTO ADJACENT SLAB.
46. AT NORTH END OF BEAM, PLACE T5 BARS WITHIN BEAM CAGE OF ADJACENT, NARROWER BEAM AND PLACE T4 BAR AT FAR EAST EDGE OF BEAM AND EXTEND INTO ADJACENT SLAB.
47. KINK TOP BARS AT RIGHT END TO LAP WITH ADJACENT BEAM TOP BARS MID-SPAN.
48. KINK TOP BARS TO FOLLOW BEAM PROFILE. KINK BOTTOM BARS EACH END TO LAP WITH ADJACENT BEAM BOTTOM BARS.
49. EXTEND (3) WESTERN MOST TOP AND BOTTOM BARS TO EDGE OF SLAB BUMP-UP AND HOOK.
50. T5 BARS TO BE CONTINUOUS INTO ADJACENT BEAMS, HOOK T4 BARS AT RIGHT END OF SOUTH END OF BEAM AND HOOK AT CHANGE IN BEAM WIDTH NEAR LINE E.
51. PLACE T4R BAR AT FAR WEST EDGE OF BEAM, AND PLACE T4 BAR IN BEAM WIDTH NEAR LINE H-2.
52. KINK ENDS OF T5 BARS WHERE THEY MEET BEAM 195 AND CONTINUE INTO BEAM 195.
53. WHERE (3) WESTERN MOST T5 BARS MEET END OF BEAM, HOOK, AND CONTINUE REMAINING EASTERN T5 BARS INTO ADJACENT NARROWER BEAM.
54. EXTEND TOP AND BOTTOM BARS WEST THROUGH COLUMN ON LINE 8.
55. EXTEND TOP AND BOTTOM BARS WEST THROUGH COLUMN ON LINE 8.
56. EXTEND TOP AND BOTTOM BARS NORTH 5'-0" PAST CENTERLINE OF COLUMN ON LINE C.
57. EXTEND TOP AND BOTTOM BARS SOUTH 5'-0" PAST CENTERLINE OF COLUMN ON LINE D.
58. EXTEND TOP AND BOTTOM BARS SOUTH TO TERMINATE AT OUTSIDE FACE OF WALL.
59. CENTER (4) TOP BARS TO EXTEND INTO ADJACENT BEAMS, EASTERN MOST (1) AND WESTERN MOST (1) TOP BARS TO EXTEND 5'-0" PAST CENTERLINE OF SUPPORT AT EACH END OF BEAM INTO ADJACENT SLAB.
60. AT SOUTH EDGE OF BEAM NEAR COLUMN GRID 3A PROVIDE ADDITIONAL #7 T4R BAR HOOKED AT EAST END OF BEAM. EXTEND CENTER (4) TOP BARS INTO ADJACENT BEAM TO LAP WITH ADJACENT BEAM TOP BARS. HOOK NORTHERN MOST (1) AND SOUTHERN MOST (1) T5 TOP BARS AT CHANGE OF BEAM WIDTH.



Cancer Treatment Center + Advanced Ambulatory Center
1220 Elizabeth St. Lexington, KY 40536
UK Project Number 2563.0

Table with columns: No., Description, Date. Contains revision history for the drawing.

DRAWING TITLE: CONCRETE BEAM SCHEDULE
SHEET NO.: S604
5/28/2024 5:21:36 PM

NOTE: ALL SHADED VALUES IN THE SCHEDULE ON THIS SHEET HAVE CHANGED FOR BR 07 ADDENDUM #1 DATED 05/28/24

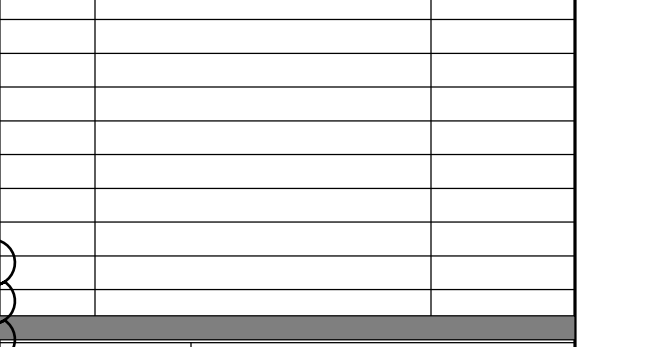
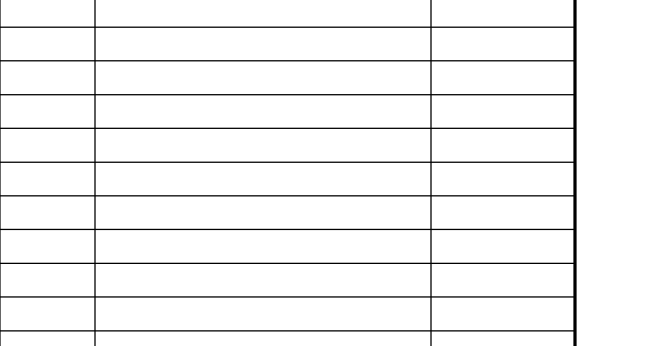
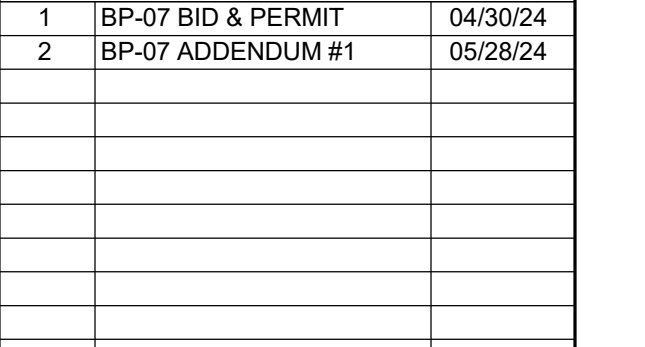
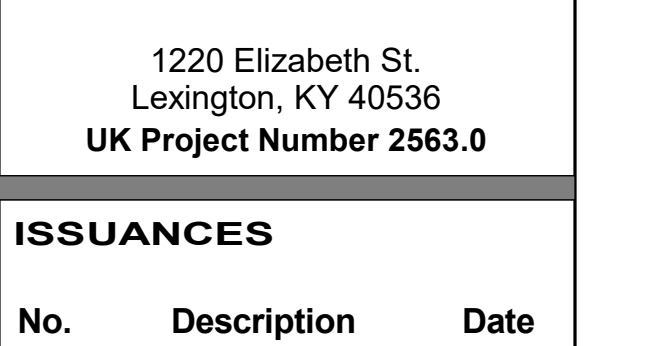
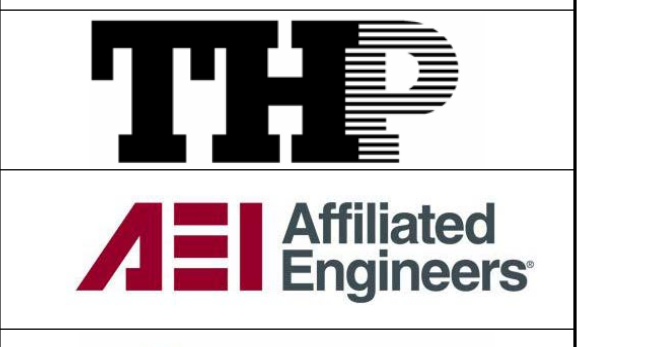
CONCRETE BEAM SCHEDULE - PART 3

Table with columns: MARK, BEAM SIZE (WIDTH, DEPTH), BEAM TYPE, REINFORCING (B1, B2, B3, T1, T2, T4, T5, T6, T7, F), STIRRUPS (SIZE, TYPE, SPACING), and NOTES. Rows include beam details for various marks like B477, B478, B479, etc.

- NOTES: 1. ALL B1 BARS TO RECEIVE CLASS B TENSION LAPS AT SUPPORTS. 2. TOP BARS CONTINUOUS OVER SPAN. FABRICATE T2 AND T5 BARS AS ONE PIECE, DO NOT SPLICE. 3. TOP BARS CONTINUOUS OVER SPAN. FABRICATE T5 AND T7 BARS AS ONE PIECE, DO NOT SPLICE. EXTEND TOP BARS INTO ADJACENT SPAN TO LAP WITH ADJACENT SPAN TOP BARS.



720 EAST PETE ROSE WAY CINCINNATI, OH 45202 T 513.241.4474 thinkchamplin.com THINK CREATE REALIZE



Cancer Treatment Center + Advanced Ambulatory Center 1220 Elizabeth St. Lexington, KY 40536 UK Project Number 2563.0

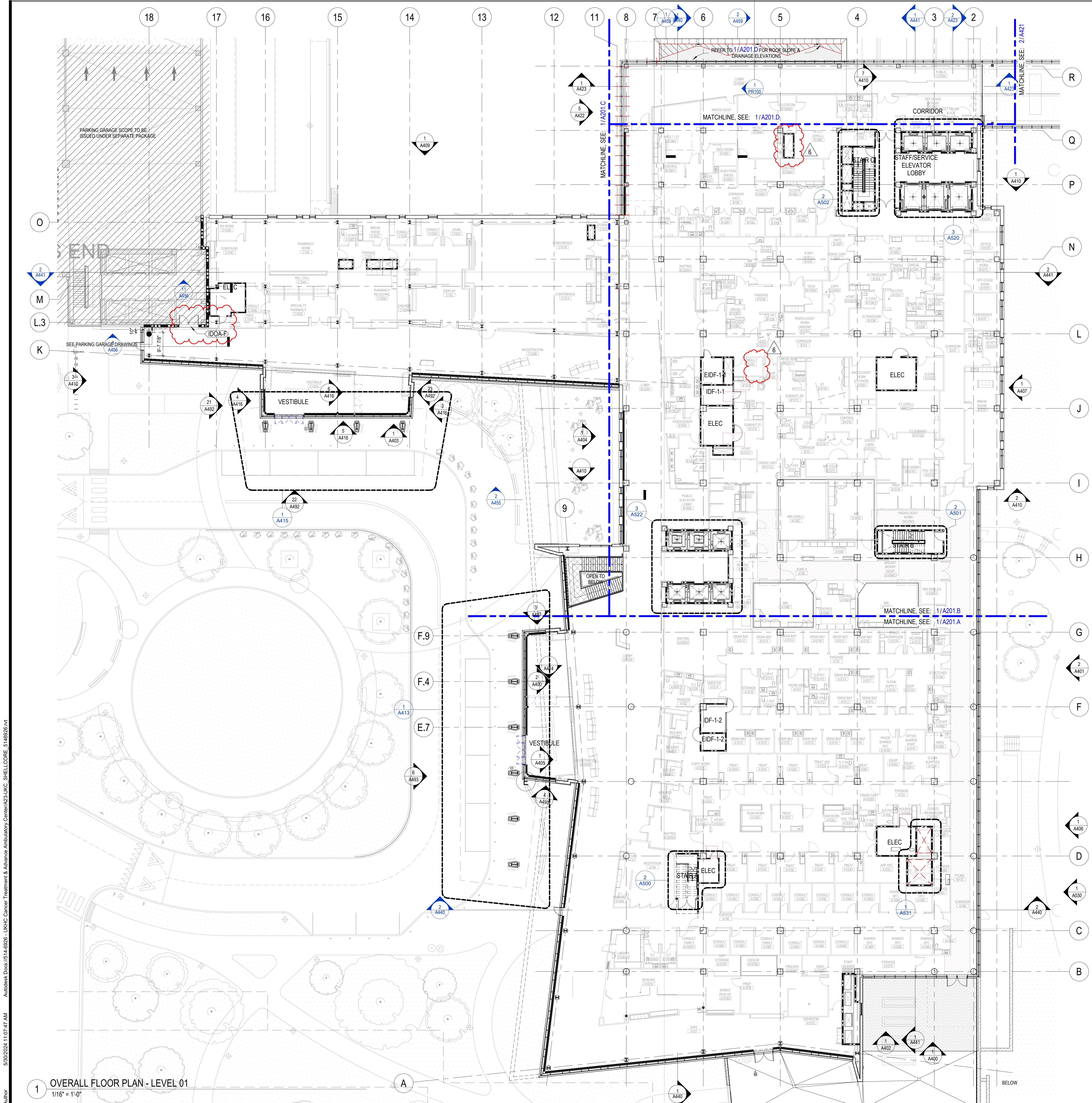
ISSUANCES table with columns: No., Description, Date. Row 1: 1 BP-07 BID & PERMIT 04/30/24. Row 2: 2 BP-07 ADDENDUM #1 05/28/24.

Drawn By SET Checked By TLS Client Number 514 Project Number 6926

DRAWING TITLE CONCRETE BEAM SCHEDULE SHEET NO. S605

NOTE: ALL SHADED VALUES IN THE SCHEDULE ON THIS SHEET HAVE CHANGED FOR BP-07 ADDENDUM #1 DATED 05/28/24





**GENERAL NOTES - FLOOR PLANS**

- A. ALL INTERIOR PARTITIONS SHALL BE "A38" UNLESS NOTED OTHERWISE.
- B. PARTITIONS, FURNITURE, EQUIPMENT, AND FIXTURES SHOWN SCREENED ARE TO BE ISSUED UNDER FUTURE INTERIOR FIT-OUT DOCUMENTATION PACKAGE(S) AND ARE SHOWN HERE FOR REFERENCE AND COORDINATION PURPOSES ONLY.
- C. PLAN DIMENSIONS ARE FROM FACE OF PARTITION TYPE AND DO NOT INCLUDE APPLIED FINISHES, UNLESS NOTED OTHERWISE. PLAN DIMENSIONS INDICATED AS "HOLD" OR "CLEAR" DIMENSIONS ARE FROM FACE OF APPLIED FINISH.
- D. INSTALL WORK STRAIGHT, PLUMB, LEVEL, SQUARE, AND TRUE, IN PROPER ALIGNMENT.
- E. FLATNESS: LEVEL FLOORS TO TRUE PLANE WITHIN 1/4 INCH (6 MM) IN 10' - 0" (3 M) WHEN TESTED BY TEN FOOT (3 M) STRAIGHTEDGE PLACED ANYWHERE ON FLOOR IN ANY DIRECTION.
- F. COORDINATE FURNITURE-RELATED ELECTRICAL LAYOUT WITH FURNITURE VENDOR.
- G. WHERE HANDRAILS, GRAB BARS, CABINETS, WALL-MOUNTED DOOR STOPS, OR OTHER WALL-HUNG ITEMS ARE ATTACHED TO PARTITIONS, INSTALL BACKER PLATES (OR WOOD BLOCKING) ACCURATELY POSITIONED AND FIRMLY SECURED TO METAL STUDS, WHETHER OR NOT SUCH BACKER PLATES OR BLOCKING ARE INDICATED ON DRAWINGS.
- H. WHERE NEW WORK ABUTS, ALIGNS OR ADJOINS EXISTING MATERIALS, MAKE SMOOTH AND EVEN TRANSITION AND ELIMINATE EVIDENCE OF PATCHING AND REFINISHING. FINISH NEW WORK TO MATCH ADJACENT UNDISTURBED SURFACES, UNLESS NOTED OTHERWISE.
- I. CLOSE AND PATCH HOLES AND OPENINGS IN EXISTING FLOOR, WALL AND CEILING WHICH EXIST OR RESULT FROM DEMOLITION OR ALTERATION WORK TO MATCH ADJACENT UNDISTURBED SURFACES.
- J. PRIOR TO CONCEALMENT OF FIRE RESISTIVE MATERIALS BY OTHER WORK, PATCH AND REPAIR AREAS OF REMOVED OR DAMAGED APPLIED FIREPROOFING. COMPLETE PATCHING AND REPAIR TO MAINTAIN EXISTING FIRE-RESISTANCE DESIGN IN ACCORDANCE WITH FIREPROOFING MANUFACTURER'S WRITTEN INSTRUCTIONS FOR CONDITIONS OF EXPOSURE AND INTENDED USE. COORDINATE TESTING AND INSPECTION OF ASSEMBLIES AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
- K. PROVIDE FIRESTOPPING OF PENETRATIONS AND VOIDS THROUGH FIRE-RATED WALL, FLOOR AND PARTITION ASSEMBLIES (AND ROOF) INCLUDING EMPTY OPENINGS AND OPENINGS CONTAINING CABLES, PIPES, DUCTS, CONDUIT AND OTHER ELEMENTS.
  - AT OPENINGS AND CUTOUPS, FILL OPEN SPACES BETWEEN GYPSUM BOARD AND FIXTURES, CABINETS, DUCTS AND OTHER FLUSH OR PENETRATING ITEMS, WITH CONTINUOUS BEAD OF SEALANT.
  - SEAL SIDES AND BACKS OF ELECTRICAL BOXES TO COMPLETELY CLOSE OFF OPENINGS AND JOINTS.
- L. AT SOUND-RATED PARTITION WALLS, PROVIDE CONTINUOUS BEAD OF ACOUSTICAL SEALANT AT JUNCTURE OF BOTH FACES OF RUNNERS OR PLATES WITH FLOOR AND CEILING CONSTRUCTION, AND WHEREVER GYPSUM BOARD ABUTS DISSIMILAR MATERIALS.

**CONSTRUCTION PLAN LEGEND**

SEE A410 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

(E) CONSTRUCTION TO REMAIN	
NEW CONSTRUCTION	
TEMPORARY CONSTRUCTION	

ASSEMBLY RATING	
0 ZERO HOUR	
1 ONE HOUR RATED	
2 TWO HOUR RATED	

TYPE OF ASSEMBLY	
W FIRE WALL	S SMOKE BARRIER
B FIRE BARRIER	SP SMOKE PARTITIONS
E EXISTING	

- DOOR TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION
- INTERIOR PARTITION TAG  
SEE PARTITION SHEET FOR ADDITIONAL INFORMATION
- WINDOW TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

**KEYNOTES**

#	DESCRIPTION

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETER ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI** Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 DESIGN PLANNING  
 CIVIL ENGINEERING

**WALSH**  
 CONSULTING GROUP

**bell**  
 engineering

**CDM Smith**

**PIVOTAL**  
 lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	BP-03 FOR REVIEW	11/29/23
2	C&S 100 DD REVIEW	01/10/24
3	C&S 80% CD	03/05/24
4	C&S 100% CD REVIEW	04/09/24
5	BP-07 BID & PERMIT	04/30/24
6	BP-07 ADDENDUM #1	05/28/24

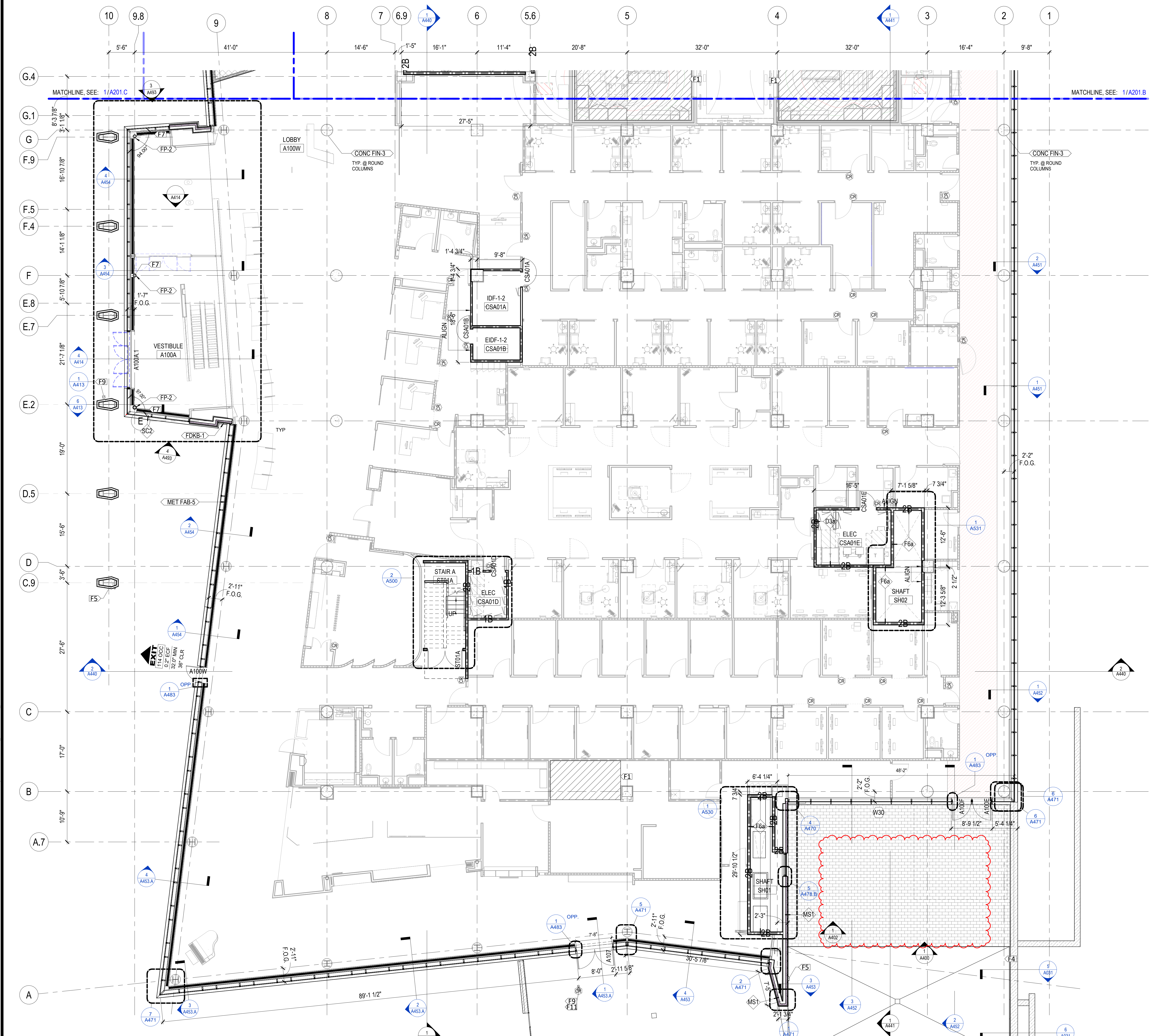
Drawn By  
 Author  
 Checked By  
 Checker  
 Client Number 514  
 Project Number 6926

DRAWING TITLE  
**OVERALL SHELL & CORE FLOOR PLAN - LEVEL 01**

SHEET NO.  
**A201**

Author: 5/30/2024 11:07:47 AM Autodesk Docs://6146209 - UKHC Cancer Treatment & Advanced Ambulatory Center/453-UKHC\_SHELL CORE 5146209.rvt

5/30/2024 11:07:47 AM



**CONSTRUCTION PLAN LEGEND**  
SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

(E) CONSTRUCTION TO REMAIN	
NEW CONSTRUCTION	
TEMPORARY CONSTRUCTION	

ASSEMBLY RATING	
0 ZERO HOUR	
1 ONE HOUR RATED	
2 TWO HOUR RATED	

TYPE OF ASSEMBLY	
W FIRE WALL	S SMOKE BARRIER
B FIRE BARRIER	SP SMOKE PARTITIONS
E EXISTING	

- DOOR TAG SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION
- INTERIOR PARTITION TAG SEE PARTITION SHEET FOR ADDITIONAL INFORMATION
- WINDOW TAG SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

**KEYNOTES - FLOOR PLANS**

#	DESCRIPTION
F1	DEPRESSED FLOOR SLAB AT THIS LOCATION - REFER TO STRUCTURAL DRAWINGS AND ENLARGED FLOOR PLAN (WHERE APPLICABLE) FOR ADDITIONAL INFORMATION AND EXTENTS.
F2	TRANSITION IN FLOOR CONSTRUCTION - REFER TO STRUCTURAL FRAMING PLANS AND DETAILS FOR MORE INFORMATION
F4	PAVERS ON PEDESTALS. REFER TO L-DRAWINGS
F5	ROOF DRAINAGE SECONDARY OVERFLOW DISCHARGE. REFER PLUMBING FOR DETAILS.
F7	INTERIOR EXPOSED COLUMNS TO RECEIVE AESS LEVEL 4 FINISH PER AISC WITH (HPC-9)
F8	WALL-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE
F9	CARD READER
F10	MULLION-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE
F11	POST-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE

**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
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THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
DESIGN • PLANNING • CIVIL ENGINEERING

**WALSH** CONSULTING GROUP

**bell** engineering

**CDM Smith**

**PIVOTAL** lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

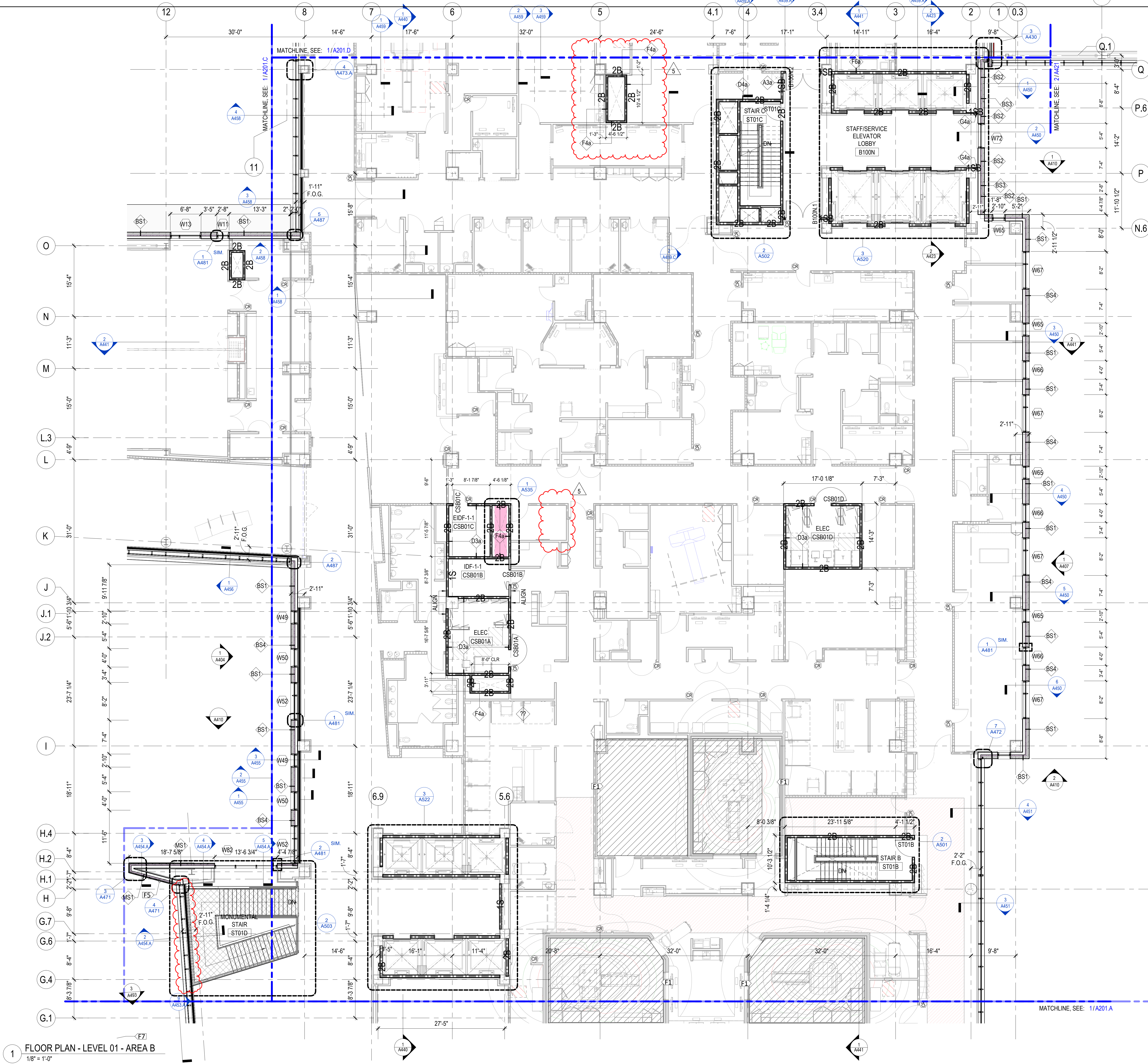
Drawn By: Author  
Checked By: Checker  
Client Number: 514  
Project Number: 6926

DRAWING TITLE  
**SHELL & CORE FLOOR PLAN - LEVEL 01 - AREA A**  
SHEET NO. **A201.A**

Author: 5/30/2024 11:08:03 AM Autodesk Docs://1449208 - UKHC Cancer Treatment & Advanced Ambulatory Center/A201.A/KC\_SHELL CORE 5/4/2025.m

5/30/2024 11:08:03 AM

5/30/2024 11:14:19 AM Autodesk Docs://14-6926 - UKHC Cancer Treatment & Advance Ambulatory Center/AS3-UKC\_SHELLCORE\_51492629.dwg



**CONSTRUCTION PLAN LEGEND**

SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

(E) CONSTRUCTION TO REMAIN	---
NEW CONSTRUCTION	---
TEMPORARY CONSTRUCTION	---

ASSEMBLY RATING	
0 ZERO HOUR	---
1 ONE HOUR RATED	---
2 TWO HOUR RATED	---

TYPE OF ASSEMBLY	
W FIRE WALL	S SMOKE BARRIER
B FIRE BARRIER	SP SMOKE PARTITIONS
E EXISTING	

DOOR TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

INTERIOR PARTITION TAG  
SEE PARTITION SHEET FOR ADDITIONAL INFORMATION

WINDOW TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

**KEYNOTES - FLOOR PLANS**

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**PIVOTAL** lighting design

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**ISSUANCES**

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

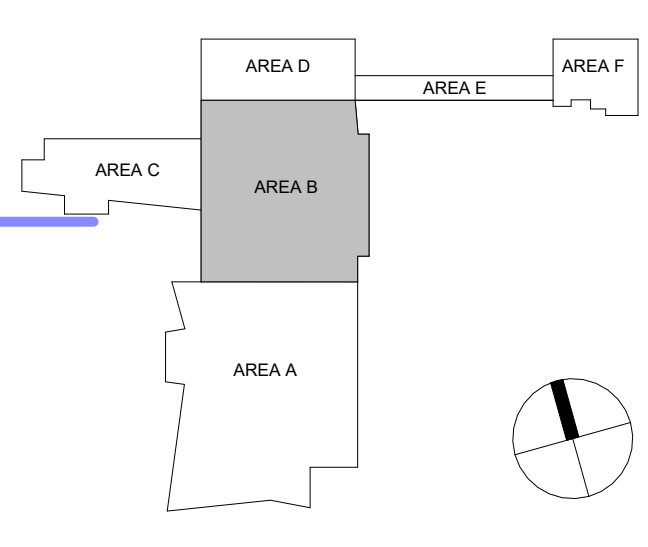
Drawn By  
Author  
Checked By  
Checker  
Client Number 514  
Project Number 6926

DRAWING TITLE

**SHELL & CORE FLOOR PLAN - LEVEL 01 - AREA B**

SHEET NO. **A201.B**

**1 FLOOR PLAN - LEVEL 01 - AREA B**  
1/8" = 1'-0"



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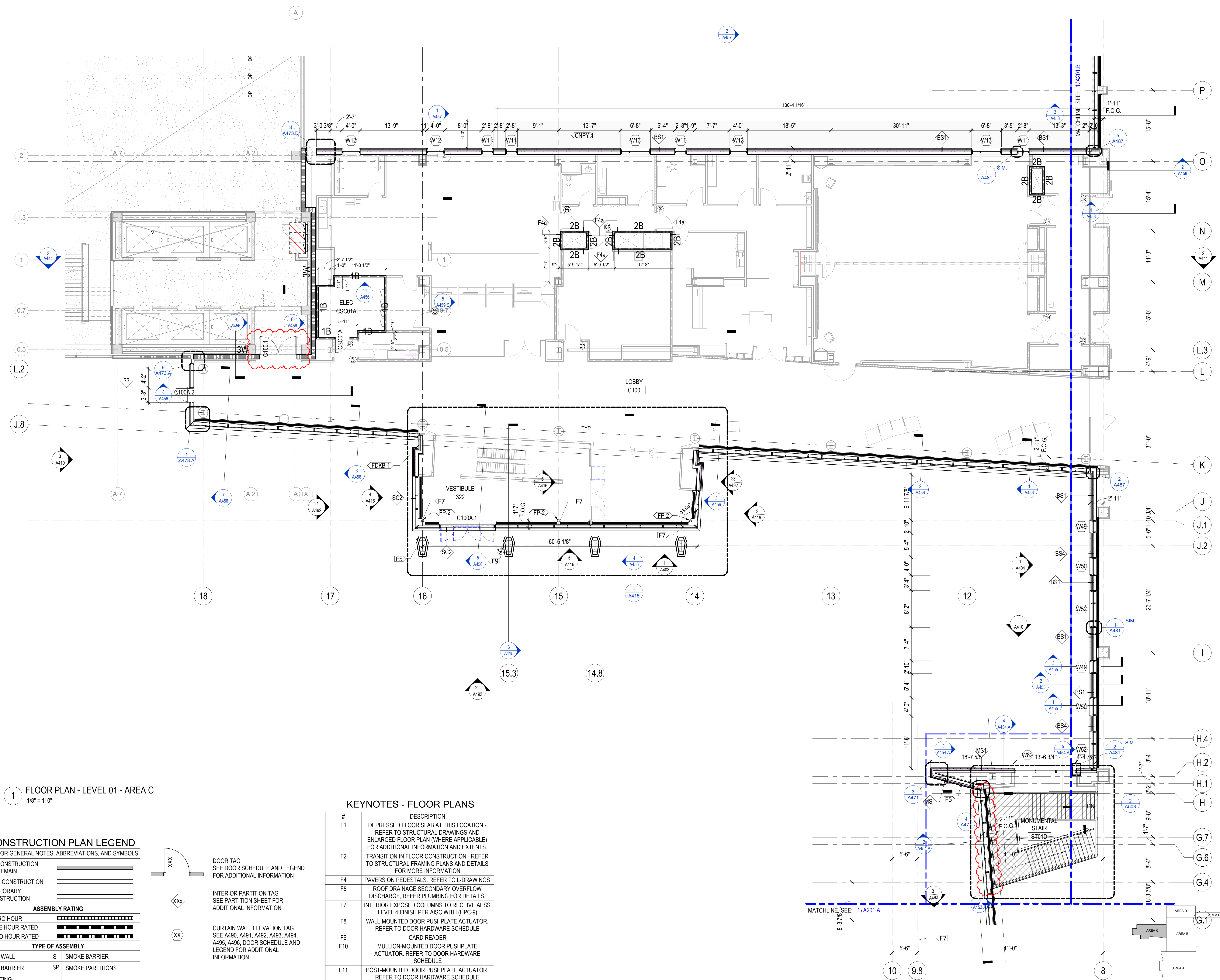
**ISSUANCES**

No.	Description	Date
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2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
Author  
Checked By  
Checker  
Client Number  
514  
Project Number  
6926

DRAWING TITLE  
**SHELL & CORE FLOOR PLAN - LEVEL 01 - AREA C**

SHEET NO.  
**A201.C**



**1 FLOOR PLAN - LEVEL 01 - AREA C**  
1/8" = 1'-0"

**CONSTRUCTION PLAN LEGEND**  
SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

CONSTRUCTION TO REMAIN	NEW CONSTRUCTION	TEMPORARY CONSTRUCTION
---	---	---
---	---	---
---	---	---

ASSEMBLY RATING	
0	ZERO HOUR
1	ONE HOUR RATED
2	TWO HOUR RATED

TYPE OF ASSEMBLY	
W	FIRE WALL
B	FIRE BARRIER
E	EXISTING
S	SMOKE BARRIER
SP	SMOKE PARTITIONS

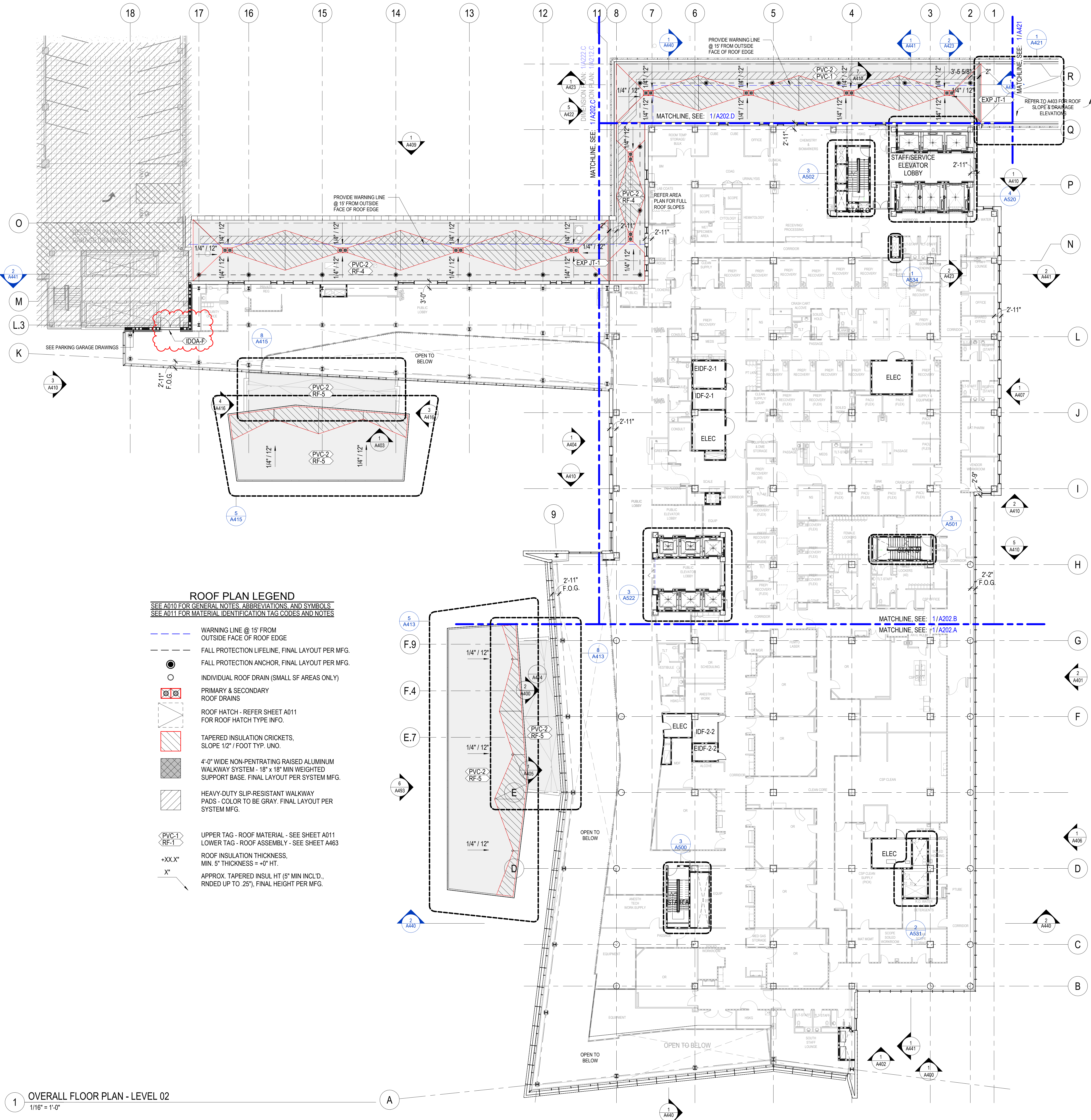
XXX DOOR TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

XXX INTERIOR PARTITION TAG  
SEE PARTITION SHEET FOR ADDITIONAL INFORMATION

XX CURTAIN WALL ELEVATION TAG  
SEE A490, A491, A492, A493, A494, A495, A496, DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

**KEYNOTES - FLOOR PLANS**

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F1	DEPRESSED FLOOR SLAB AT THIS LOCATION - REFER TO STRUCTURAL DRAWINGS AND ENLARGED FLOOR PLAN (WHERE APPLICABLE) FOR ADDITIONAL INFORMATION AND EXTENTS.
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F7	INTERIOR EXPOSED COLUMNS TO RECEIVE AESS LEVEL 4 FINISH PER AISC WITH (HPC-9)
F8	WALL-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE
F9	CARD READER
F10	MULLION-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE
F11	POST-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE



**ROOF PLAN LEGEND**  
 SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS.  
 SEE A011 FOR MATERIAL IDENTIFICATION TAG CODES AND NOTES

- WARNING LINE @ 15' FROM OUTSIDE FACE OF ROOF EDGE
- FALL PROTECTION LIFELINE, FINAL LAYOUT PER MFG.
- FALL PROTECTION ANCHOR, FINAL LAYOUT PER MFG.
- INDIVIDUAL ROOF DRAIN (SMALL SF AREAS ONLY)
- PRIMARY & SECONDARY ROOF DRAINS
- ROOF HATCH - REFER SHEET A011 FOR ROOF HATCH TYPE INFO.
- TAPERED INSULATION CRICKETS, SLOPE 1/2' / FOOT TYP. UNO.
- 4'-0" WIDE NON-PENETRATING RAISED ALUMINUM WALKWAY SYSTEM - 18" x 18" MIN WEIGHTED SUPPORT BASE. FINAL LAYOUT PER SYSTEM MFG.
- HEAVY-DUTY SLIP-RESISTANT WALKWAY PADS - COLOR TO BE GRAY. FINAL LAYOUT PER SYSTEM MFG.
- UPPER TAG - ROOF MATERIAL - SEE SHEET A011
- LOWER TAG - ROOF ASSEMBLY - SEE SHEET A463
- ROOF INSULATION THICKNESS, MIN. 5" THICKNESS = "0" HT.
- APPROX. TAPERED INSUL HT (5" MIN INCLD., RND ED UP TO 25'), FINAL HEIGHT PER MFG.

- GENERAL NOTES - FLOOR PLANS**
- A. ALL INTERIOR PARTITIONS SHALL BE "A3a" UNLESS NOTED OTHERWISE.
  - B. PARTITIONS, FURNITURE, EQUIPMENT, AND FIXTURES SHOWN SCREENED ARE TO BE ISSUED UNDER FUTURE INTERIOR FIT-OUT DOCUMENTATION PACKAGE(S) AND ARE SHOWN HERE FOR REFERENCE AND COORDINATION PURPOSES ONLY.
  - C. PLAN DIMENSIONS ARE FROM FACE OF PARTITION TYPE AND DO NOT INCLUDE APPLIED FINISHES, UNLESS NOTED OTHERWISE. PLAN DIMENSIONS INDICATED AS "HOLD" OR "CLEAR" DIMENSIONS ARE FROM FACE OF APPLIED FINISH.
  - D. INSTALL WORK STRAIGHT, PLUMB, LEVEL, SQUARE, AND TRUE, IN PROPER ALIGNMENT.
  - E. FLATNESS: LEVEL FLOORS TO TRUE PLANE WITHIN 1/4 INCH (6 MM) IN 10' - 0" (3 M) WHEN TESTED BY TEN FOOT (3 M) STRAIGHTEDGE PLACED ANYWHERE ON FLOOR IN ANY DIRECTION.
  - F. COORDINATE FURNITURE-RELATED ELECTRICAL LAYOUT WITH FURNITURE VENDOR.
  - G. WHERE HANDRAILS, GRAB BARS, CABINETS, WALL-MOUNTED DOOR STOPS, OR OTHER WALL-HUNG ITEMS ARE ATTACHED TO PARTITIONS, INSTALL BACKER PLATES (OR WOOD BLOCKING) ACCURATELY POSITIONED AND FIRMLY SECURED TO METAL STUDS, WHETHER OR NOT SUCH BACKER PLATES OR BLOCKING ARE INDICATED ON DRAWINGS.
  - H. WHERE NEW WORK ABUTS, ALIGNS OR ADJOINS EXISTING MATERIALS, MAKE SMOOTH AND EVEN TRANSITION AND ELIMINATE EVIDENCE OF PATCHING AND REFINISHING. FINISH NEW WORK TO MATCH ADJACENT UNDISTURBED SURFACES, UNLESS NOTED OTHERWISE.
  - I. CLOSE AND PATCH HOLES AND OPENINGS IN EXISTING FLOOR, WALL AND CEILING WHICH EXIST OR RESULT FROM DEMOLITION OR ALTERATION WORK TO MATCH ADJACENT UNDISTURBED SURFACES.
  - J. PRIOR TO CONCRETEMENT OF FIRE RESISTIVE MATERIALS BY OTHER WORK, PATCH AND REPAIR AREAS OF REMOVED OR DAMAGED APPLIED FIREPROOFING. COMPLETE PATCHING AND REPAIR TO MAINTAIN EXISTING FIRE-RESISTANCE DESIGN IN ACCORDANCE WITH FIREPROOFING MANUFACTURER'S WRITTEN INSTRUCTIONS FOR CONDITIONS OF EXPOSURE AND INTENDED USE. COORDINATE TESTING AND INSPECTION OF ASSEMBLIES AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
  - K. PROVIDE FIRESTOPPING OF PENETRATIONS AND VOIDS THROUGH FIRE-RATED WALL, FLOOR AND PARTITION ASSEMBLIES (AND ROOF) INCLUDING EMPTY OPENINGS AND OPENINGS CONTAINING CABLES, PIPES, DUCTS, CONDUIT AND OTHER ELEMENTS.
    - AT OPENINGS AND CUTOUTS, FILL OPEN SPACES BETWEEN GYPSUM BOARD ABUTS AND FIXTURES, CABINETS, DUCTS AND OTHER FLUSH OR PENETRATING ITEMS, WITH CONTINUOUS BEAD OF SEALANT.
    - SEAL SIDES AND BACKS OF ELECTRICAL BOXES TO COMPLETELY CLOSE OFF OPENINGS AND JOINTS.
  - L. AT SOUND-RATED PARTITION WALLS, PROVIDE CONTINUOUS BEAD OF ACOUSTICAL SEALANT AT JUNCTURE OF BOTH FACES OF RUNNERS OR PLATES WITH FLOOR AND CEILING CONSTRUCTION, AND WHEREVER GYPSUM BOARD ABUTS DISSIMILAR MATERIALS.

**CONSTRUCTION PLAN LEGEND**  
 SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

(E) CONSTRUCTION TO REMAIN	
NEW CONSTRUCTION	
TEMPORARY CONSTRUCTION	

**ASSEMBLY RATING**

0 ZERO HOUR	
1 ONE HOUR RATED	
2 TWO HOUR RATED	

**TYPE OF ASSEMBLY**

W FIRE WALL	S SMOKE BARRIER
B FIRE BARRIER	SP SMOKE PARTITIONS
E EXISTING	

XXX	DOOR TAG SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION
XXX	INTERIOR PARTITION TAG SEE PARTITION SHEET FOR ADDITIONAL INFORMATION
XX	WINDOW TAG SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
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 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

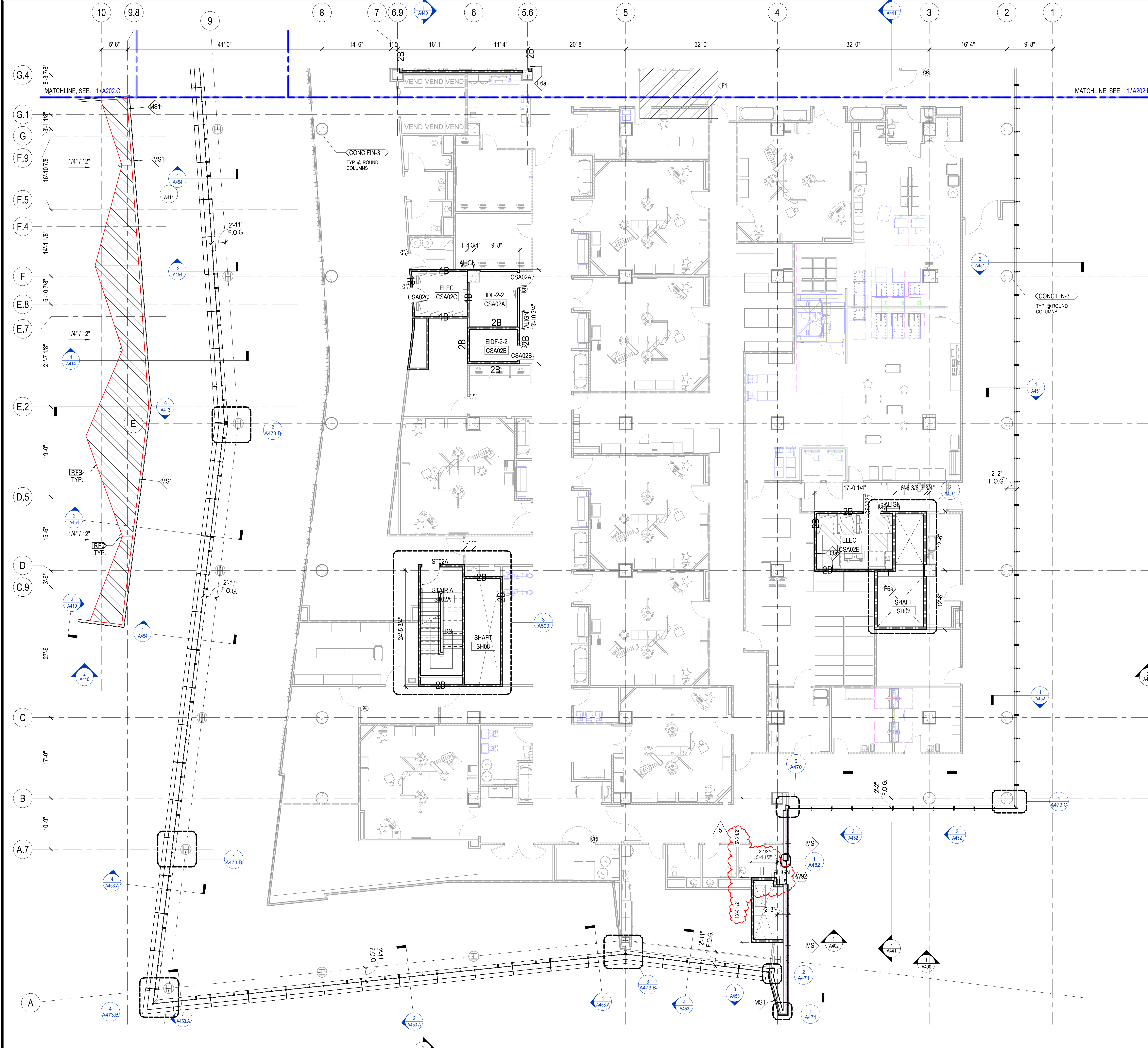
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2	C&S 100 DD REVIEW	01/10/24
3	C&S 80% CD	03/05/24
4	C&S 100% CD REVIEW	04/09/24
5	BP-07 BID & PERMIT	04/30/24
6	BP-07 ADDENDUM #1	05/28/24

Drawn By  
 Author  
 Checked By  
 Checker  
 Client Number 514  
 Project Number 6926  
 DRAWING TITLE  
**OVERALL SHELL & CORE FLOOR PLAN - LEVEL 02**  
 SHEET NO.  
**A202**

Author: 5/30/2024 11:14:00 AM Autodesk Docs: //14-6926 - UKHC Cancer Treatment & Advanced Ambulatory Center/453-UKC\_SHELL CORE - 514926.rvt

5/30/2024 11:14:00 AM





1 FLOOR PLAN - LEVEL 02 - AREA A  
1/8" = 1'-0"

### CONSTRUCTION PLAN LEGEND

SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

(E) CONSTRUCTION TO REMAIN	
NEW CONSTRUCTION	
TEMPORARY CONSTRUCTION	

ASSEMBLY RATING	
0 ZERO HOUR	
1 ONE HOUR RATED	
2 TWO HOUR RATED	

TYPE OF ASSEMBLY	
W FIRE WALL	S SMOKE BARRIER
B FIRE BARRIER	SP SMOKE PARTITIONS
E EXISTING	

DOOR TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

INTERIOR PARTITION TAG  
SEE PARTITION SHEET FOR ADDITIONAL INFORMATION

WINDOW TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

### KEYNOTES - FLOOR PLANS

#	DESCRIPTION
F1	DEPRESSED FLOOR SLAB AT THIS LOCATION - REFER TO STRUCTURAL DRAWINGS AND ENLARGED FLOOR PLAN (WHERE APPLICABLE) FOR ADDITIONAL INFORMATION AND EXTENTS.
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F8	WALL-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE
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F11	POST-MOUNTED DOOR PUSHPLATE ACTUATOR. REFER TO DOOR HARDWARE SCHEDULE

### ROOF PLAN LEGEND

SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS. SEE A011 FOR MATERIAL IDENTIFICATION TAG CODES AND NOTES

- WARNING LINE @ 15' FROM OUTSIDE FACE OF ROOF EDGE
- FALL PROTECTION LIFELINE. FINAL LAYOUT PER MFG.
- FALL PROTECTION ANCHOR. FINAL LAYOUT PER MFG.
- INDIVIDUAL ROOF DRAIN (SMALL SF AREAS ONLY)
- PRIMARY & SECONDARY ROOF DRAINS
- ROOF HATCH - REFER SHEET A011 FOR ROOF HATCH TYPE INFO.
- TAPERED INSULATION CRICKETS, SLOPE 1/2" / FOOT TYP. UNO.
- 4'-0" WIDE NON-PENETRATING RAISED ALUMINUM WALKWAY SYSTEM - 18" x 18" MIN WEIGHTED SUPPORT BASE. FINAL LAYOUT PER SYSTEM MFG.
- HEAVY-DUTY SLIP-RESISTANT WALKWAY PADS - COLOR TO BE GRAY. FINAL LAYOUT PER SYSTEM MFG.

UPPER TAG - ROOF MATERIAL - SEE SHEET A011

LOWER TAG - ROOF ASSEMBLY - SEE SHEET A463

ROOF INSULATION THICKNESS, MIN. 5" THICKNESS = 4" HT.

APPROX. TAPERED INSUL HT (5" MIN INCL'D, RND'D UP TO .25"), FINAL HEIGHT PER MFG.

### KEYNOTES - ROOF PLANS

VG	DESCRIPTION
RF1	PRIMARY AND SECONDARY ROOF DRAINS
RF2	ROOF DRAIN. REFER TO DETAIL
RF3	TAPERED INSULATION CRICKETS (HATCHED AREAS) 1/2" FOOT
RF4	PREFABRICATED ALUMINUM WALKWAY SYSTEM
RF5	PROVIDE WARNING LINE AT 15 FEET FROM OUTSIDE FACE OF ROOF EDGE
RF6	MOBILE HOIST ACCESS EQUIPMENT HATCH
RF7	STAIR ACCESS HATCH
RF8	FLEXIBLE WALKWAY SYSTEM
RF9	TAPERED INSULATION ROOF SUMP AT DRAIN

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
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4	BP-07 BID & PERMIT	04/30/24
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Client Number	514
Project Number	6926

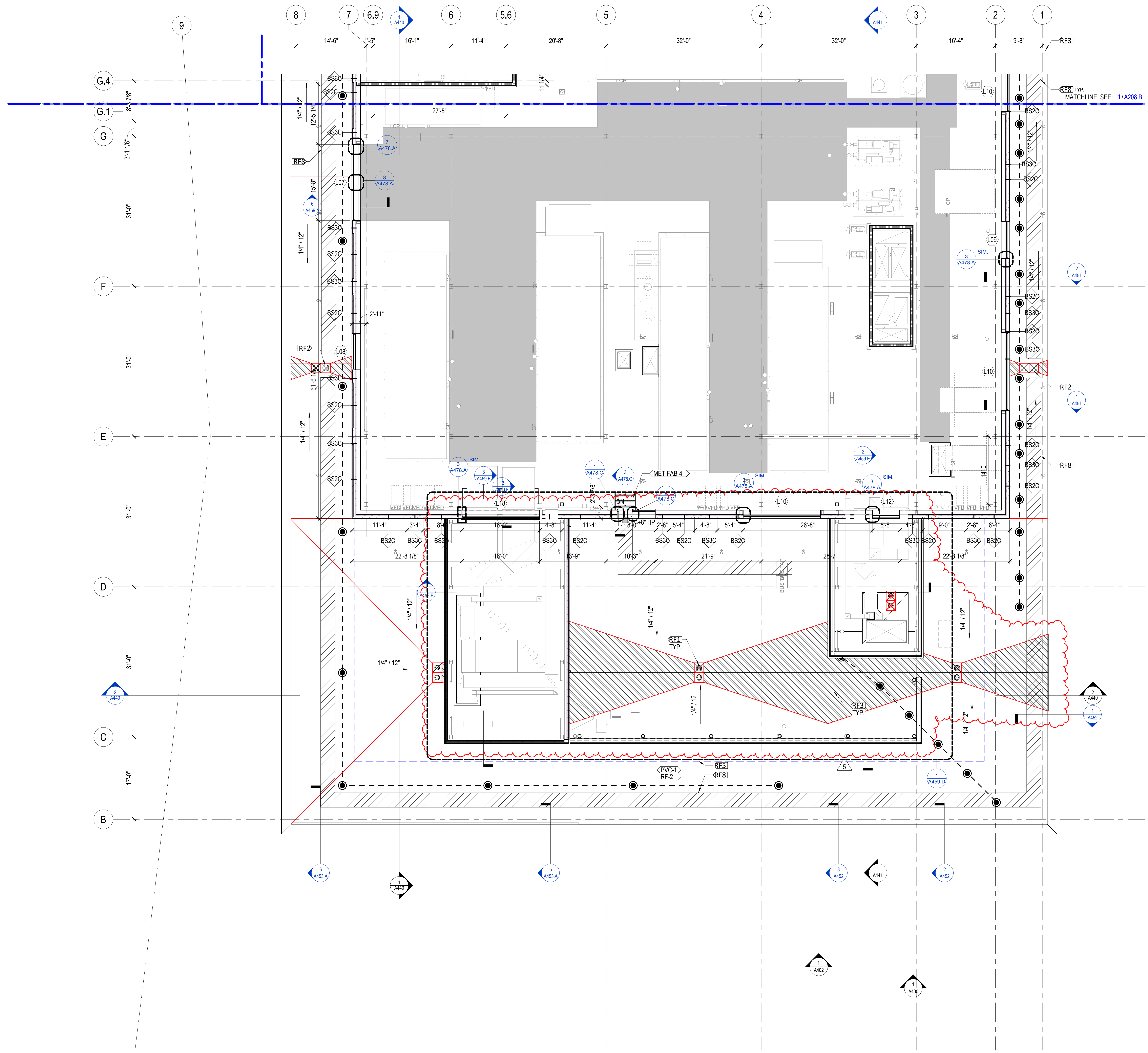
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**SHELL & CORE FLOOR PLAN - LEVEL 02 - AREA A**

SHEET NO.  
**A202.A**

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5/30/2024 11:06:54 AM

5/30/2024 11:11:31 AM Autodesk Docs://14-6928-UKHC Cancer Treatment & Advance Ambulatory Center/AS3-UKC-SHELL CORE-51492829.dwg



1 FLOOR PLAN - LEVEL 08 - AREA A  
1/8" = 1'-0"

### CONSTRUCTION PLAN LEGEND

SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

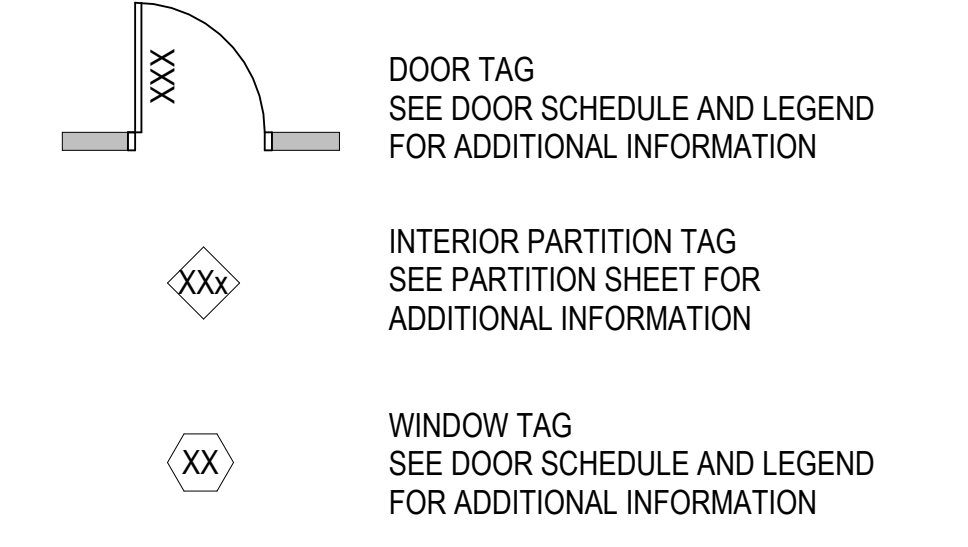
(E) CONSTRUCTION TO REMAIN	
NEW CONSTRUCTION	
TEMPORARY CONSTRUCTION	

ASSEMBLY RATING	
0 ZERO HOUR	
1 ONE HOUR RATED	
2 TWO HOUR RATED	

TYPE OF ASSEMBLY	
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B FIRE BARRIER	SP SMOKE PARTITIONS
E EXISTING	



### KEYNOTES - FLOOR PLANS

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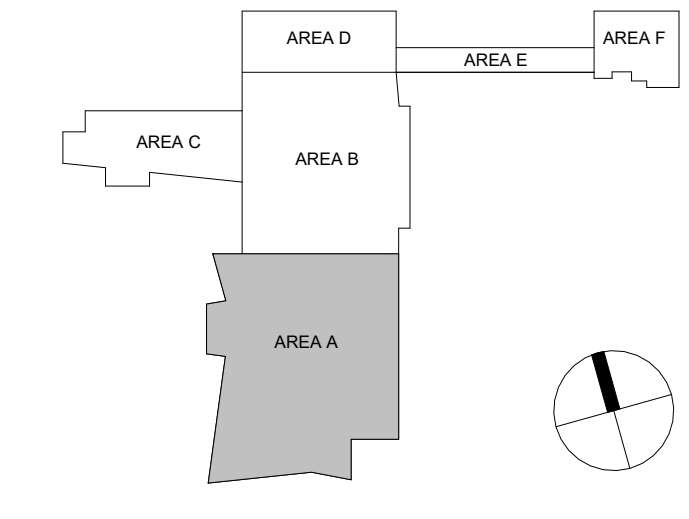
### ROOF PLAN LEGEND

SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS  
SEE A011 FOR MATERIAL IDENTIFICATION TAG CODES AND NOTES

	WARNING LINE @ 15' FROM OUTSIDE FACE OF ROOF EDGE
	FALL PROTECTION LIFELINE, FINAL LAYOUT PER MFG.
	FALL PROTECTION ANCHOR, FINAL LAYOUT PER MFG.
	INDIVIDUAL ROOF DRAIN (SMALL SF AREAS ONLY)
	PRIMARY & SECONDARY ROOF DRAINS
	ROOF HATCH - REFER SHEET A011 FOR ROOF HATCH TYPE INFO.
	TAPERED INSULATION CRICKETS, SLOPE 1/2" / FOOT TYP. UNO.
	4'-0" WIDE NON-PENETRATING RAISED ALUMINUM WALKWAY SYSTEM - 18" x 18" MIN WEIGHTED SUPPORT BASE. FINAL LAYOUT PER SYSTEM MFG.
	HEAVY-DUTY SLIP-RESISTANT WALKWAY PADS - COLOR TO BE GRAY. FINAL LAYOUT PER SYSTEM MFG.
	UPPER TAG - ROOF MATERIAL - SEE SHEET A011
	LOWER TAG - ROOF ASSEMBLY - SEE SHEET A463
	ROOF INSULATION THICKNESS, MIN. 6" THICKNESS = +0" HT.
	APPROX. TAPERED INSUL HT (6" MIN INCLD., RND'D UP TO .25"), FINAL HEIGHT PER MFG.

### KEYNOTES - ROOF PLANS

VG	DESCRIPTION
RF1	PRIMARY AND SECONDARY ROOF DRAINS
RF2	ROOF DRAIN. REFER TO DETAIL
RF3	TAPERED INSULATION CRICKETS (HATCHED AREAS) 1/2" FOOT
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RF5	PROVIDE WARNING LINE AT 15 FEET FROM OUTSIDE FACE OF ROOF EDGE
RF6	MOBILE HOIST ACCESS EQUIPMENT HATCH
RF7	STAIR ACCESS HATCH
RF8	FLEXIBLE WALKWAY SYSTEM
RF9	TAPERED INSULATION ROOF SUMP AT DRAIN



**CHAMPLIN ARCHITECTURE**  
720 EAST PETER ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP Affiliated Engineers**

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
DESIGN / PLANNING  
CIVIL ENGINEERING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

#### ISSUANCES

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By	
Author	
Checked By	
Checker	
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE FLOOR PLAN - LEVEL 08 - AREA A**

SHEET NO.  
**A208.A**

5/30/2024 11:11:31 AM

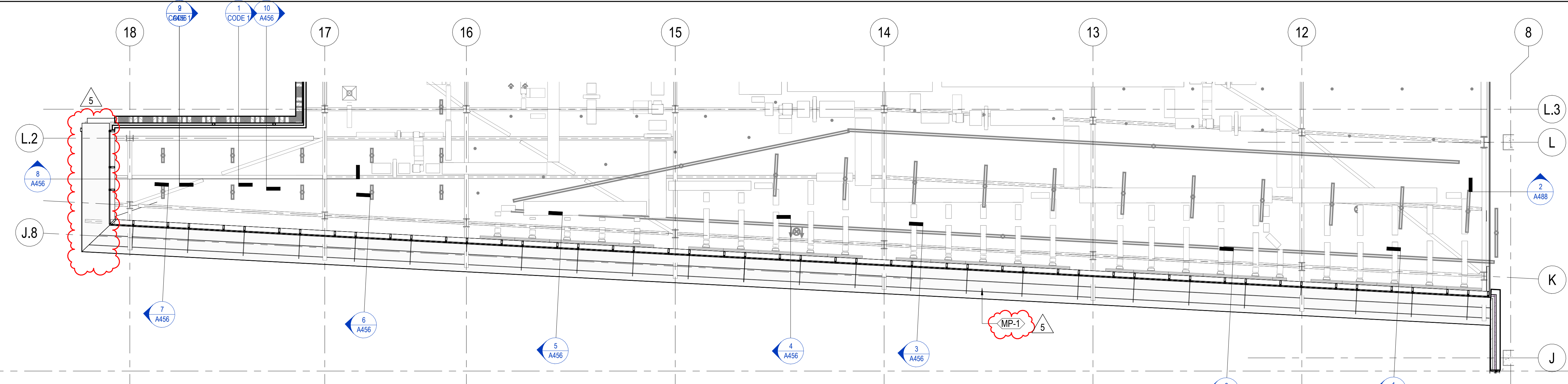
ISSUANCES

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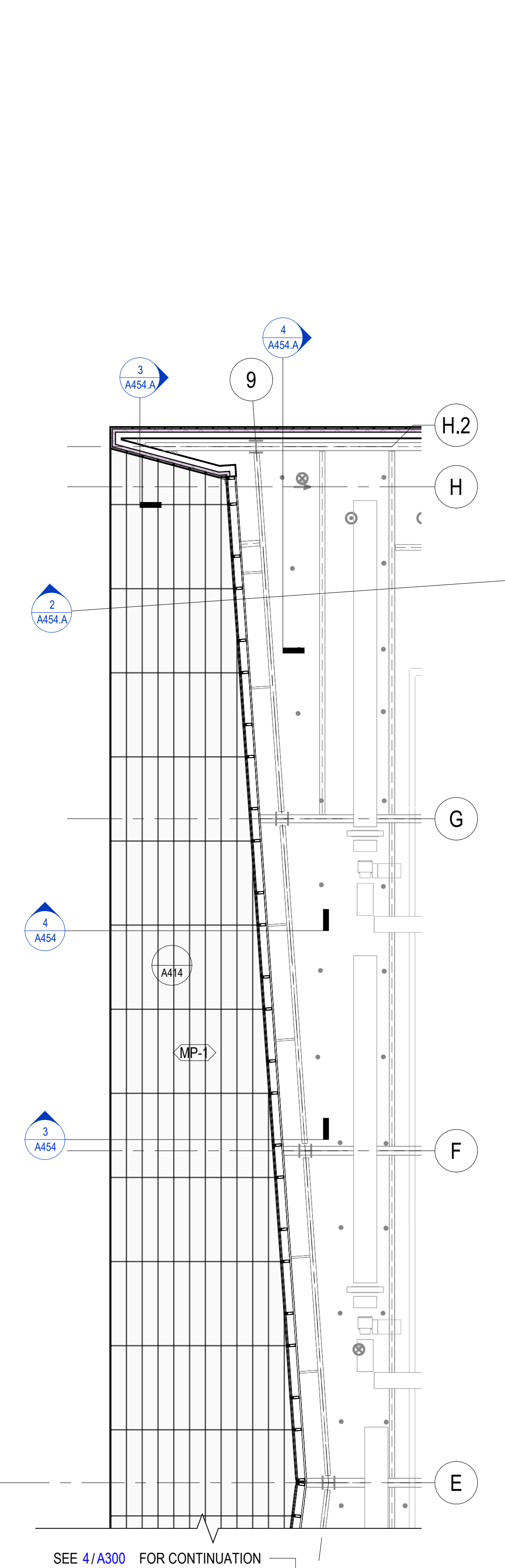
Drawn By \_\_\_\_\_  
Author \_\_\_\_\_  
Checked By \_\_\_\_\_  
Checker \_\_\_\_\_  
Client Number 514  
Project Number 6926

DRAWING TITLE  
**REFLECTED SOFFIT  
PLANS**

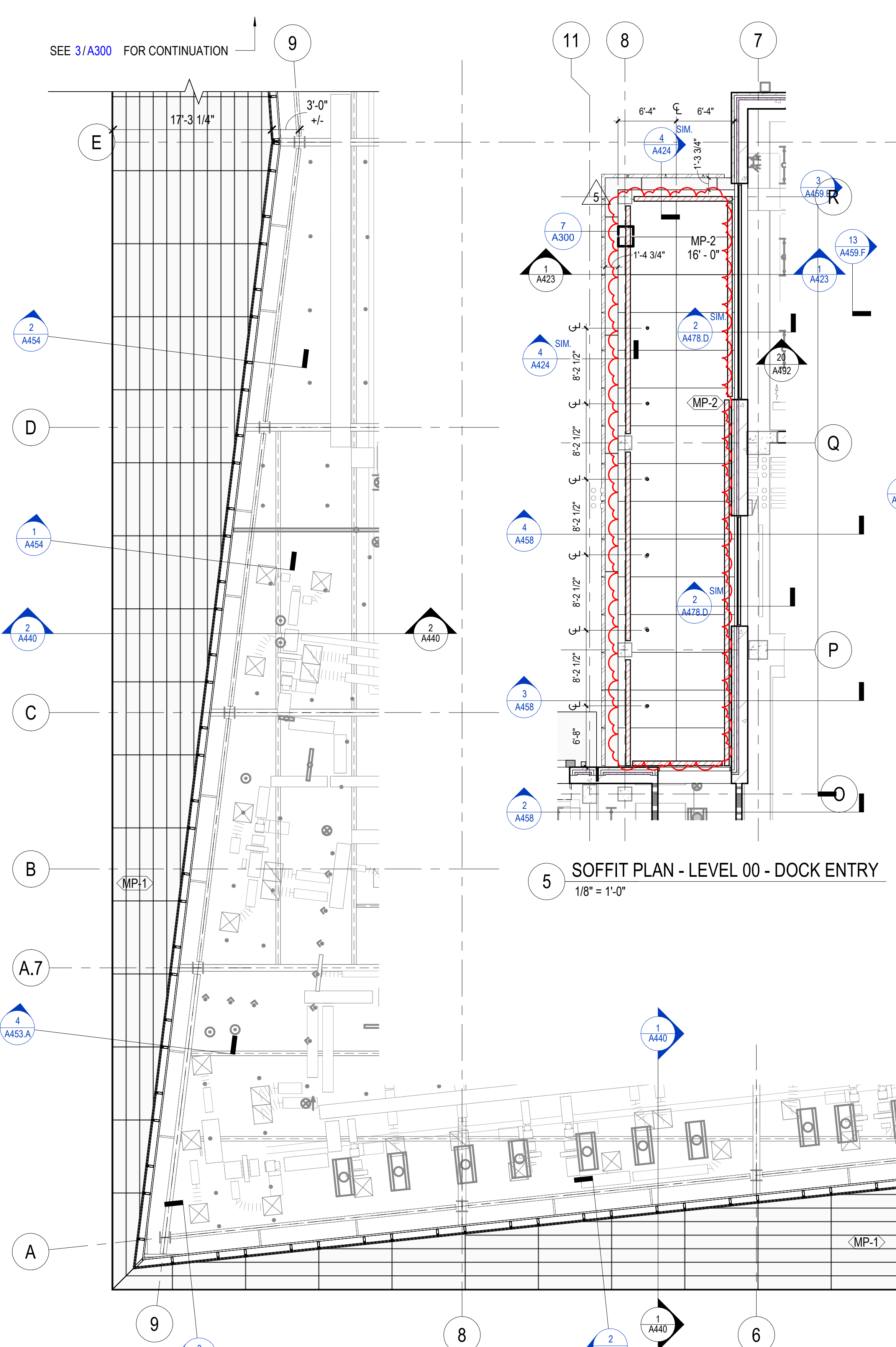
SHEET NO.  
**A300**



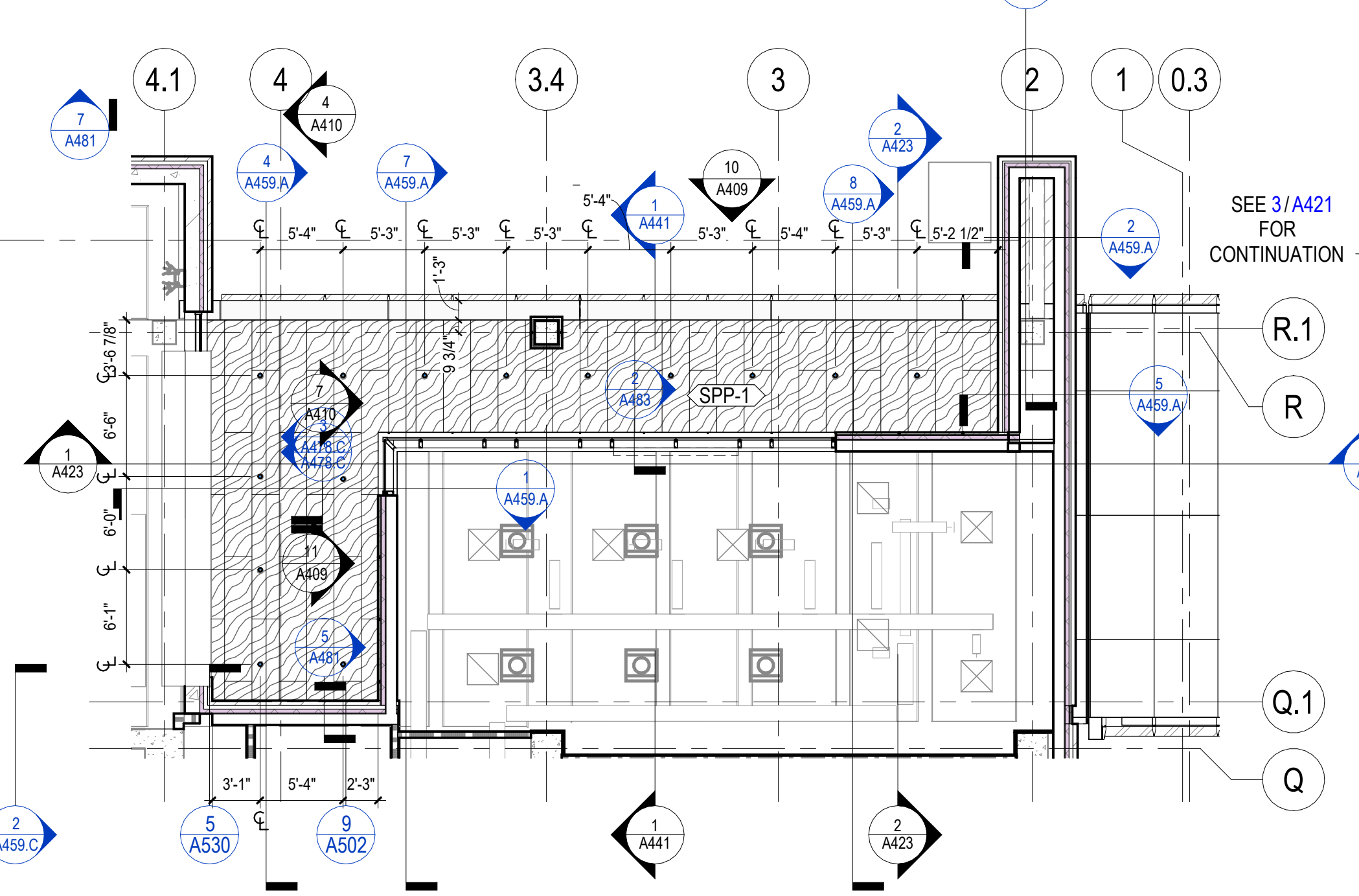
2 SOFFIT PLAN - LEVEL 02 - NORTHWEST  
1/8" = 1'-0"



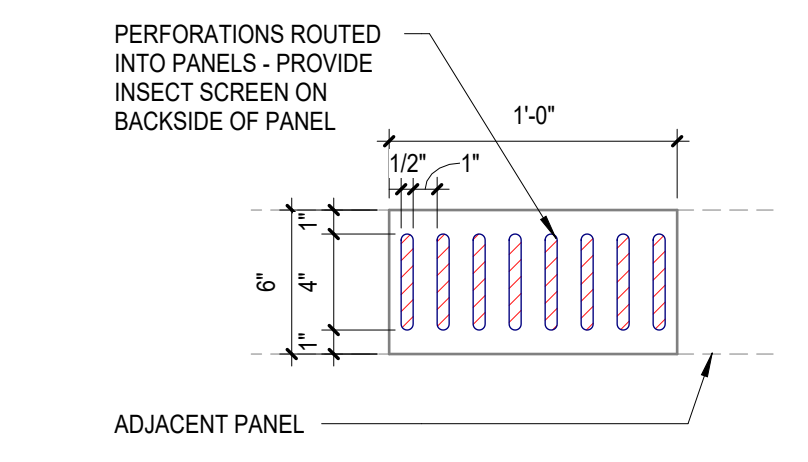
3 SOFFIT PLAN - LEVEL 04 - SOUTHWEST A  
1/8" = 1'-0"



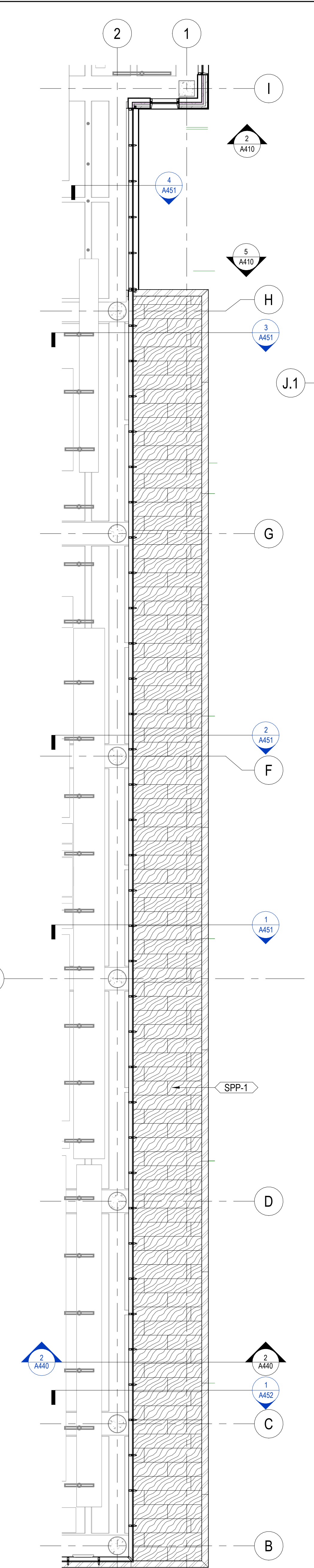
5 SOFFIT PLAN - LEVEL 00 - DOCK ENTRY  
1/8" = 1'-0"



6 SOFFIT PLAN - LEVEL 00 - STAFF ENTRY  
1/8" = 1'-0"



7 DETAIL - SOFFIT VENT PATTERN  
1 1/2" = 1'-0"



1 SOFFIT PLAN - LEVEL 02 - SOUTHEAST  
1/8" = 1'-0"

5/30/2024 11:10:26 AM Autodesk Docs://146926 - UKHC Cancer Treatment & Advanced Ambulatory Center/A300-SHELL CORE - 5146926.rvt

5/30/2024 11:10:26 AM

**ISSUANCES**

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5	BP-07 ADDENDUM #1	05/28/24

Drawn By	Author	
Checked By	Checker	
Client Number	514	
Project Number	6926	

DRAWING TITLE  
**ENLARGED EXTERIOR  
SOUTH ELEVATION**

SHEET NO.  
**A402**

**EXTERIOR FINISH LEGEND**

FBR-1A FACEBRICK, BEIGE	FBR-1B FACEBRICK, BEIGE, TEXTURED	FBR-2 FACEBRICK, RED
FBR-3 FACEBRICK, DARK RED, RIBBED	GL-21 VISION GLASS	GL-22 REFLECTIVE GLASS
GL-23 BROSAFE GLASS	GL-41 SPANDREL GLASS	GL-42 REFLECTIVE SPANDREL GLASS
MP-1 METAL PANEL, ZINC PLATED PANEL	MP-2 METAL PANEL, PAINTED FINISH	MP-3 METAL PANEL, PAINTED FINISH (DARK GRAY)
MP-4 CORRUGATED METAL PANEL, PAINTED FINISH	SPP-1 WOOD GRAIN COMPOSITE PANEL	LVR-1A LVR-1B LVR-3 PREFINISHED ALUMINUM LOUVER
STN-1 LIMESTONE VENEER	STN-2 GRANITE STONE VENEER	

**GENERAL NOTES - EXTERIOR ELEVATIONS**

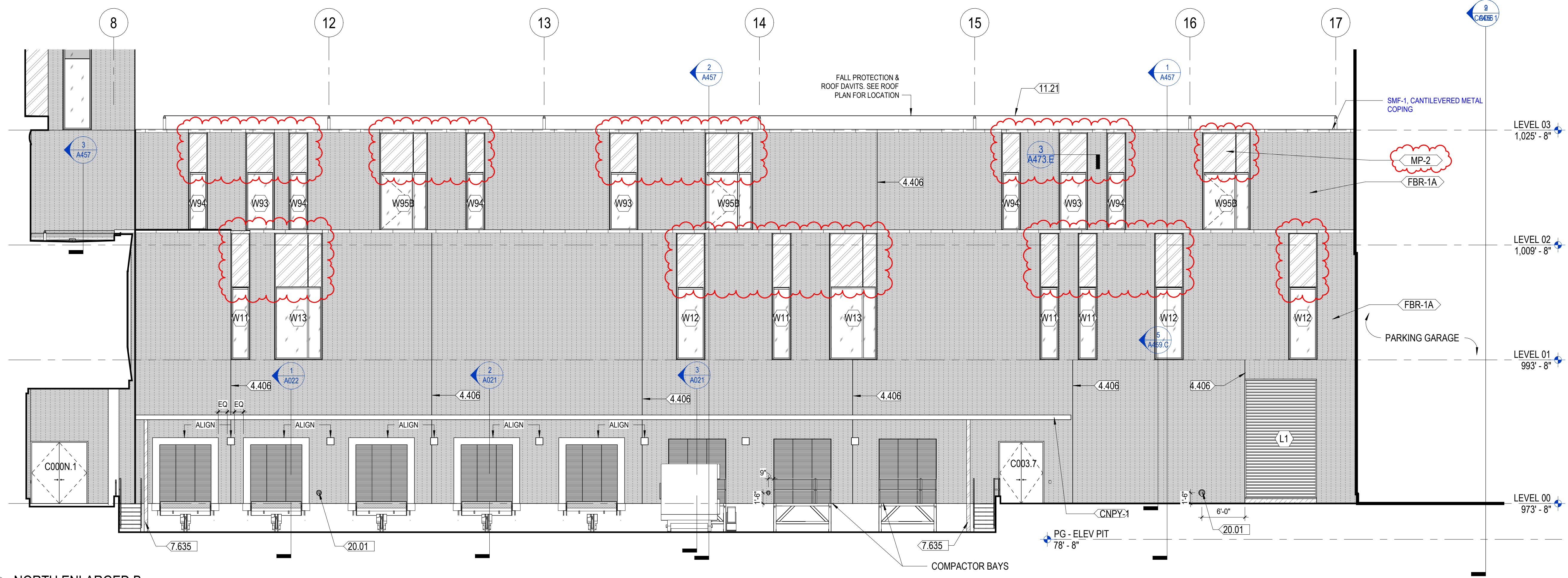
- REFER TO OVERALL FLOOR PLANS FOR ADDITIONAL INFORMATION REGARDING EXTERIOR WALL TYPES AND MATERIALS.
- SEA LEVEL ELEVATIONS OF EXISTING FLOORS ARE BASED ON SURVEY INFORMATION AND/OR AS-BUILT DRAWINGS PROVIDED BY THE OWNER. THE SURVEY DATA MAY NOT BE COMPLETE AND THE ACTUAL EXISTING ELEVATIONS MAY VARY IN DIFFERENT PORTIONS OF THE EXISTING BUILDING. ALL INFORMATION MUST BE FIELD VERIFIED AND COORDINATED BETWEEN NEW AND EXISTING CONSTRUCTION TO PROVIDE MATCHING FLOOR ELEVATIONS WHERE REQUIRED.
- GRADE LINE SHOWN ON ELEVATIONS DOES NOT REFLECT SITE GRADING CONDITIONS; REFER TO CIVIL DRAWINGS FOR GRADING INFORMATION.
- REFER TO SHEETS A490 - A496 FOR EXTERIOR WINDOW, CURTAIN WALL, LOUVER, AND SUNSHADE ELEVATIONS.

**KEYNOTES**

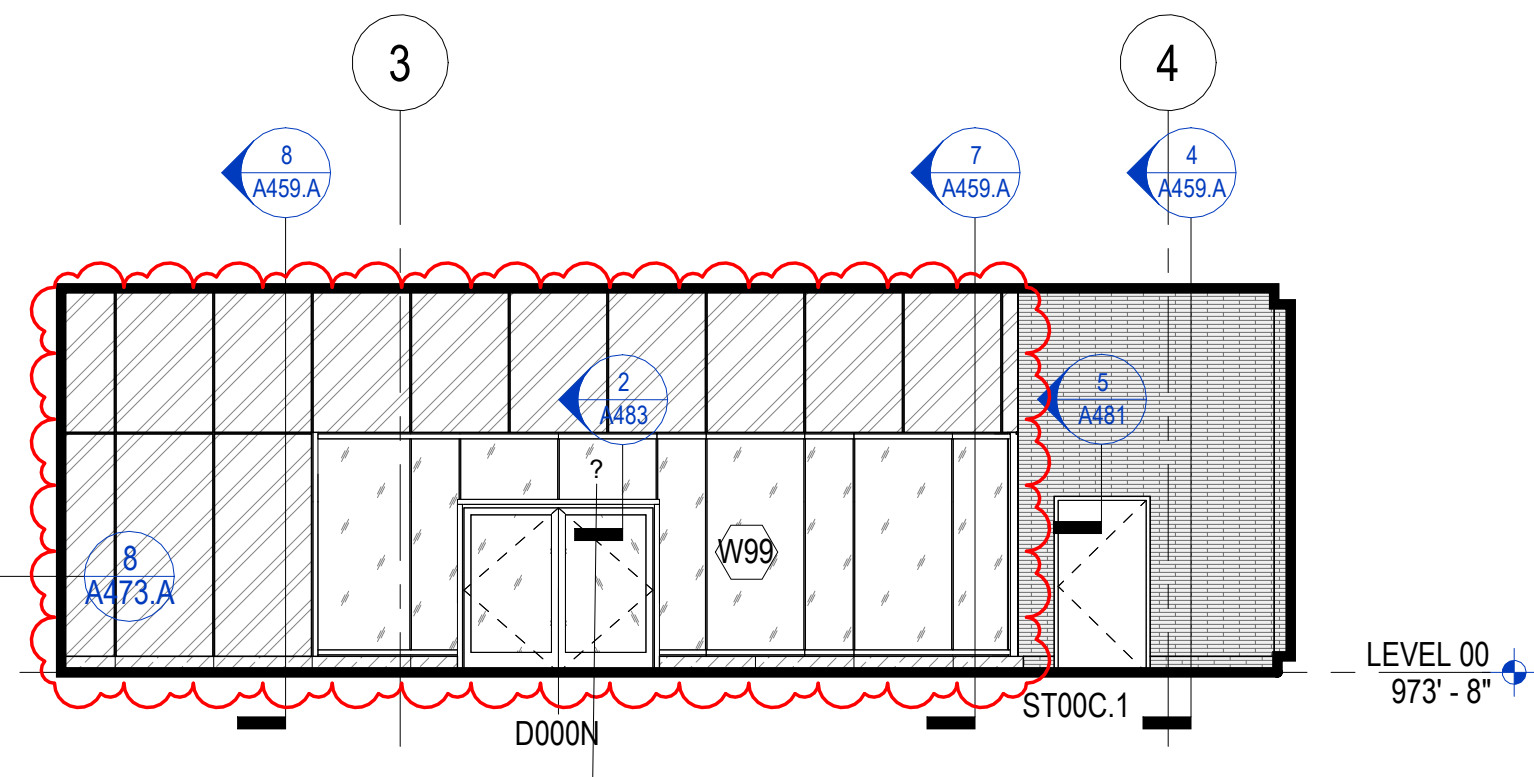
#	DESCRIPTION
4.406	BRICK EXPANSION JOINT WITH BACKER ROD AND SEALANT AND COMPRESSIBLE JOINT FILLER
8.500	SCD-1, EXTERIOR SUNSHADE SYSTEM



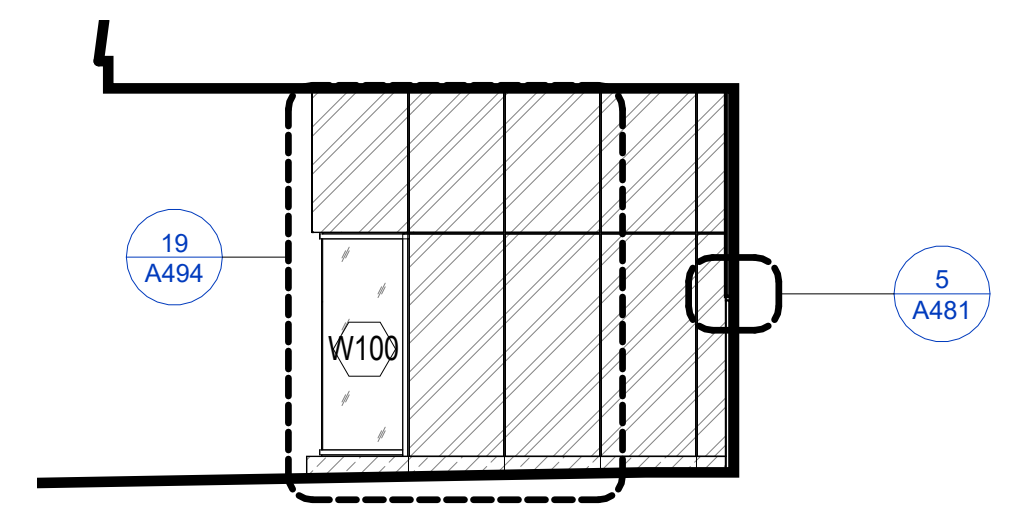
**1 SOUTH - ENLARGED**  
1/8" = 1'-0"  
1/2A201



1 NORTH ENLARGED B  
1/8" = 1'-0"  
4/A022



10 AMBULANCE VESTIBULE - NORTH  
1/8" = 1'-0"  
1/A200



11 W100  
1/8" = 1'-0"  
1/A200

EXTERIOR FINISH LEGEND		
FBR-1A FACEBRICK, BEIGE	FBR-1B FACEBRICK, BEIGE, TEXTURED	FBR-2 FACEBRICK, RED
FBR-3 FACEBRICK, DARK RED, MIX	GL-21 VISION GLASS	GL-22 REFLECTIVE GLASS
GL-23 BROSAFE GLASS	GL-41 SPANDREL GLASS	GL-42 REFLECTIVE SPANDREL GLASS
MP-1 METAL PANEL, ZINC PLATE FINISH	MP-2 METAL PANEL, PAINTED FINISH	MP-3 METAL PANEL, PAINTED FINISH (DARK GRAY)
MP-4 CORRUGATED METAL PANEL, PAINTED FINISH	SPP-1 WOOD GRAIN COMPOSITE PANEL	LVR-1A LVR-1B LVR-3 PREFINISHED ALUMINUM LOUVER
STN-1 LIMESTONE VENEER	STN-2 GRANITE STONE VENEER	

**GENERAL NOTES - EXTERIOR ELEVATIONS**

- A. REFER TO OVERALL FLOOR PLANS FOR ADDITIONAL INFORMATION REGARDING EXTERIOR WALL TYPES AND MATERIALS.
- B. SEA LEVEL ELEVATIONS OF EXISTING FLOORS ARE BASED ON SURVEY INFORMATION AND/OR AS-BUILT DRAWINGS PROVIDED BY THE OWNER. THE SURVEY DATA MAY NOT BE COMPLETE AND THE ACTUAL EXISTING ELEVATIONS MAY VARY IN DIFFERENT PORTIONS OF THE EXISTING BUILDING. ALL INFORMATION MUST BE FIELD VERIFIED AND COORDINATED BETWEEN NEW AND EXISTING CONSTRUCTION TO PROVIDE MATCHING FLOOR ELEVATIONS WHERE REQUIRED.
- C. GRADE LINE SHOWN ON ELEVATIONS DOES NOT REFLECT SITE GRADING CONDITIONS; REFER TO CIVIL DRAWINGS FOR GRADING INFORMATION.
- D. REFER TO SHEETS A490 - A496 FOR EXTERIOR WINDOW, CURTAIN WALL, LOUVER, AND SUNSHADE ELEVATIONS.

**KEYNOTES**

#	DESCRIPTION
4.406	BRICK EXPANSION JOINT WITH BACKER ROD AND SEALANT AND COMPRESSIBLE JOINT FILLER
7.601	SMF-1, CANTILEVERED METAL COPING
7.635	ALUMINUM DOWNSPOUT
11.21	ROOFTOP FALL PROTECTION PERMANENT HORIZONTAL LIFELINE
20.01	ROOF LEADER OVERFLOW NOZZLE. REFER TO P-DRAWINGS

**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
**AEI** Affiliated Engineers

**CMTA**

**OLIN**

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**WALSH**  
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**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
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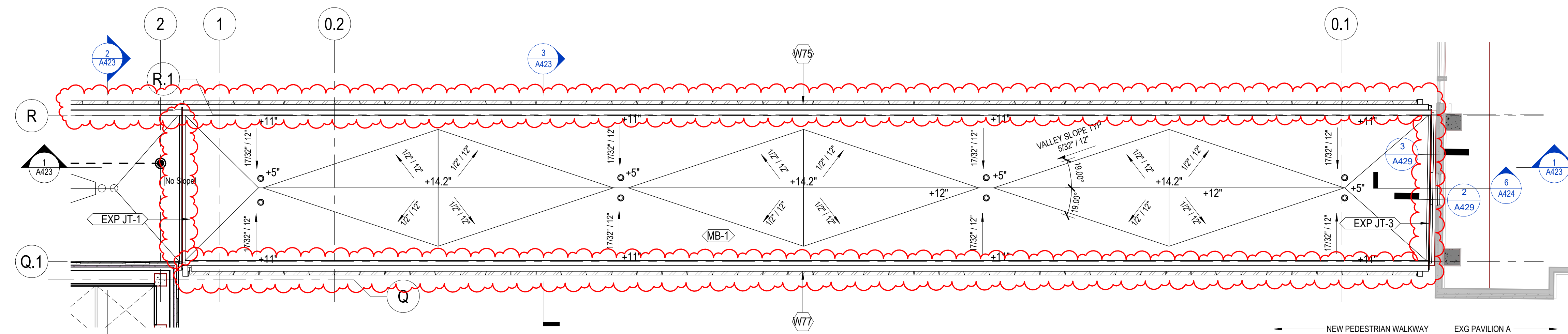
**ISSUANCES**

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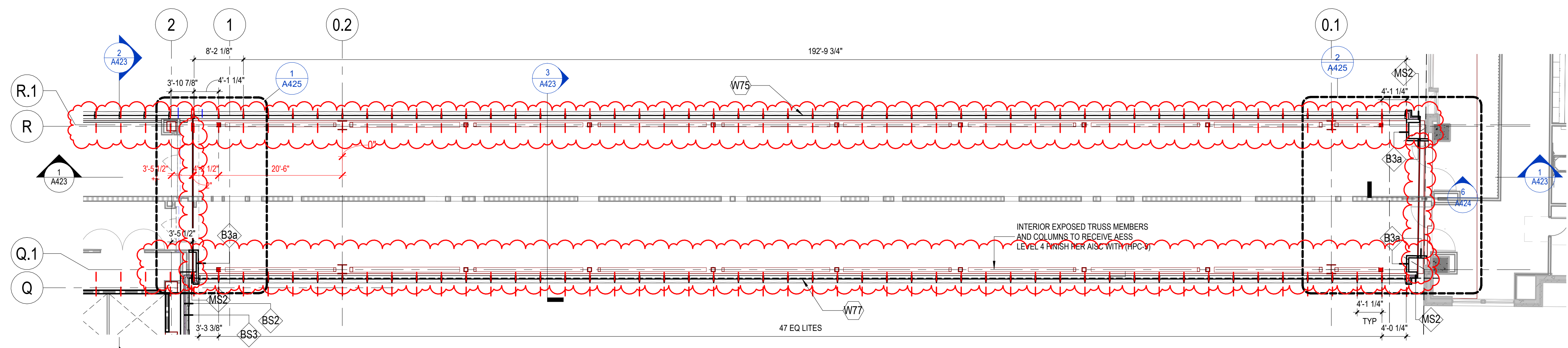
Drawn By  
Author  
Checked By  
Checker  
Client Number 514  
Project Number 6926

DRAWING TITLE  
**ENLARGED EXTERIOR NORTH LINK ELEVATIONS**

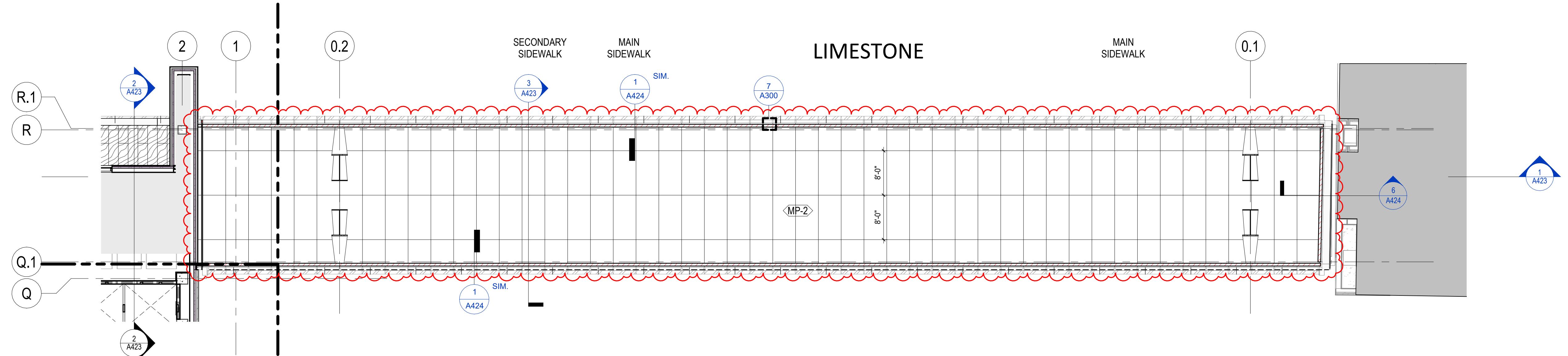
SHEET NO.  
**A409**



1 PEDESTRIAN WALKWAY - ROOF PLAN  
3/32" = 1'-0"  
1/A202



2 FLOOR PLAN - PEDESTRIAN WALKWAY  
3/32" = 1'-0"  
1/A030



3 PEDESTRIAN WALKWAY - REFLECTED SOFFIT PLAN  
3/32" = 1'-0"  
2/A021

**GENERAL NOTES - ROOF PLAN**

- UNIFORMLY SLOPE TAPERED INSULATION MINIMUM 1/4" IN HEIGHT PER 1'-0" HORIZONTALLY (OR AS REQUIRED BY CODE) AT LEVEL ROOF AREAS, UNLESS OTHERWISE NOTED.
- MINIMUM ROOF INSULATION THICKNESS AT ROOF DRAINS (LOW POINT) = 5". SLOPE CRICKET INSULATION TO DRAIN AROUND PENETRATIONS (VENTS, STACK, ETC) AND AT VALLEYS BETWEEN ROOF DRAINS.
- SECONDARY ROOF DRAINS 2" ABOVE ADJACENT PRIMARY ROOF DRAINS. PROVIDE SECONDARY ROOF DRAINS ALL LOCATIONS UNLESS OVERFLOW SCUPPERS INDICATED.
- ROOF PLAN DOES NOT SHOW ALL MECHANICAL / ELECTRICAL ROOFTOP EQUIPMENT AND PENETRATIONS, SUCH AS PLUMBING VENTS. SEE RESPECTIVE DRAWINGS FOR SUCH EQUIPMENT AND PENETRATIONS.

**CONSTRUCTION PLAN LEGEND**  
SEE A010 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOLS

(E) CONSTRUCTION TO REMAIN	—
NEW CONSTRUCTION	==
TEMPORARY CONSTRUCTION	- - - -

ASSEMBLY RATING	
0	ZERO HOUR
1	ONE HOUR RATED
2	TWO HOUR RATED

TYPE OF ASSEMBLY	
W	FIRE WALL
B	FIRE BARRIER
E	EXISTING
S	SMOKE BARRIER
SP	SMOKE PARTITIONS

- DOOR TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION
- INTERIOR PARTITION TAG  
SEE PARTITION SHEET FOR ADDITIONAL INFORMATION
- WINDOW TAG  
SEE DOOR SCHEDULE AND LEGEND FOR ADDITIONAL INFORMATION

**GENERAL NOTES - FLOOR PLANS**

- ALL INTERIOR PARTITIONS SHALL BE "A3a" UNLESS NOTED OTHERWISE.
- PARTITIONS, FURNITURE, EQUIPMENT, AND FIXTURES SHOWN SCREENED ARE TO BE ISSUED UNDER FUTURE INTERIOR FIT-OUT DOCUMENTATION PACKAGE(S) AND ARE SHOWN HERE FOR REFERENCE AND COORDINATION PURPOSES ONLY.
- PLAN DIMENSIONS ARE FROM FACE OF PARTITION TYPE AND DO NOT INCLUDE APPLIED FINISHES, UNLESS NOTED OTHERWISE. PLAN DIMENSIONS INDICATED AS "HOLD" OR "CLEAR" DIMENSIONS ARE FROM FACE OF APPLIED FINISH.
- INSTALL WORK STRAIGHT, PLUMB, LEVEL, SQUARE, AND TRUE, IN PROPER ALIGNMENT.
- FLATNESS: LEVEL FLOORS TO TRUE PLANE WITHIN 1/4 INCH (6 MM) IN 10' -0" (3 M) WHEN TESTED BY TEN FOOT (3 M) STRAIGHTEDGE PLACED ANYWHERE ON FLOOR IN ANY DIRECTION.
- COORDINATE FURNITURE-RELATED ELECTRICAL LAYOUT WITH FURNITURE VENDOR.
- WHERE HANDRAILS, GRAB BARS, CABINETS, WALL-MOUNTED DOOR STOPS, OR OTHER WALL-HUNG ITEMS ARE ATTACHED TO PARTITIONS, INSTALL BACKER PLATES (OR WOOD BLOCKING) ACCURATELY POSITIONED AND FIRMLY SECURED TO METAL STUDS, WHETHER OR NOT SUCH BACKER PLATES OR BLOCKING ARE INDICATED ON DRAWINGS.
- WHERE NEW WORK ABUTS, ALIGNS OR ADJOINS EXISTING MATERIALS, MAKE SMOOTH AND EVEN TRANSITION AND ELIMINATE EVIDENCE OF PATCHING AND REFINISHING. FINISH NEW WORK TO MATCH ADJACENT UNDISTURBED SURFACES, UNLESS NOTED OTHERWISE.
- CLOSE AND PATCH HOLES AND OPENINGS IN EXISTING FLOOR, WALL AND CEILING WHICH EXIST OR RESULT FROM DEMOLITION OR ALTERATION WORK TO MATCH ADJACENT UNDISTURBED SURFACES.
- PRIOR TO CONCEALMENT OF FIRE RESISTIVE MATERIALS BY OTHER WORK, PATCH AND REPAIR AREAS OF REMOVED OR DAMAGED APPLIED FIREPROOFING. COMPLETE PATCHING AND REPAIR TO MAINTAIN EXISTING FIRE-RESISTANCE DESIGN IN ACCORDANCE WITH FIREPROOFING MANUFACTURER'S WRITTEN INSTRUCTIONS FOR CONDITIONS OF EXPOSURE AND INTENDED USE. COORDINATE TESTING AND INSPECTION OF ASSEMBLIES AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
- PROVIDE FIRESTOPPING OF PENETRATIONS AND VOIDS THROUGH FIRE-RATED WALL, FLOOR AND PARTITION ASSEMBLIES (AND ROOF) INCLUDING EMPTY OPENINGS AND OPENINGS CONTAINING CABLES, PIPES, DUCTS, CONDUIT AND OTHER ELEMENTS.
- AT SOUND-RATED PARTITION WALLS, PROVIDE CONTINUOUS BEAD OF ACOUSTICAL SEALANT AT JUNCTURE OF BOTH FACES OF RUNNERS OR PLATES WITH FLOOR AND CEILING CONSTRUCTION, AND WHEREVER GYPSUM BOARD ABUTS DISSIMILAR MATERIALS.
  - AT OPENINGS AND CUTOUTS, FILL OPEN SPACES BETWEEN GYPSUM BOARD AND FIXTURES, CABINETS, DUCTS AND OTHER FLUSH OR PENETRATING ITEMS, WITH CONTINUOUS BEAD OF SEALANT.
  - SEAL SIDES AND BACKS OF ELECTRICAL BOXES TO COMPLETELY CLOSE OFF OPENINGS AND JOINTS.

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1220 Elizabeth St. Lexington, KY 40536  
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5	BP-07 ADDENDUM #1	05/28/24

Drawn By	Author
Checked By	Checker
Client Number	514
Project Number	6926

DRAWING TITLE  
**PEDESTRIAN WALKWAY PLANS**  
SHEET NO.  
**A421**

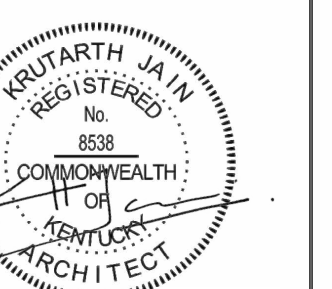
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ISSUANCES

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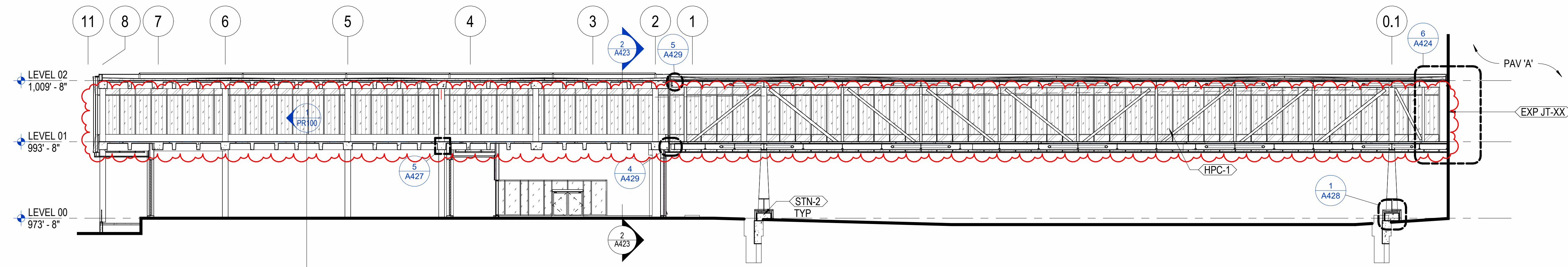


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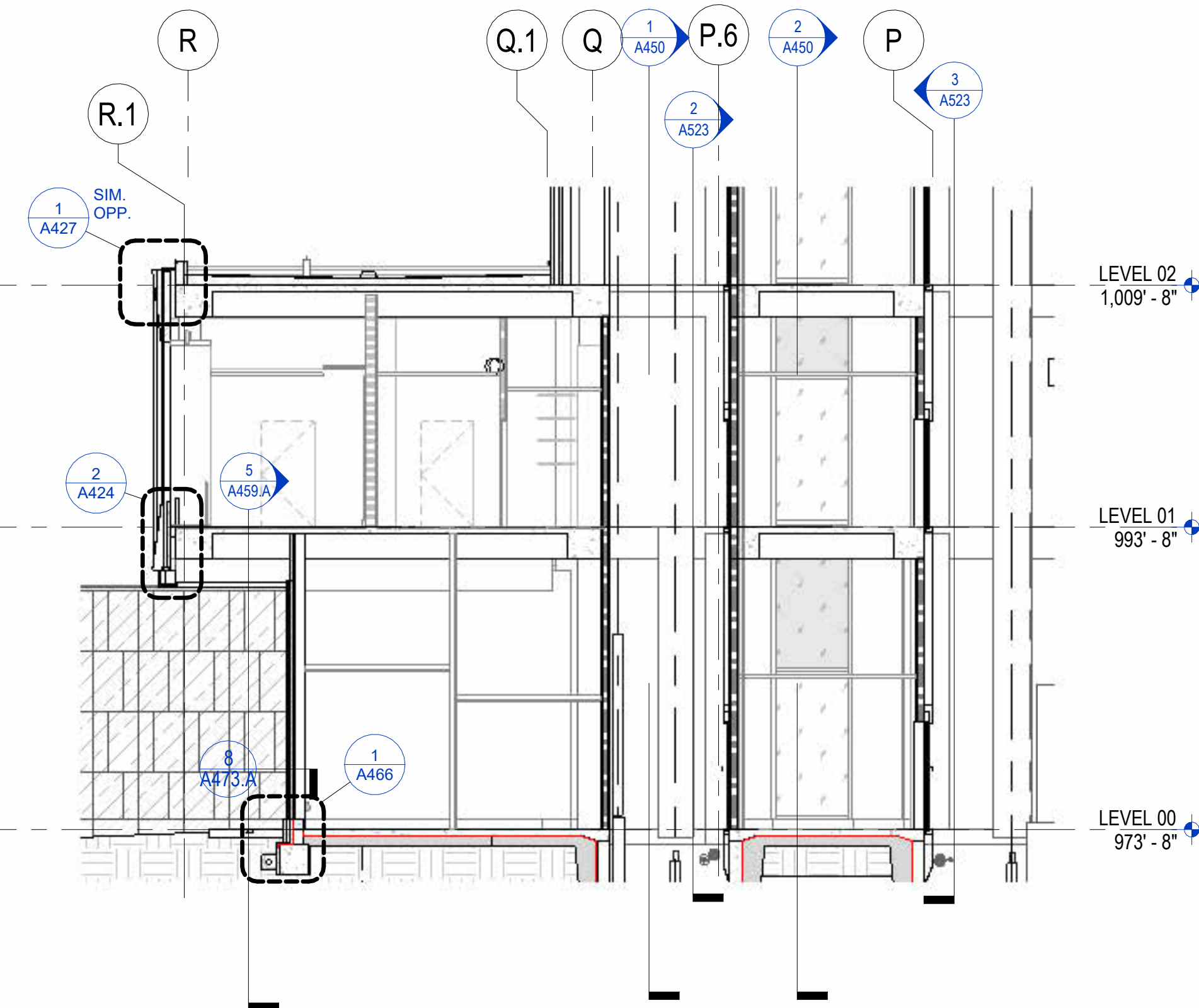
PEDESTRIAN  
WALKWAY SECTIONS

SHEET NO.

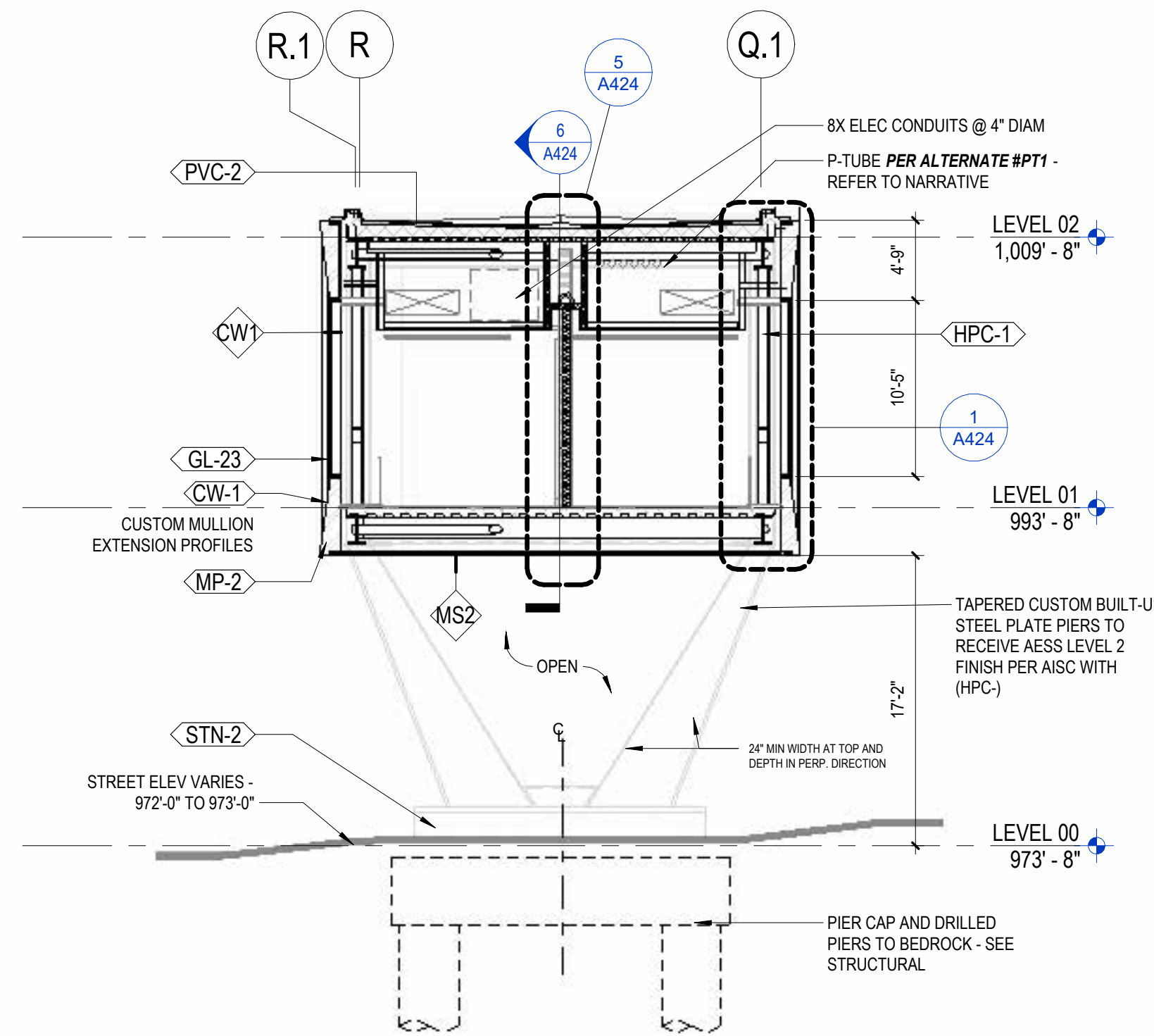
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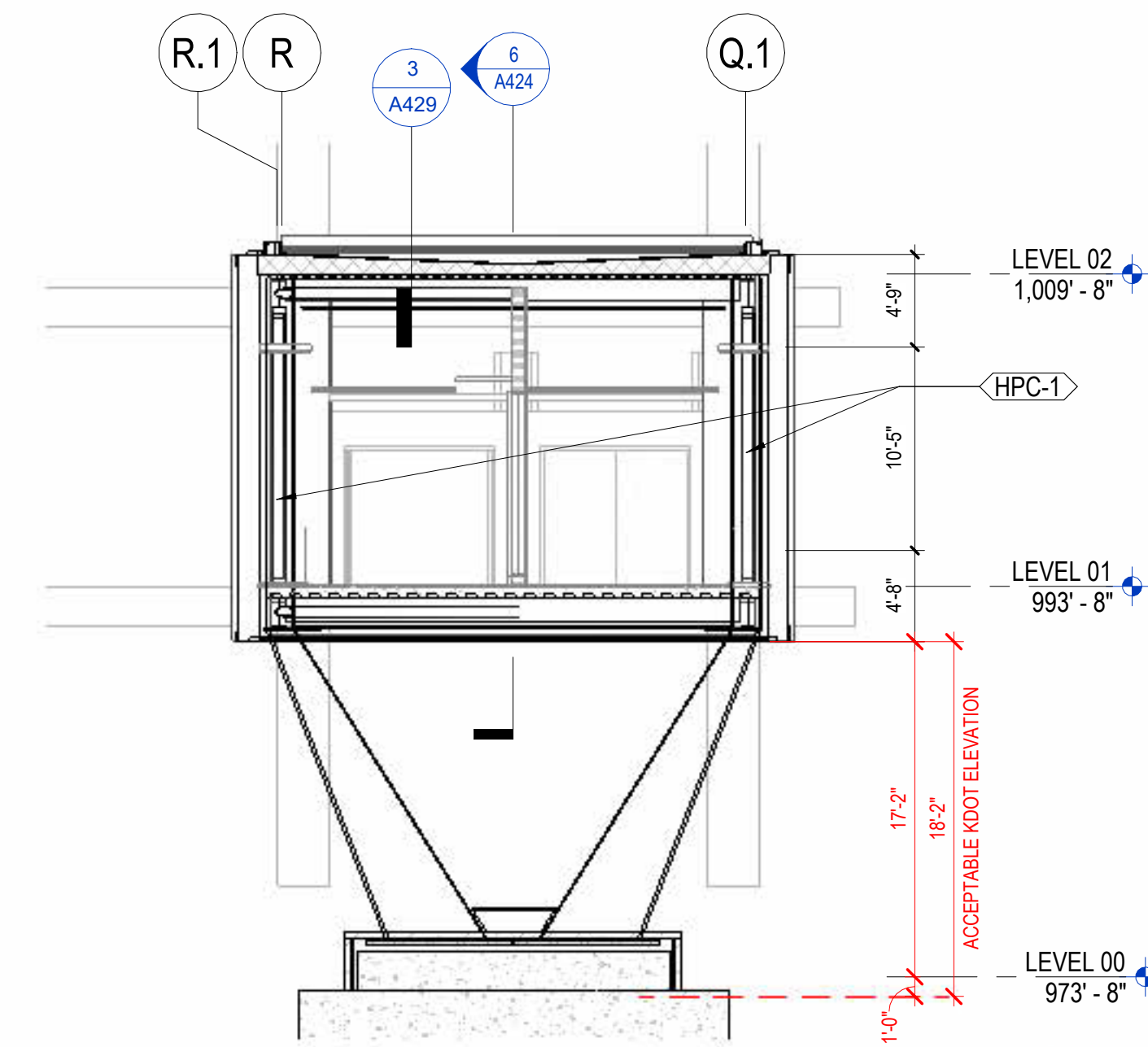
1 PEDESTRIAN WALKWAY - LONGITUDINAL SECTION  
1/16" = 1'-0"  
1/A035



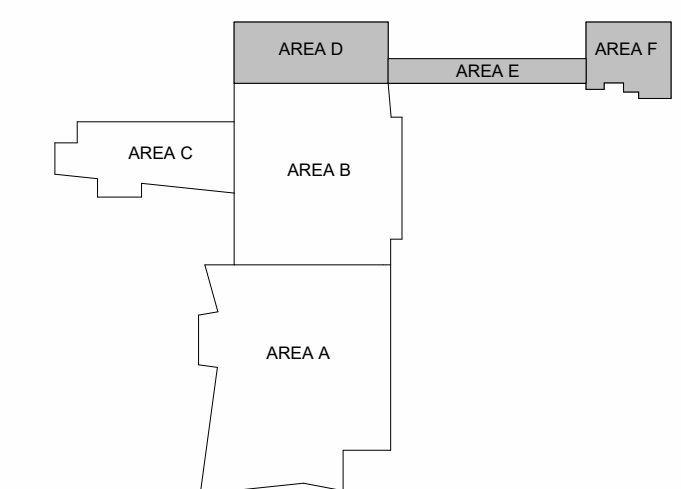
2 PEDESTRIAN WALKWAY - TRANSVERSE SECTION ALONG CANCER CENTER  
1/8" = 1'-0"  
1/A021



3 PEDESTRIAN WALKWAY - TRANSVERSE SECTION @ PIER  
1/8" = 1'-0"  
1/A021



4 PEDESTRIAN WALKWAY - TRANSVERSE SECTION AT PAV-A  
1/8" = 1'-0"  
1/A200.E



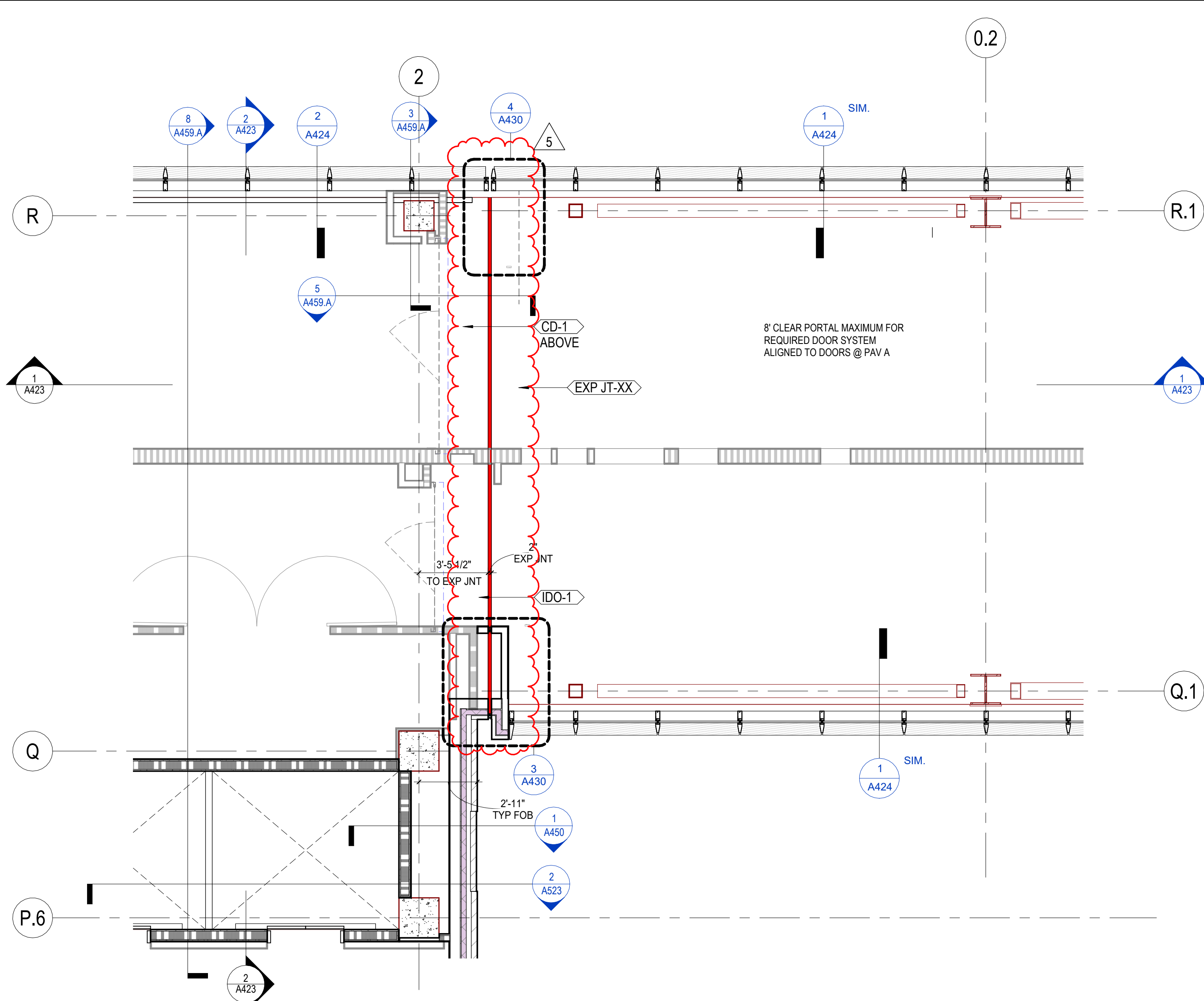
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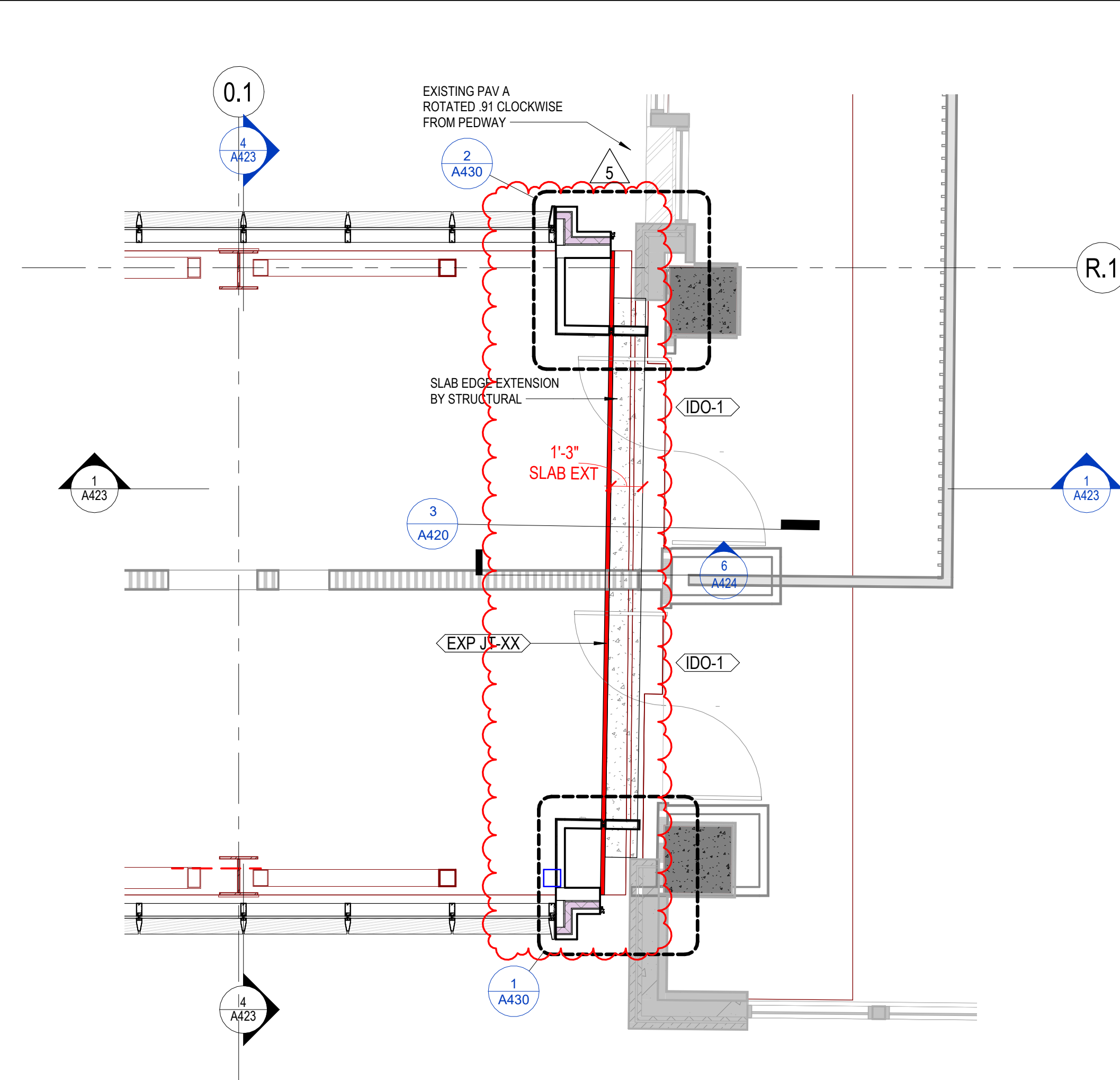
Drawn By	Author	
Checked By	Checker	
Client Number	514	
Project Number	6926	

DRAWING TITLE  
**PEDESTRIAN WALKWAY ENLARGED PLANS**

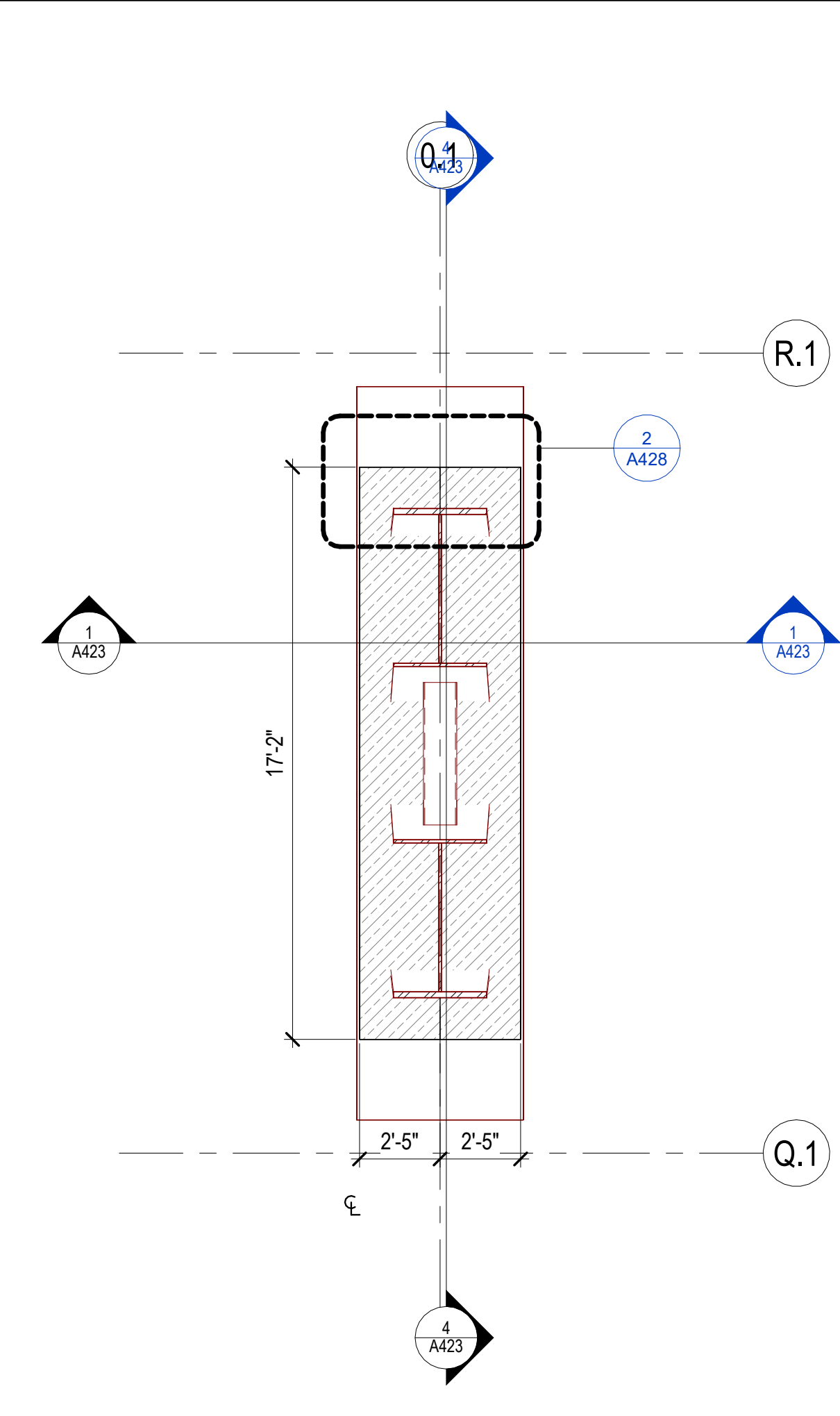
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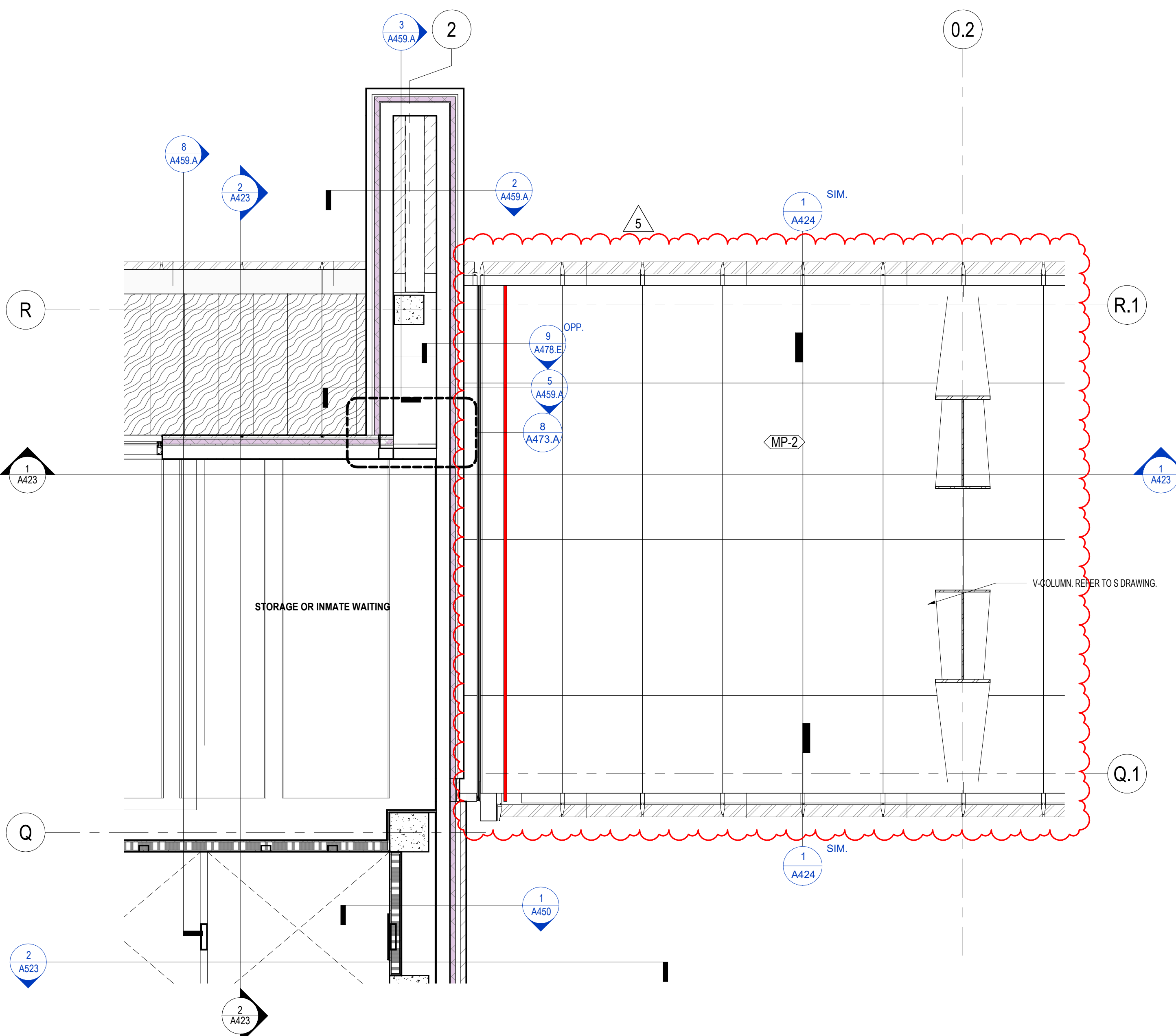
1 ENLARGED PLAN - PEDWAY CONNECTION TO CANCER CENTER  
1/4" = 1'-0"  
1/A201.D



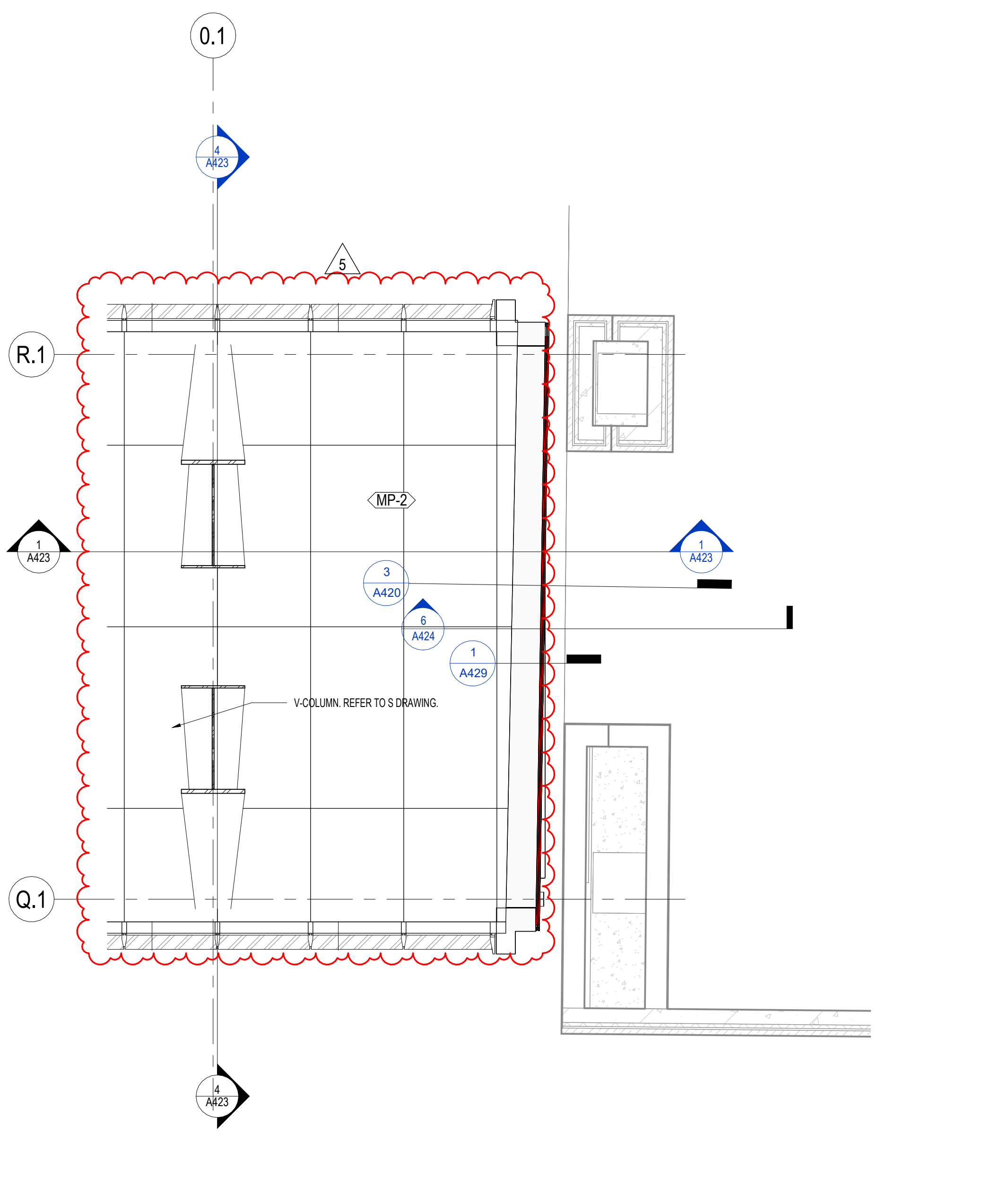
2 ENLARGED PLAN - PEDWAY CONNECTION TO PAV-A  
1/4" = 1'-0"  
2/A421



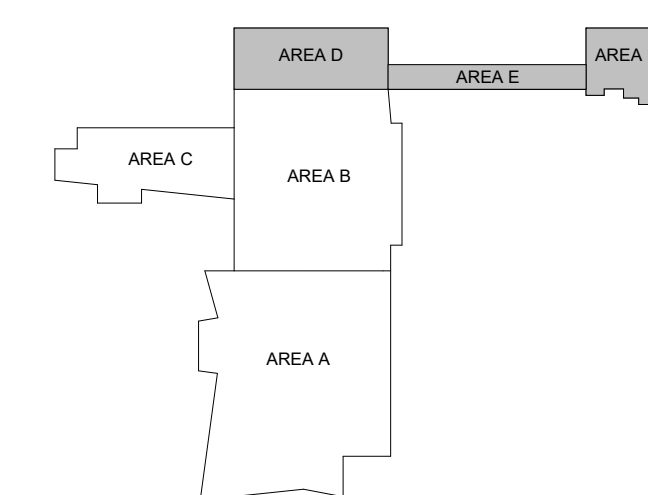
5 ENLARGED PLAN - PEDWAY COLUMN BASE  
1/4" = 1'-0"  
1/A200.E



3 PEDESTRIAN WALKWAY - REFLECTED SOFFIT PLAN AT CANCER CENTER  
1/4" = 1'-0"  
2/A021



4 PEDESTRIAN WALKWAY - REFLECTED SOFFIT PLAN AT PAV-A  
1/4" = 1'-0"  
2/A021





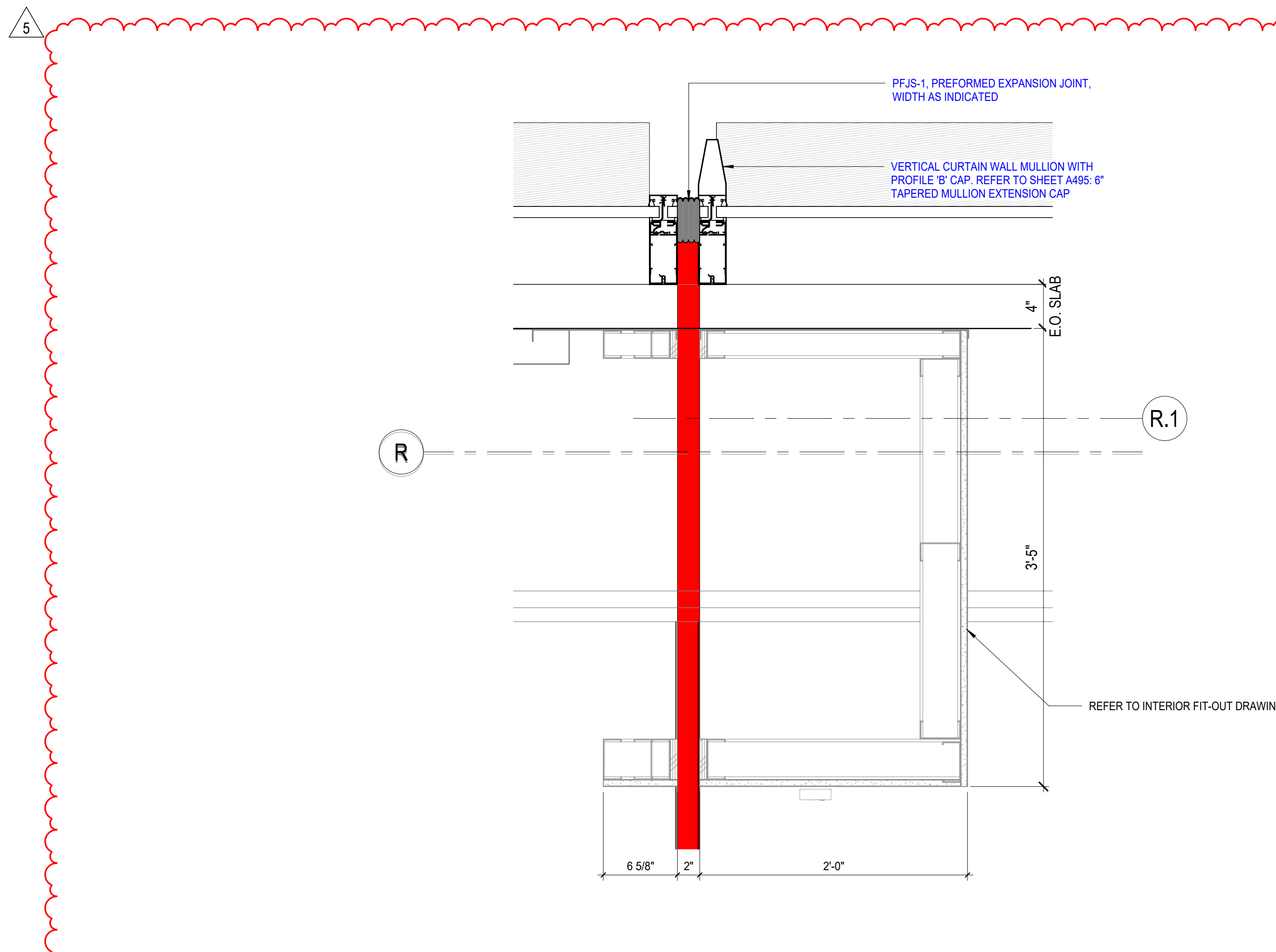
ISSUANCES

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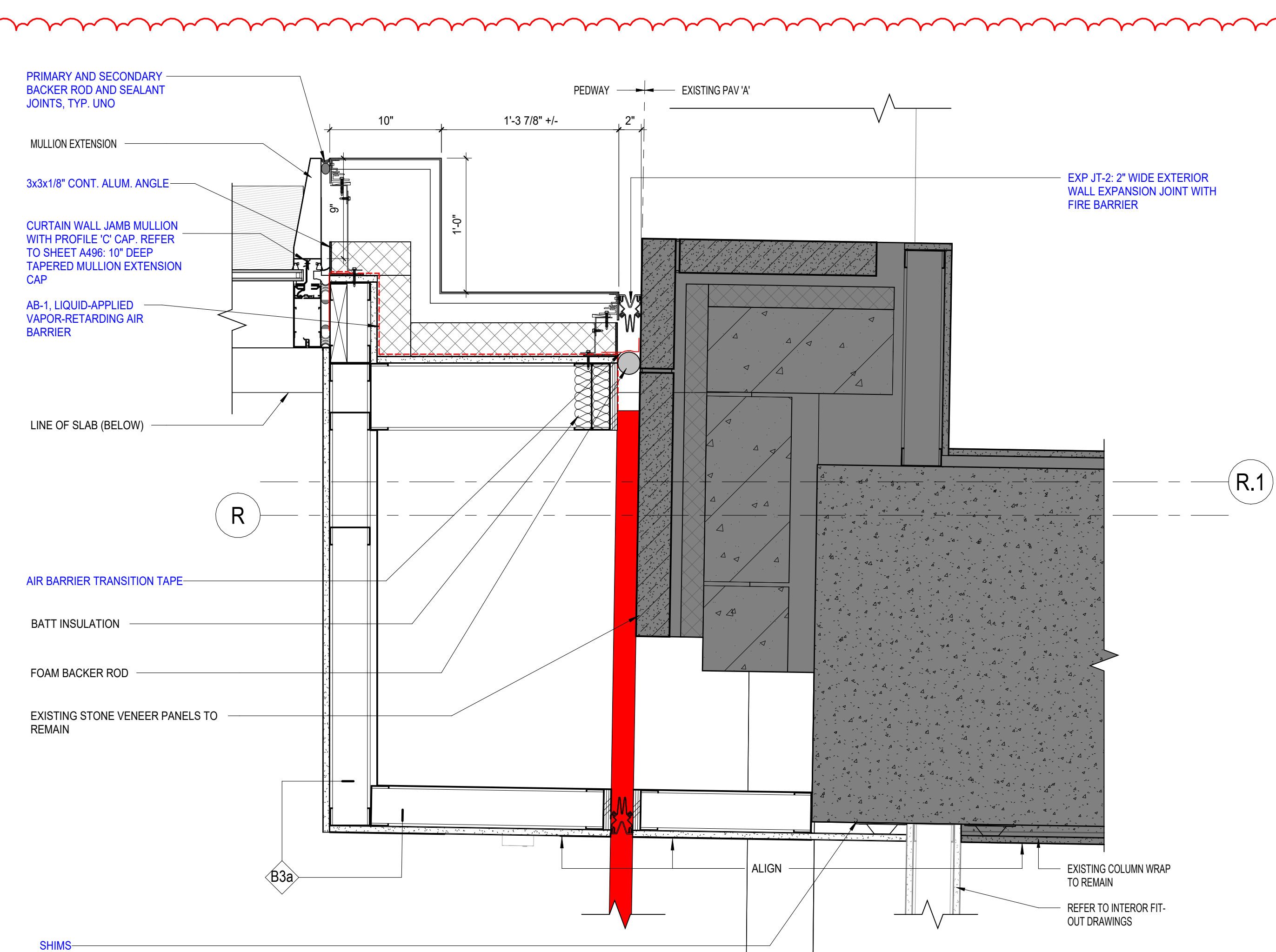
Drawn By	Author
Checked By	Checker
Client Number	514
Project Number	6926

DRAWING TITLE  
**PEDESTRIAN  
WALKWAY  
CONNECTION PLAN  
DETAILS**

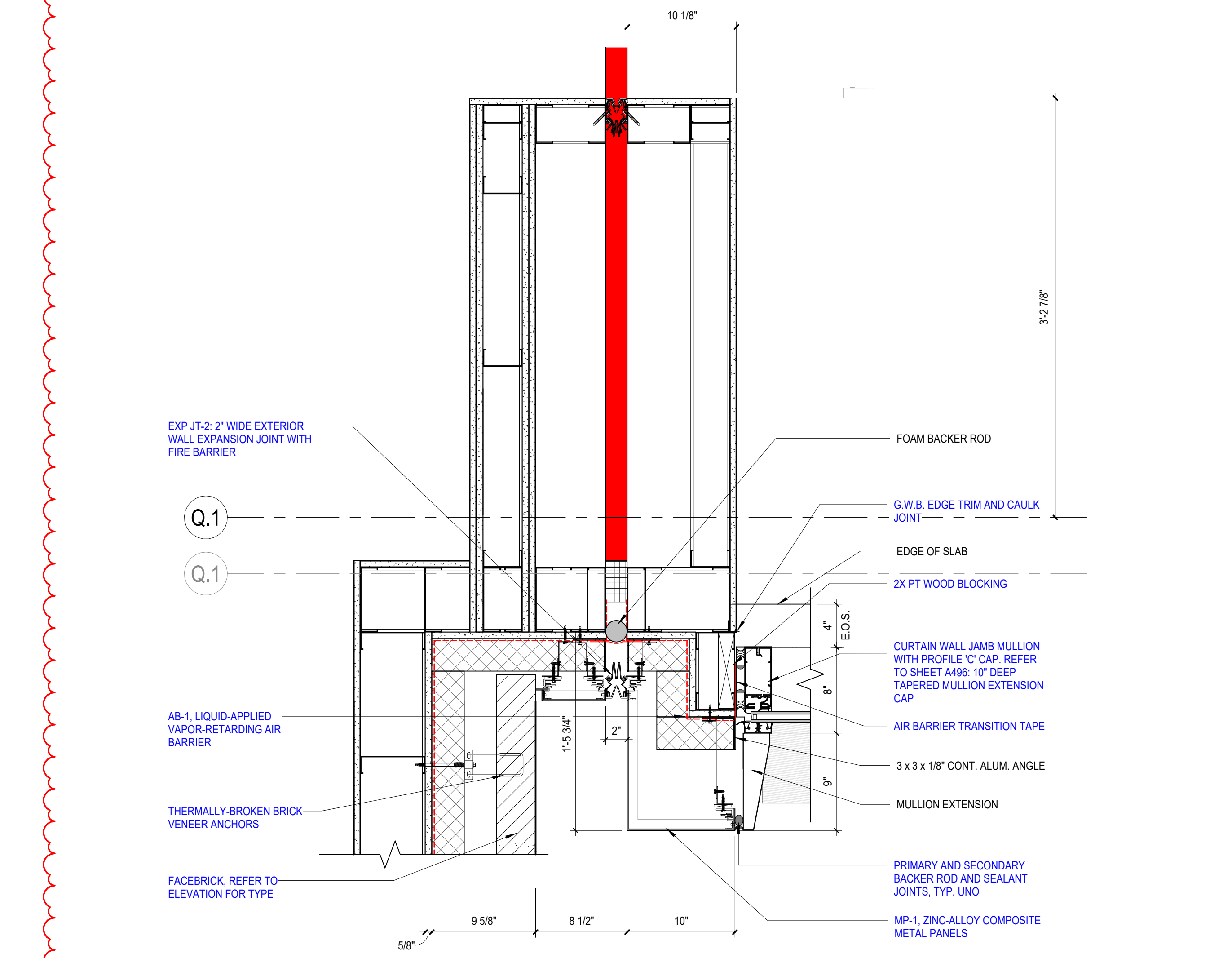
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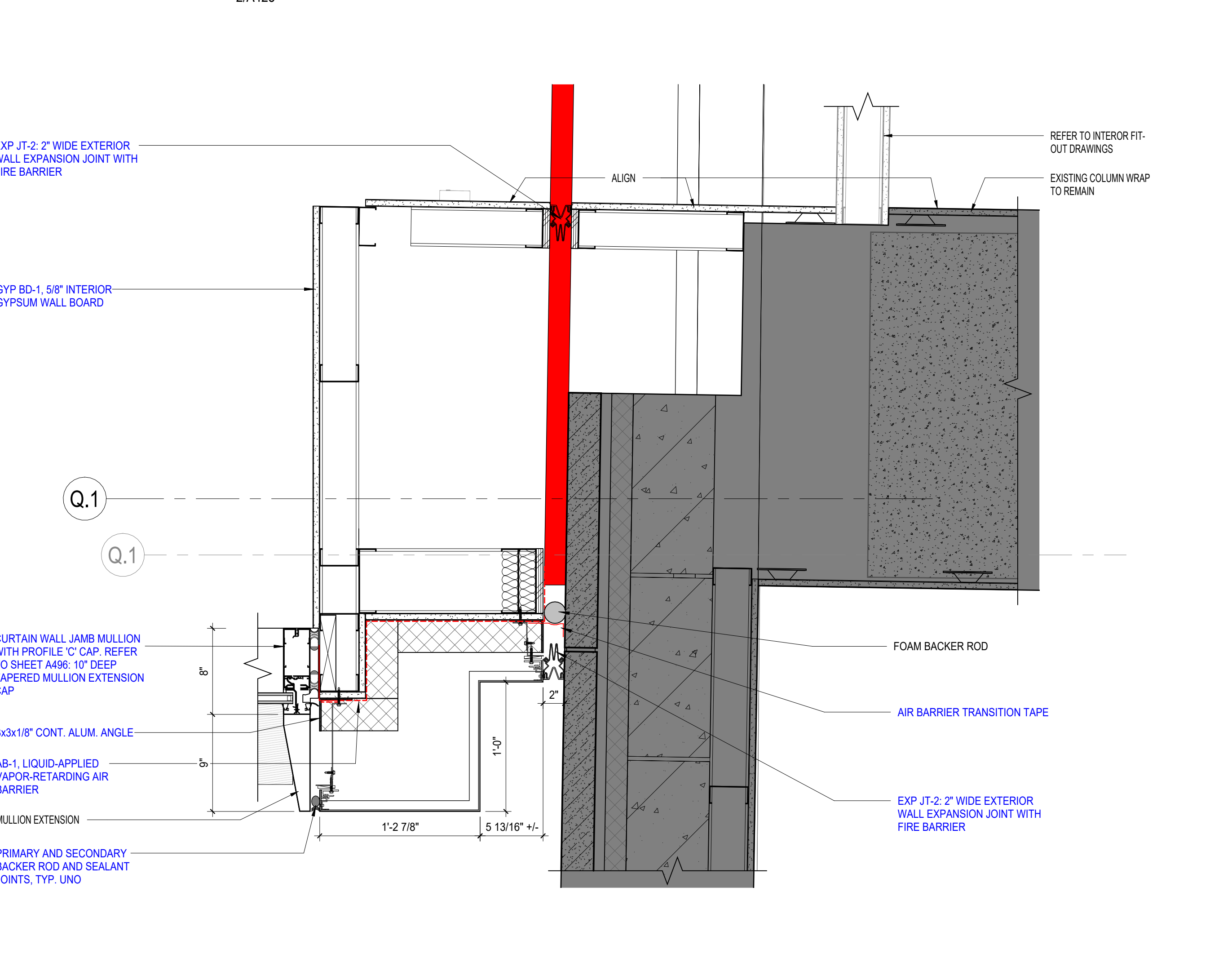
**4 ENLARGED PLAN - PEDWAY NW CONNECTION**  
1 1/2" = 1'-0"  
1/A425



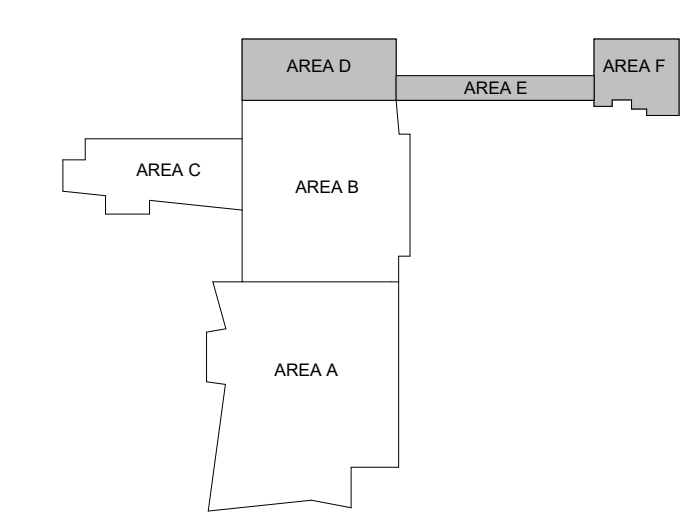
**2 ENLARGED PLAN - PEDWAY NE CONNECTION**  
1 1/2" = 1'-0"  
2/A425



**3 ENLARGED PLAN - PEDWAY SW CONNECTION**  
1 1/2" = 1'-0"  
1/A201.A



**1 ENLARGED PLAN - PEDWAY SE CONNECTION**  
1 1/2" = 1'-0"  
2/A425



ISSUANCES

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

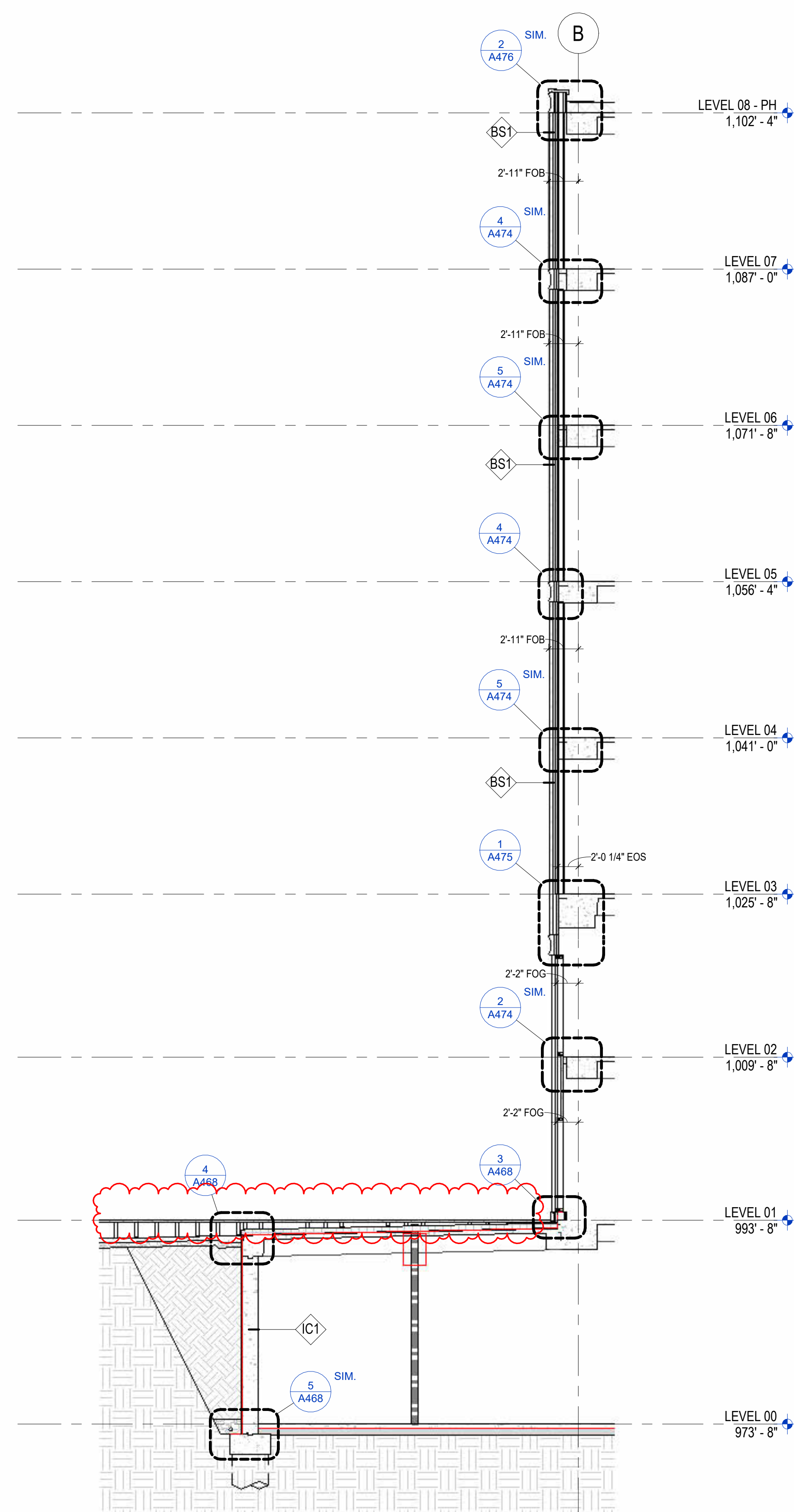
Drawn By	Author	
Checked By	Checker	
Client Number	514	
Project Number	6926	

DRAWING TITLE

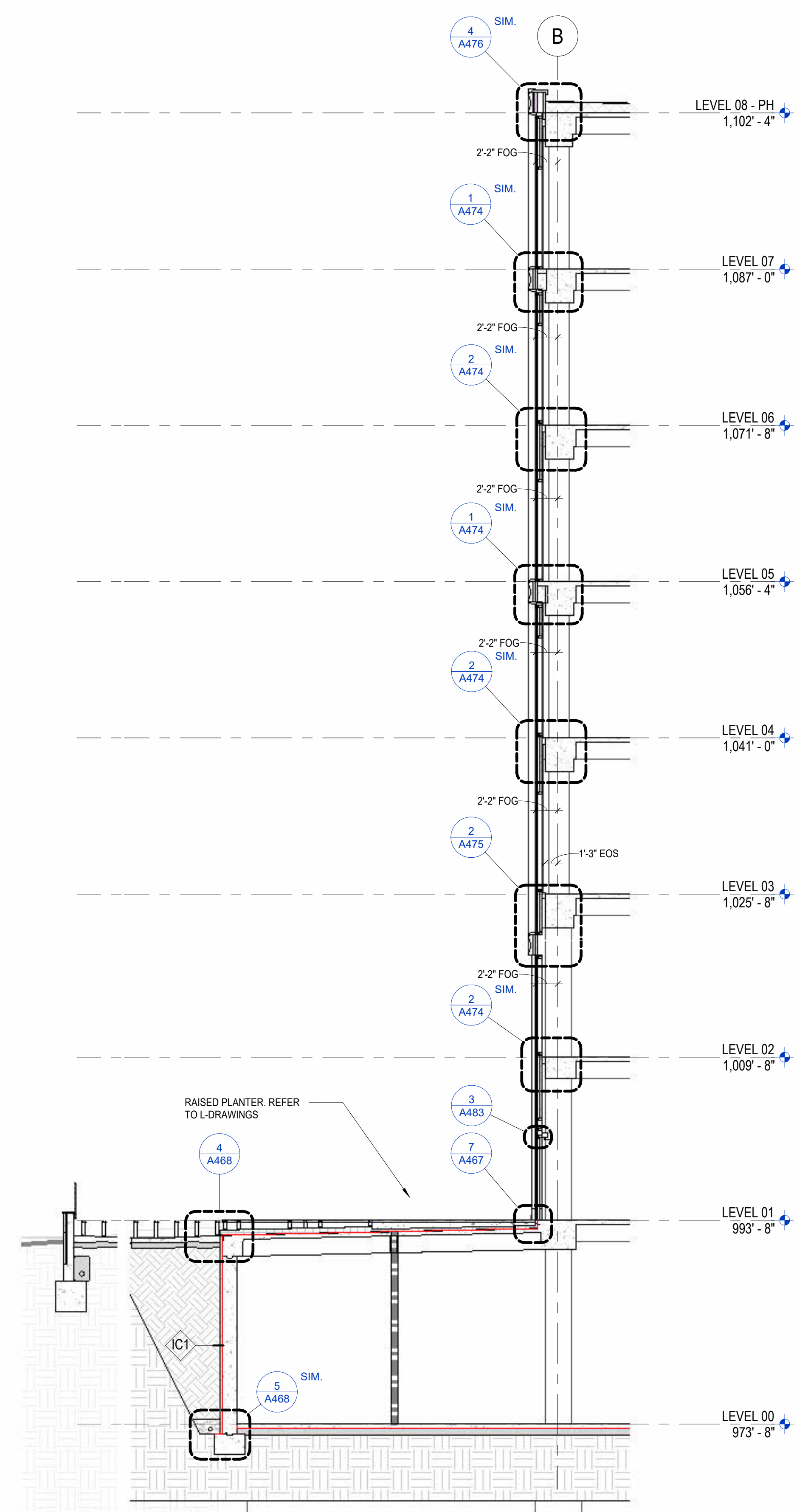
WALL SECTIONS

SHEET NO.

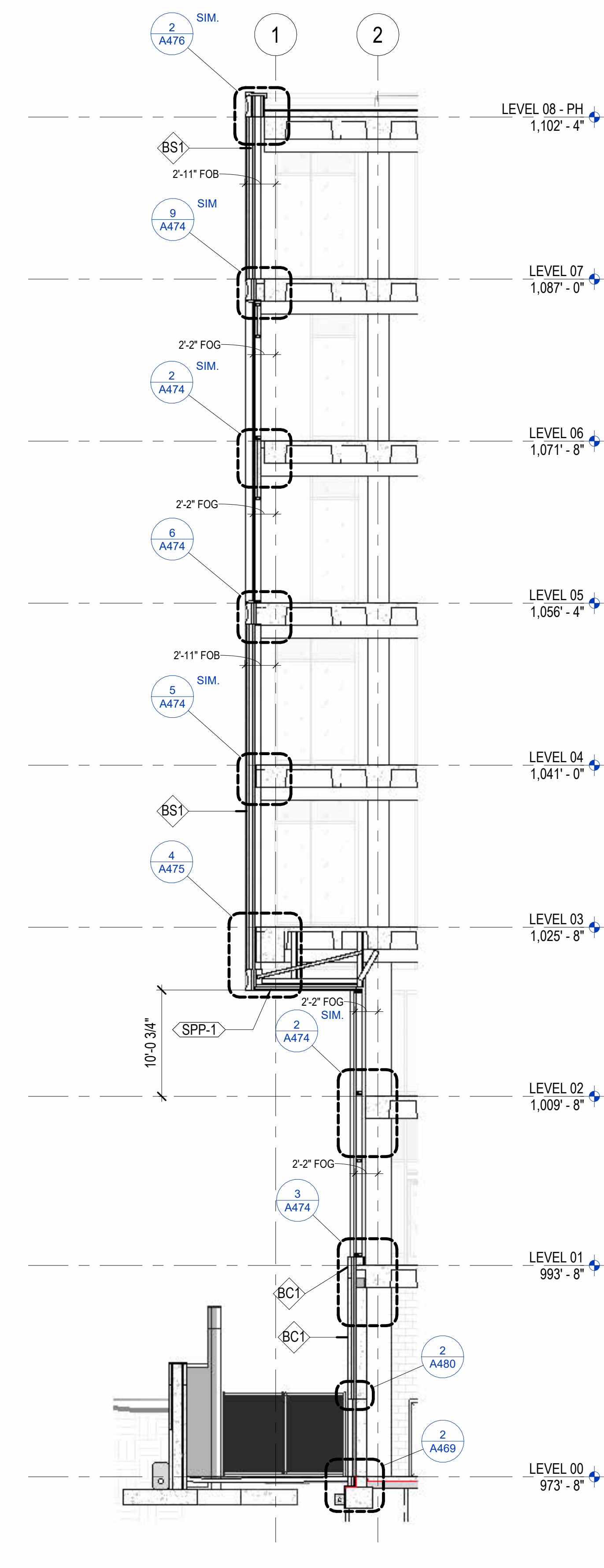
A452



3 SECTION - AREA A BRICK  
1/8" = 1'-0"  
1/A200.A



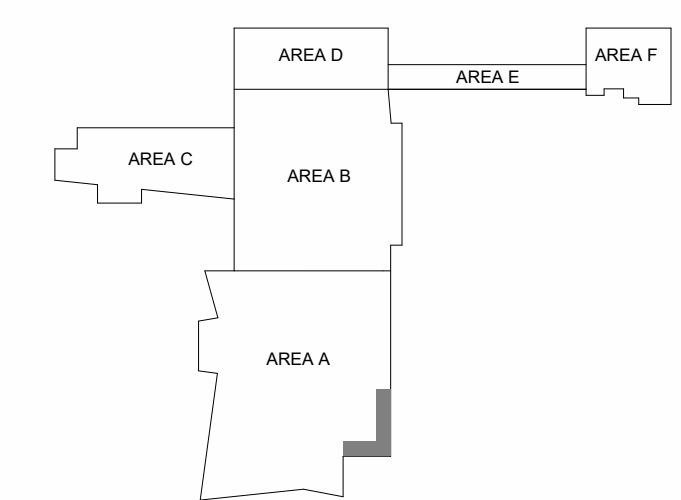
2 SECTION - AREA A CURTAIN WALL  
1/8" = 1'-0"  
1/A200.A



1 SECTION - OVERHAND AREA A  
1/8" = 1'-0"  
3/A030

GENERAL NOTES - WALL SECTIONS

- A. REFER TO OVERALL FLOOR PLANS FOR ADDITIONAL INFORMATION REGARDING EXTERIOR WALL TYPES AND MATERIALS.
- B. SEA LEVEL ELEVATIONS OF EXISTING FLOORS ARE BASED ON SURVEY INFORMATION AND/OR AS-BUILT DRAWINGS PROVIDED BY THE OWNER. THE SURVEY DATA MAY NOT BE COMPLETE AND THE ACTUAL EXISTING ELEVATIONS MAY VARY IN DIFFERENT PORTIONS OF THE EXISTING BUILDING. ALL INFORMATION MUST BE FIELD VERIFIED AND COORDINATED BETWEEN NEW AND EXISTING CONSTRUCTION TO PROVIDE MATCHING FLOOR ELEVATIONS WHERE REQUIRED.
- C. GRADE LINE SHOWN ON ELEVATIONS DOES NOT REFLECT SITE GRADING CONDITIONS; REFER TO CIVIL DRAWINGS FOR GRADING INFORMATION.
- D. REFER TO SHEET A460 THRU A463 FOR EXTERIOR WALL SOFFIT AND ROOF TYPES.
- E. REFER TO EXTERIOR ELEVATIONS FOR CURTAIN WALL TYPES.



**ISSUANCES**

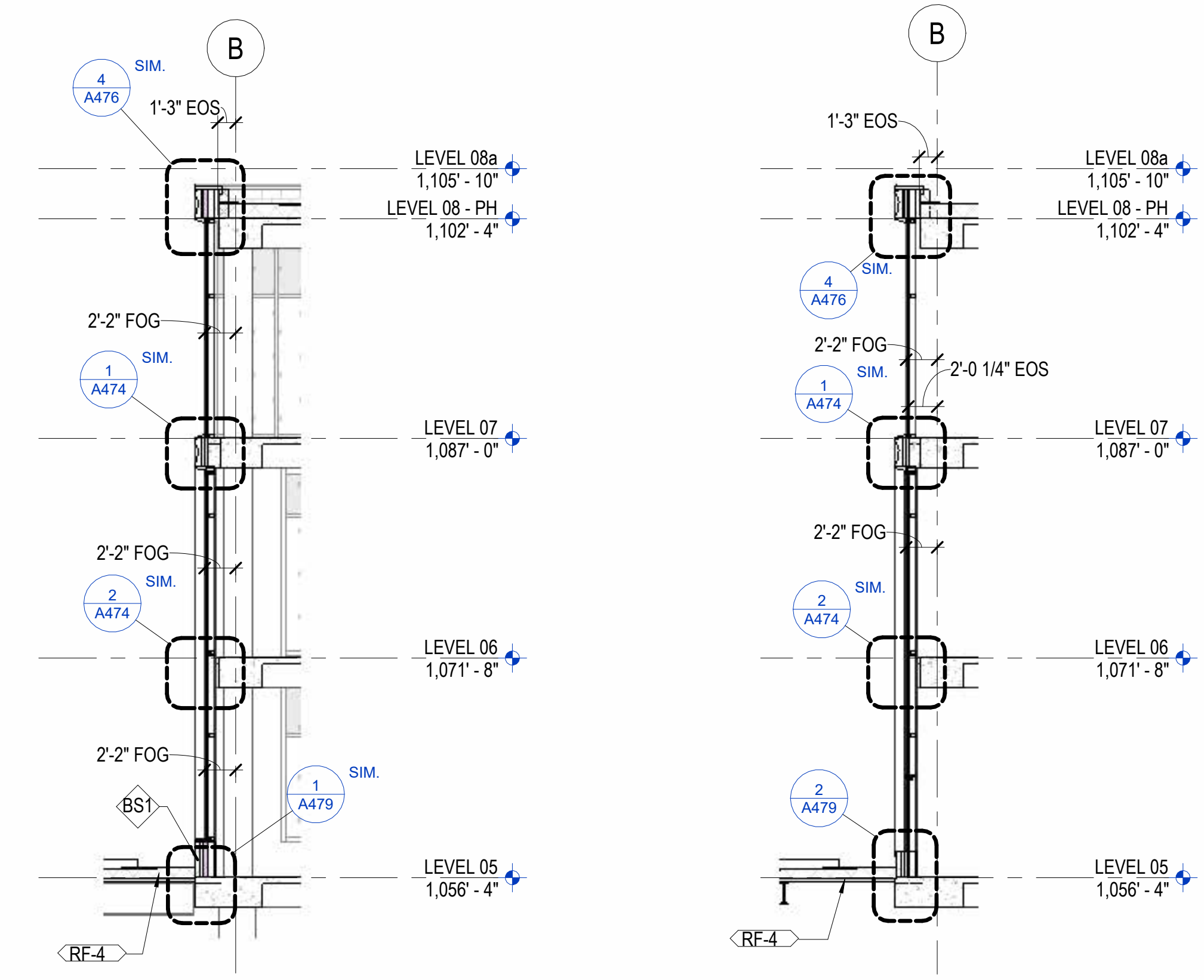
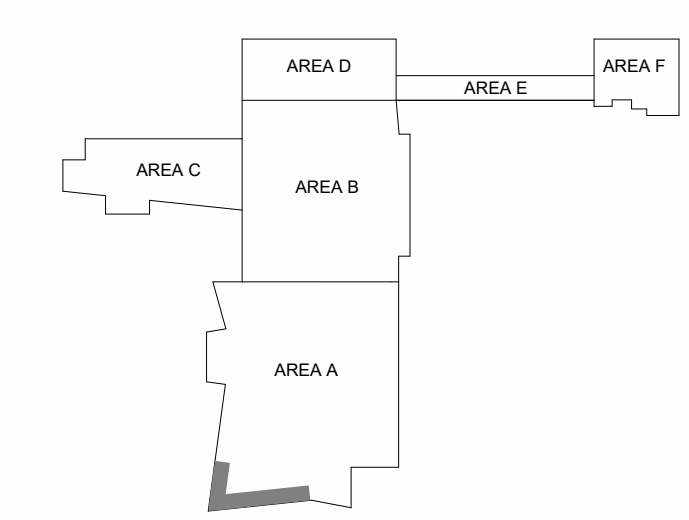
No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By	Author
Checked By	Checker
Client Number	514
Project Number	6926

DRAWING TITLE

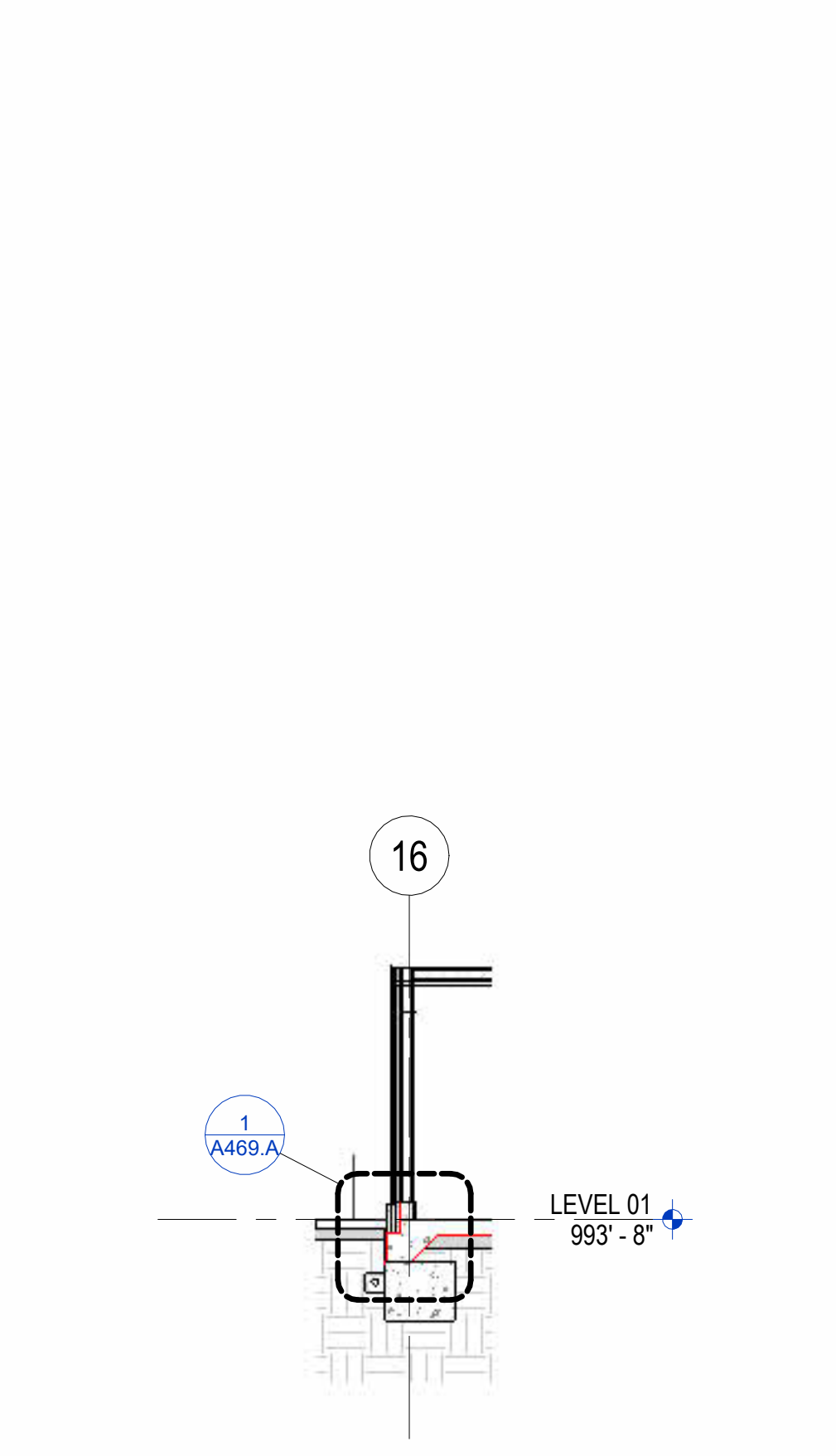
**WALL SECTIONS**

SHEET NO.  
**A453.A**



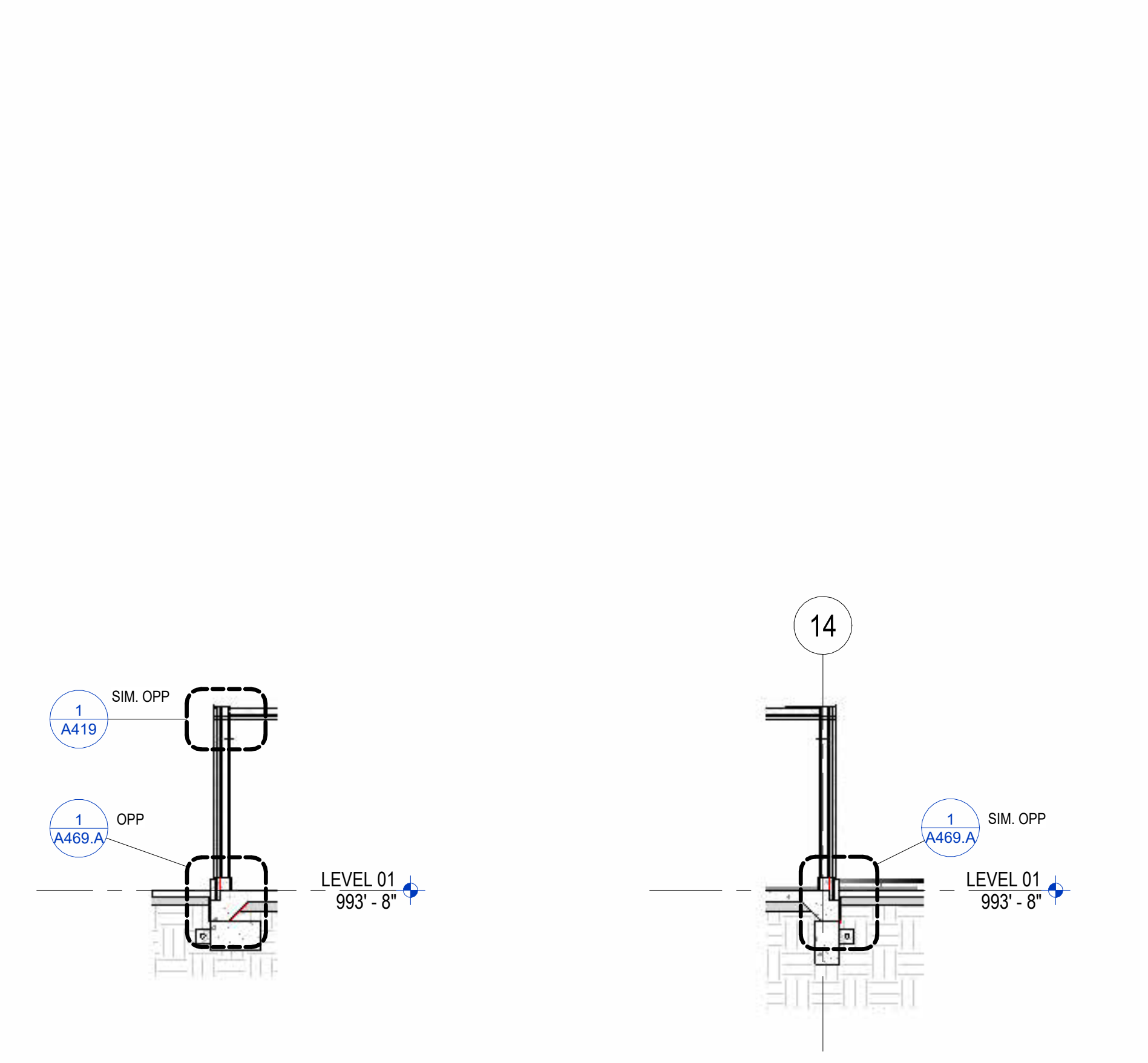
5 SECTION - CURTAIN WALL DOOR AT GREEN ROOF  
1/8" = 1'-0"  
1/A205.A

6 SECTION - CURTAIN WALL AT GREEN ROOF  
1/8" = 1'-0"  
1/A205.A



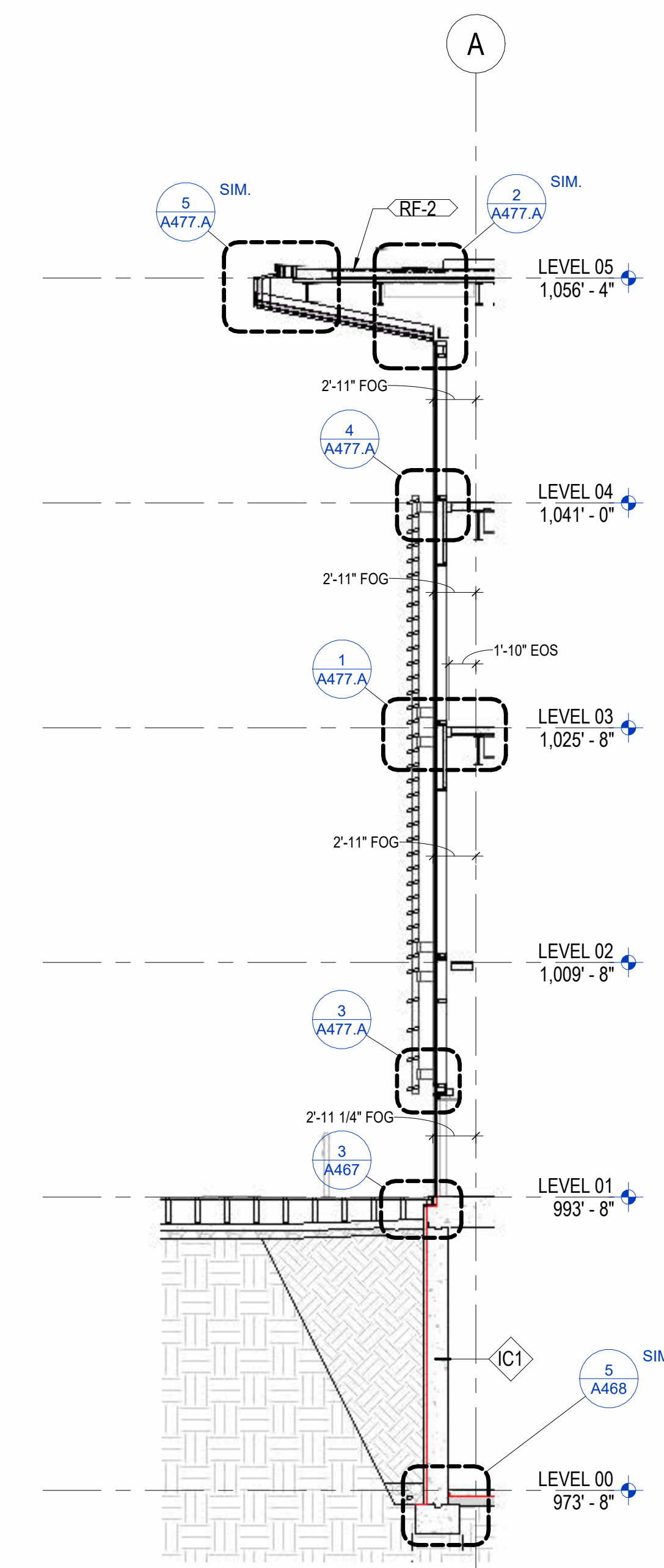
7 SECTION - VESTIBULE NICHE 322 (WEST)  
1/8" = 1'-0"  
1/A202.C

8 SECTION - LOBBY C100 NICHE (EAST)  
1/8" = 1'-0"  
1/A415

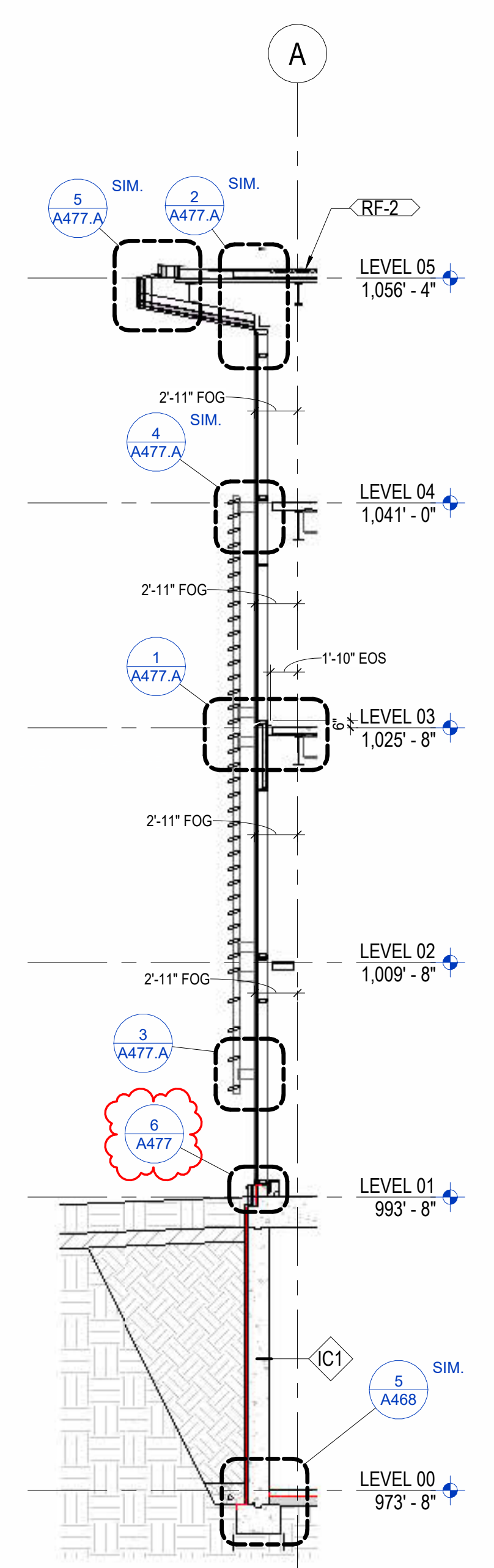


9 SECTION - LOBBY A100W NICHE (NORTH)  
1/8" = 1'-0"  
1/A201.B

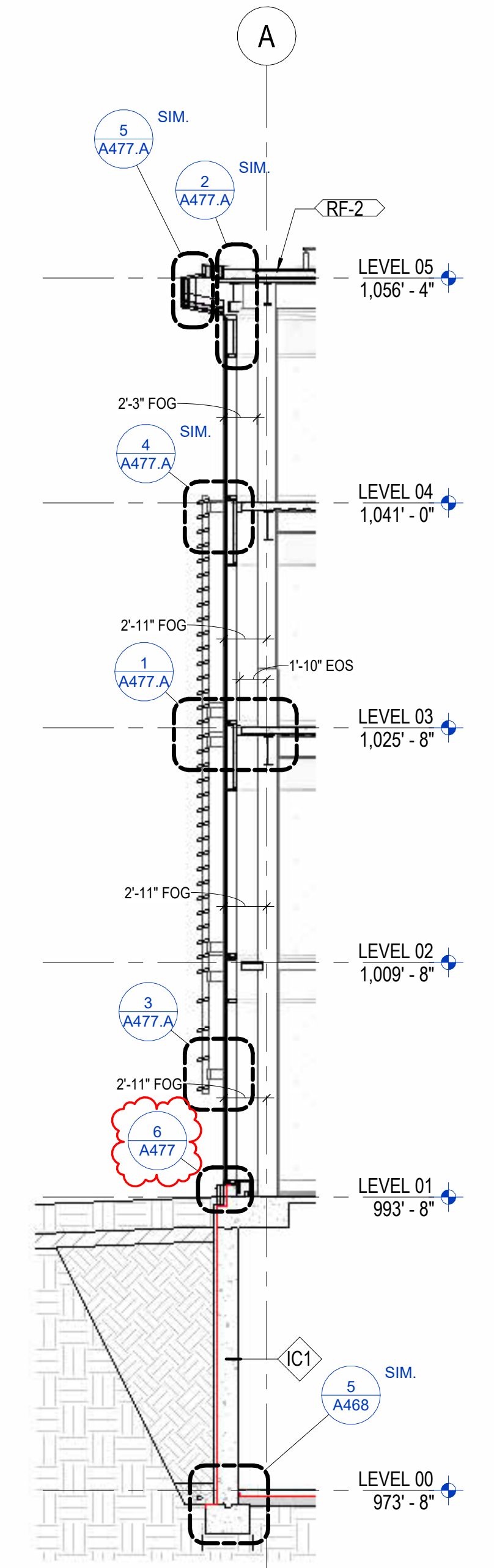
10 SECTION - VESTIBULE A100A NICHE (SOUTH)  
1/8" = 1'-0"  
1/A413



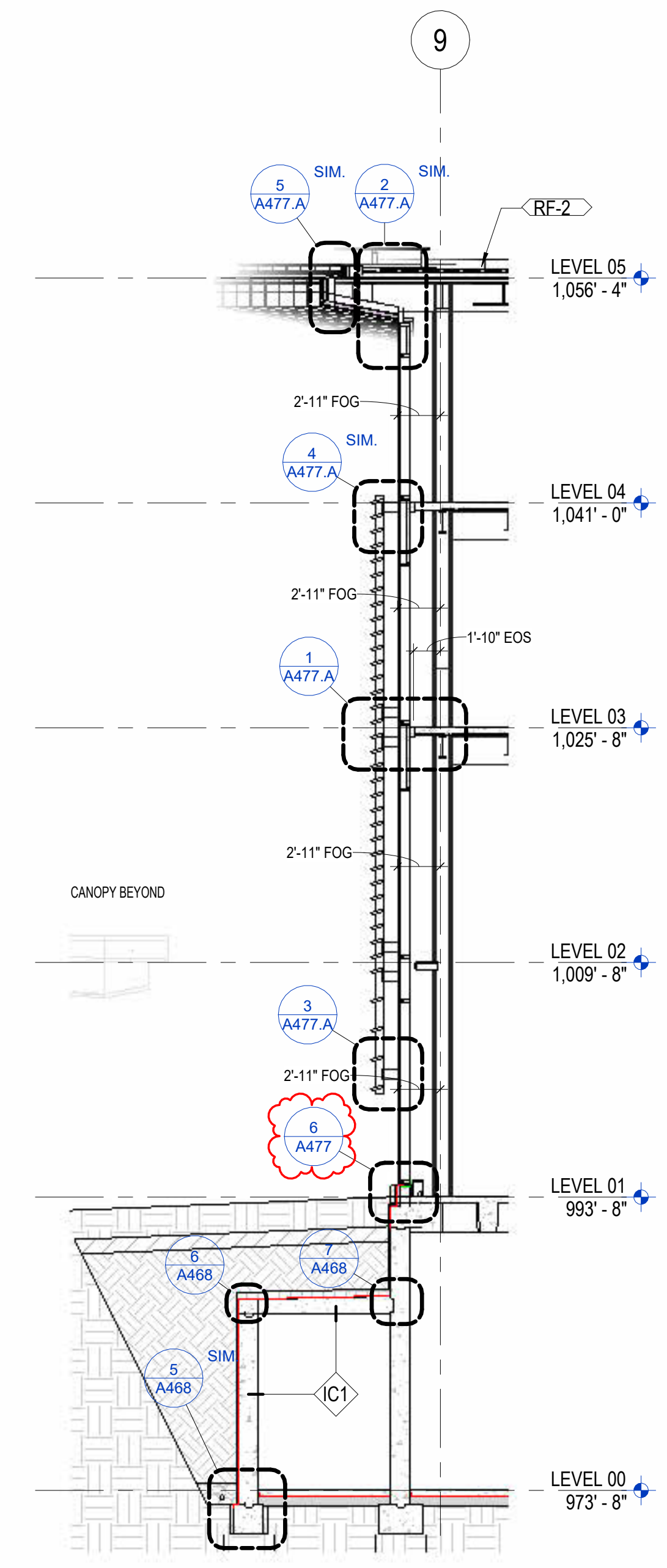
1 WORKING SECTION- LOBBY CW SOUTH WEST1  
1/8" = 1'-0"  
1/A200.A



2 WORKING SECTION- LOBBY CW SOUTH WEST2  
1/8" = 1'-0"  
1/A200.A



3 WORKING SECTION- LOBBY CW SOUTH WEST3  
1/8" = 1'-0"  
1/A200.A



4 SECTION AT LOBBY CW WITH TUNNEL 1  
1/8" = 1'-0"  
1/A200.A

- GENERAL NOTES - WALL SECTIONS**
- A. REFER TO OVERALL FLOOR PLANS FOR ADDITIONAL INFORMATION REGARDING EXTERIOR WALL TYPES AND MATERIALS.
  - B. SEA LEVEL ELEVATIONS OF EXISTING FLOORS ARE BASED ON SURVEY INFORMATION AND/OR AS-BUILT DRAWINGS PROVIDED BY THE OWNER. THE SURVEY DATA MAY NOT BE COMPLETE AND THE ACTUAL EXISTING ELEVATIONS MAY VARY IN DIFFERENT PORTIONS OF THE EXISTING BUILDING. ALL INFORMATION MUST BE FIELD VERIFIED AND COORDINATED BETWEEN NEW AND EXISTING CONSTRUCTION TO PROVIDE MATCHING FLOOR ELEVATIONS WHERE REQUIRED.
  - C. GRADE LINE SHOWN ON ELEVATIONS DOES NOT REFLECT SITE GRADING CONDITIONS; REFER TO CIVIL DRAWINGS FOR GRADING INFORMATION.
  - D. REFER TO SHEET A460 THRU A463 FOR EXTERIOR WALL SOFFIT AND ROOF TYPES.
  - E. REFER TO EXTERIOR ELEVATIONS FOR CURTAIN WALL TYPES.

ISSUANCES

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

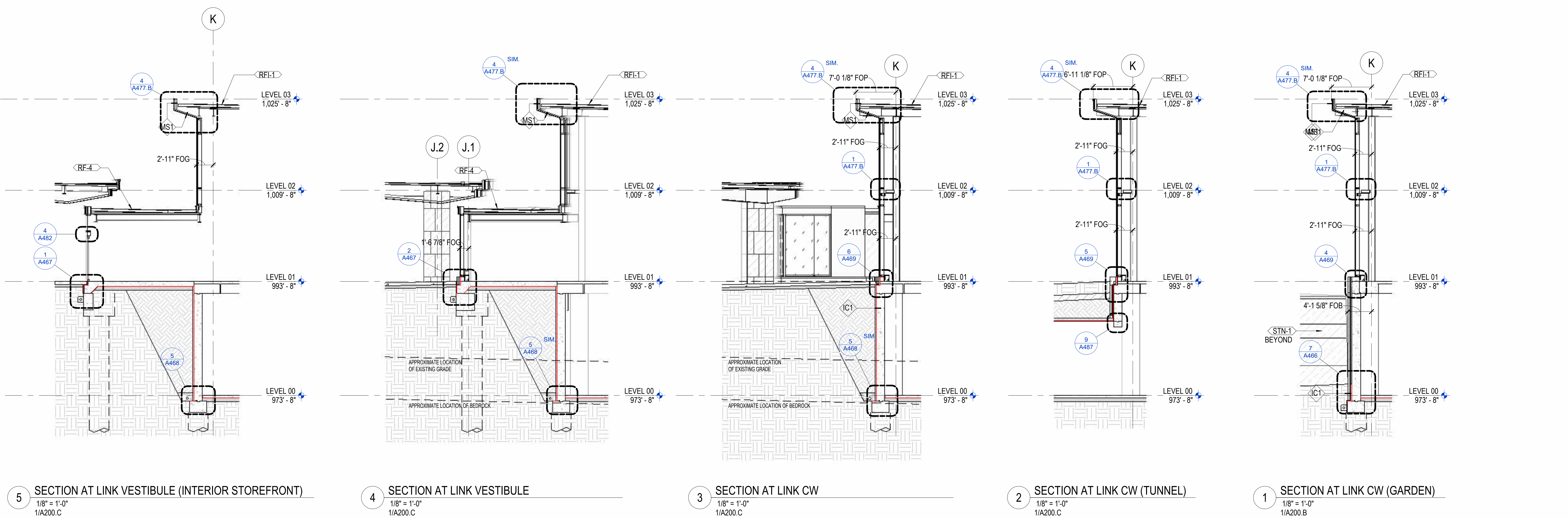
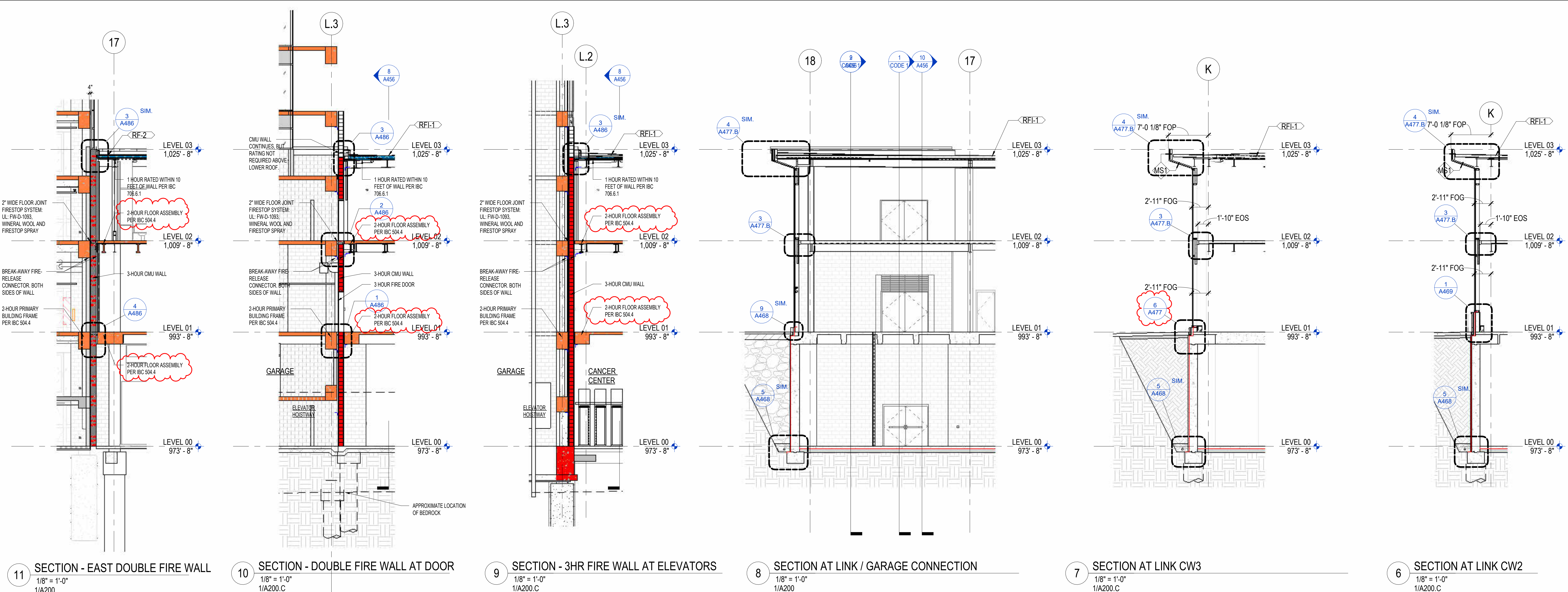
Drawn By	Author
Checked By	Checker
Client Number	514
Project Number	6926

DRAWING TITLE

WALL SECTIONS

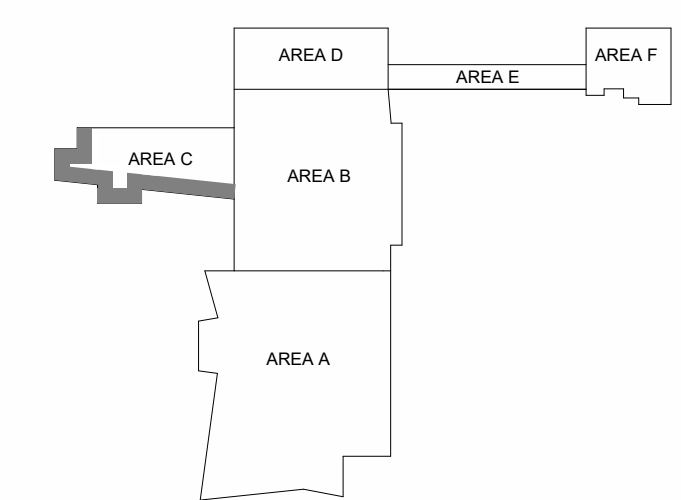
SHEET NO.

A456



GENERAL NOTES - WALL SECTIONS

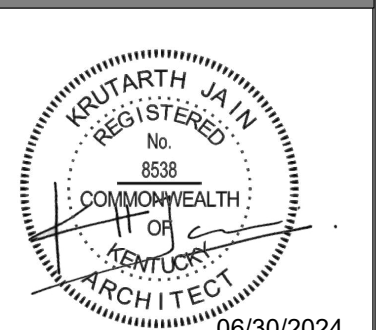
- A. REFER TO OVERALL FLOOR PLANS FOR ADDITIONAL INFORMATION REGARDING EXTERIOR WALL TYPES AND MATERIALS.
- B. SEA LEVEL ELEVATIONS OF EXISTING FLOORS ARE BASED ON SURVEY INFORMATION AND/OR AS-BUILT DRAWINGS PROVIDED BY THE OWNER. THE SURVEY DATA MAY NOT BE COMPLETE AND THE ACTUAL EXISTING ELEVATIONS MAY VARY IN DIFFERENT PORTIONS OF THE EXISTING BUILDING. ALL INFORMATION MUST BE FIELD VERIFIED AND COORDINATED BETWEEN NEW AND EXISTING CONSTRUCTION TO PROVIDE MATCHING FLOOR ELEVATIONS WHERE REQUIRED.
- C. GRADE LINE SHOWN ON ELEVATIONS DOES NOT REFLECT SITE GRADING CONDITIONS; REFER TO CIVIL DRAWINGS FOR GRADING INFORMATION.
- D. REFER TO SHEET A460 THRU A463 FOR EXTERIOR WALL SOFFIT AND ROOF TYPES.
- E. REFER TO EXTERIOR ELEVATIONS FOR CURTAIN WALL TYPES.



ISSUANCES

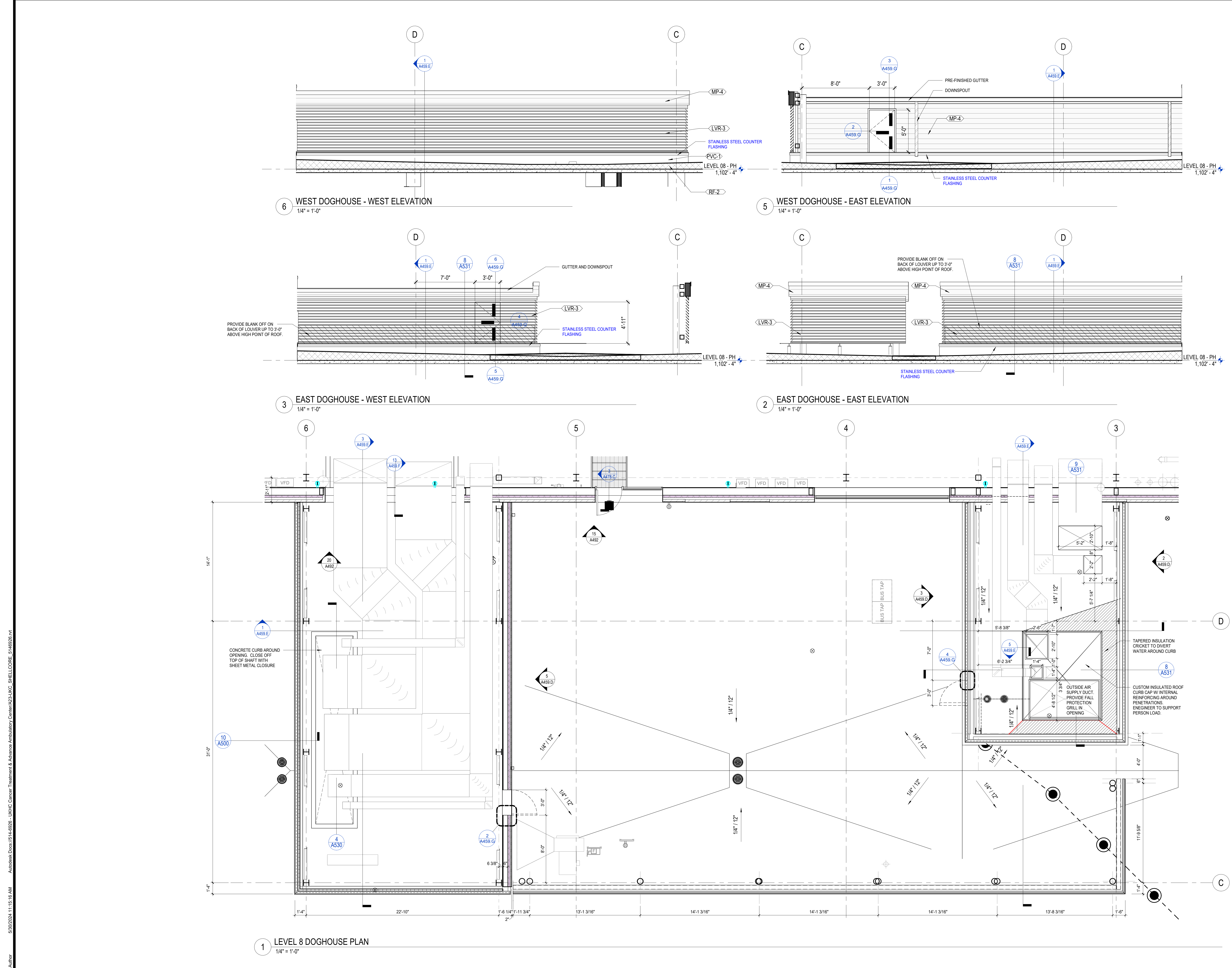
No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

No.	Description	Date

Drawn By	Author	
Checked By	Checker	
Client Number	514	06/30/2024
Project Number	6926	

DRAWING TITLE  
**PENTHOUSE PLAN AND ELEVATIONS**

SHEET NO.  
**A459.D**





ISSUANCES

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24


Drawn By

Author

Checked By

Checker

Client Number

514

Project Number

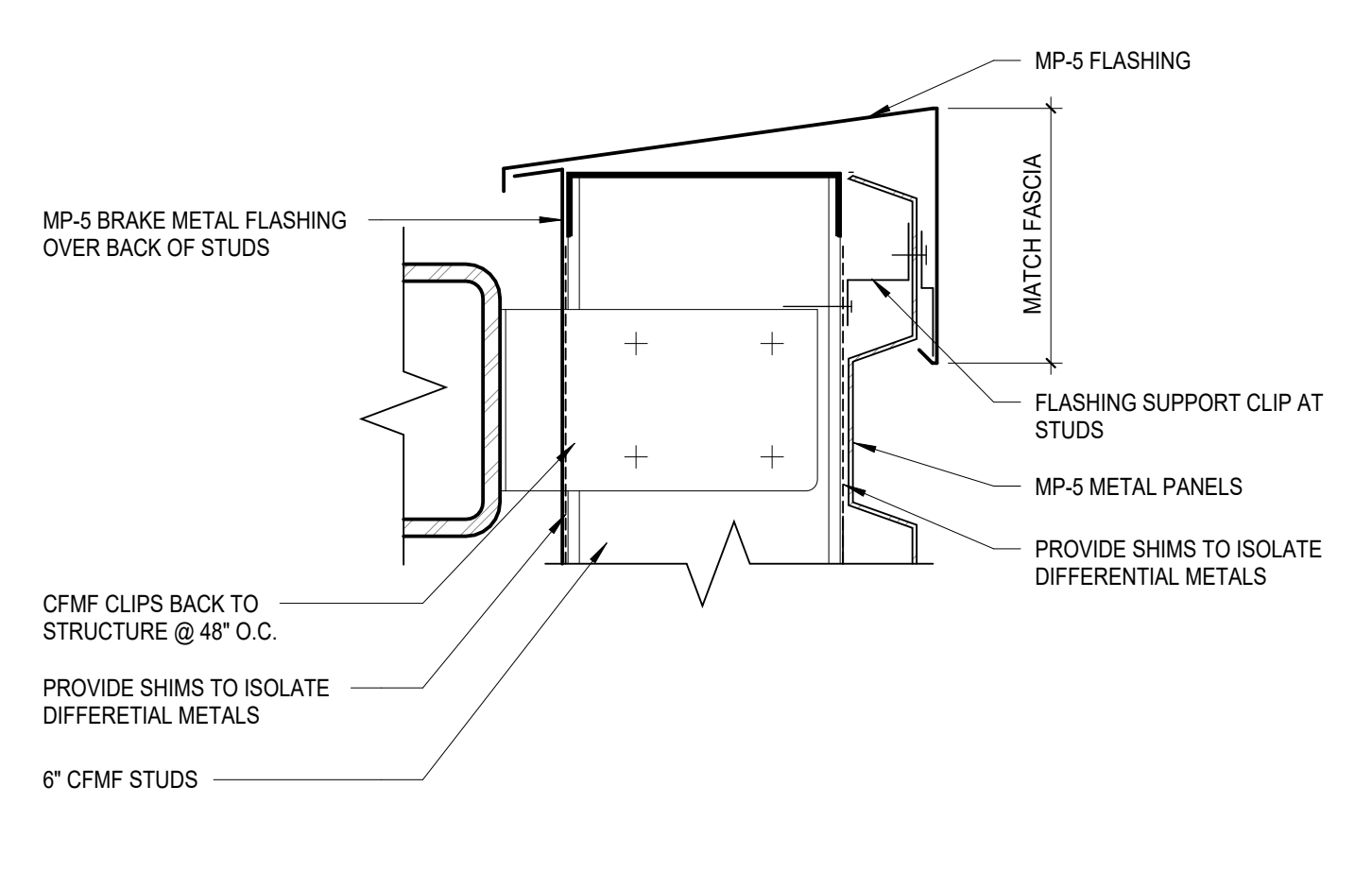
6926

DRAWING TITLE

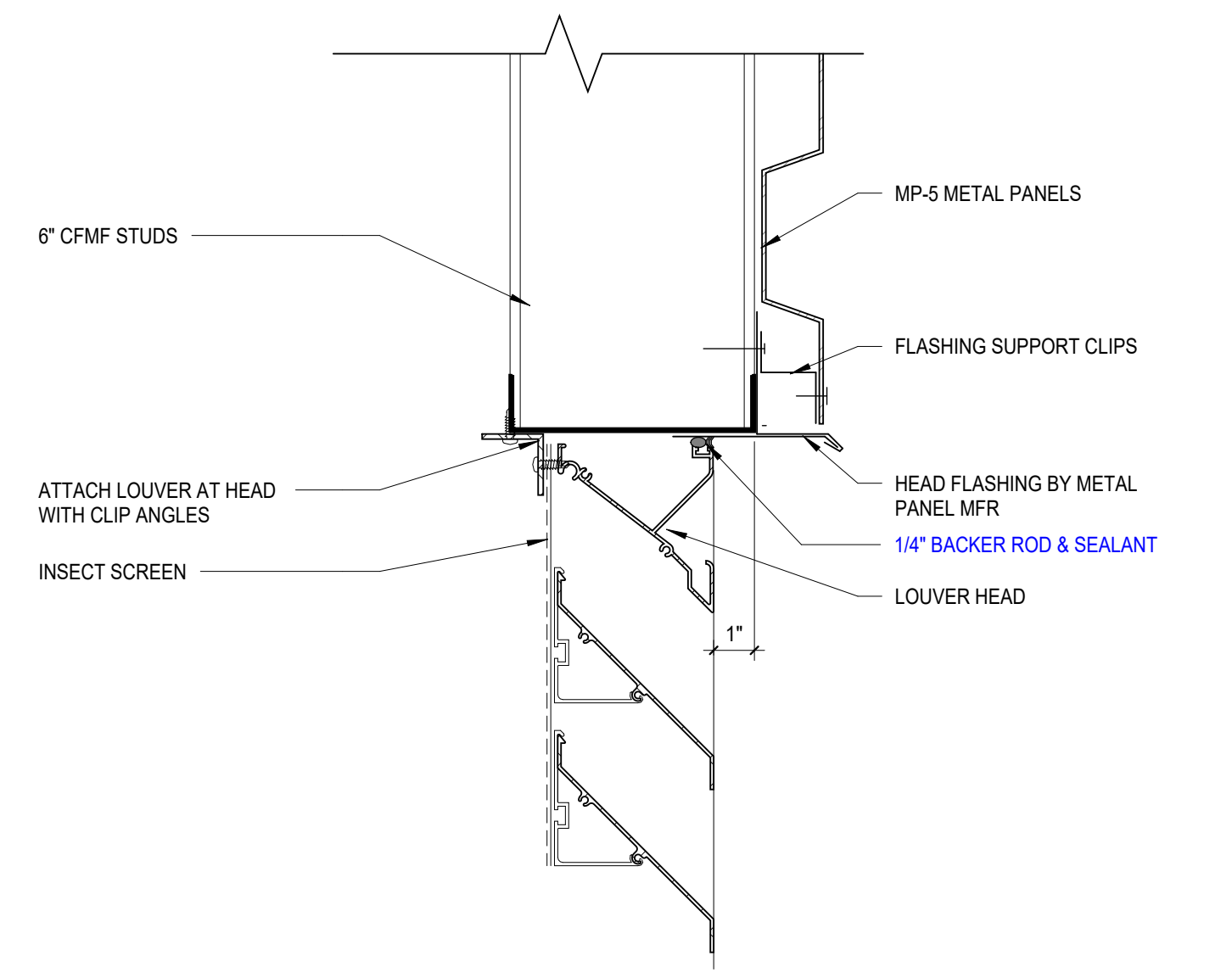
PENTHOUSE DETAILS

SHEET NO.

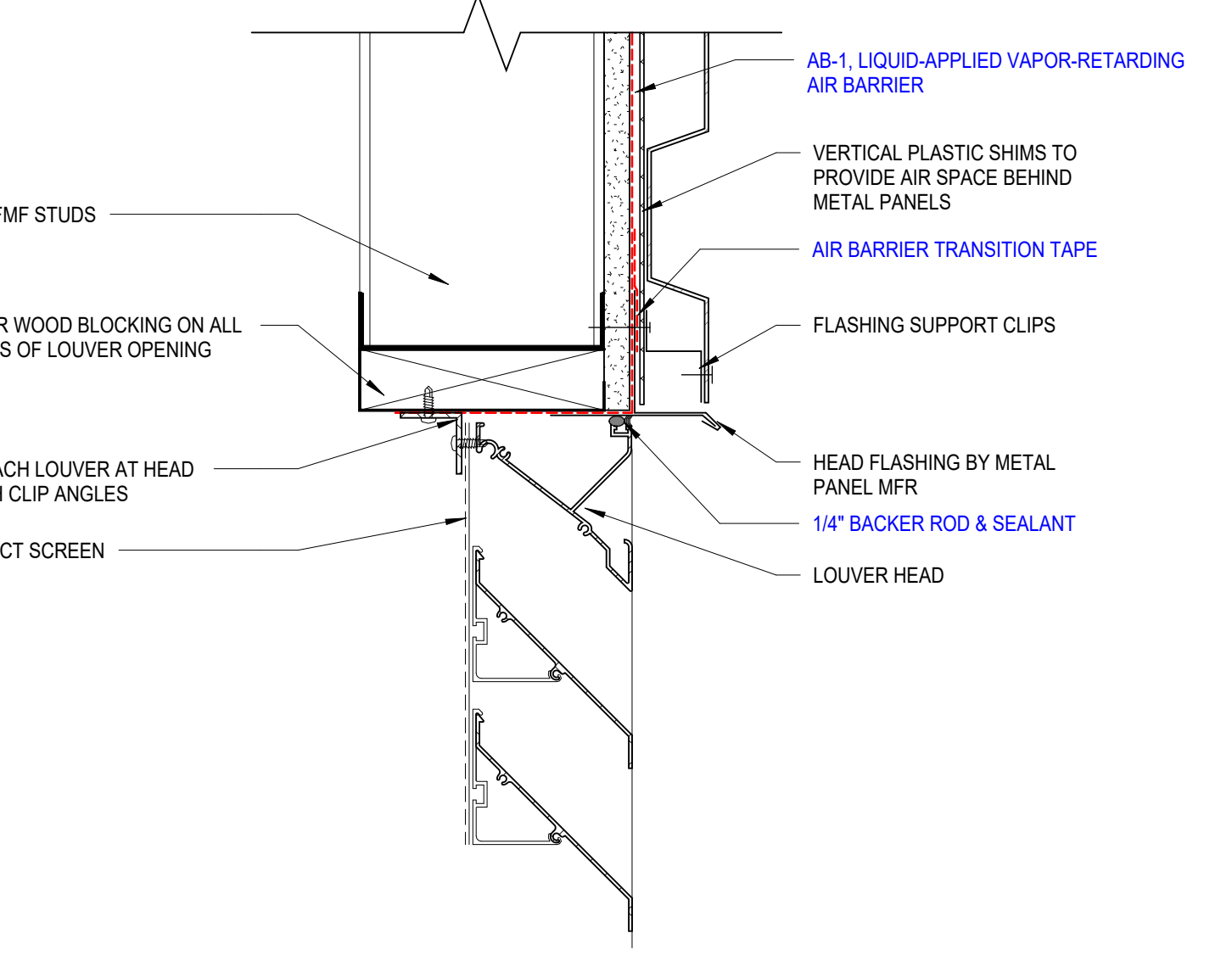
A459.F



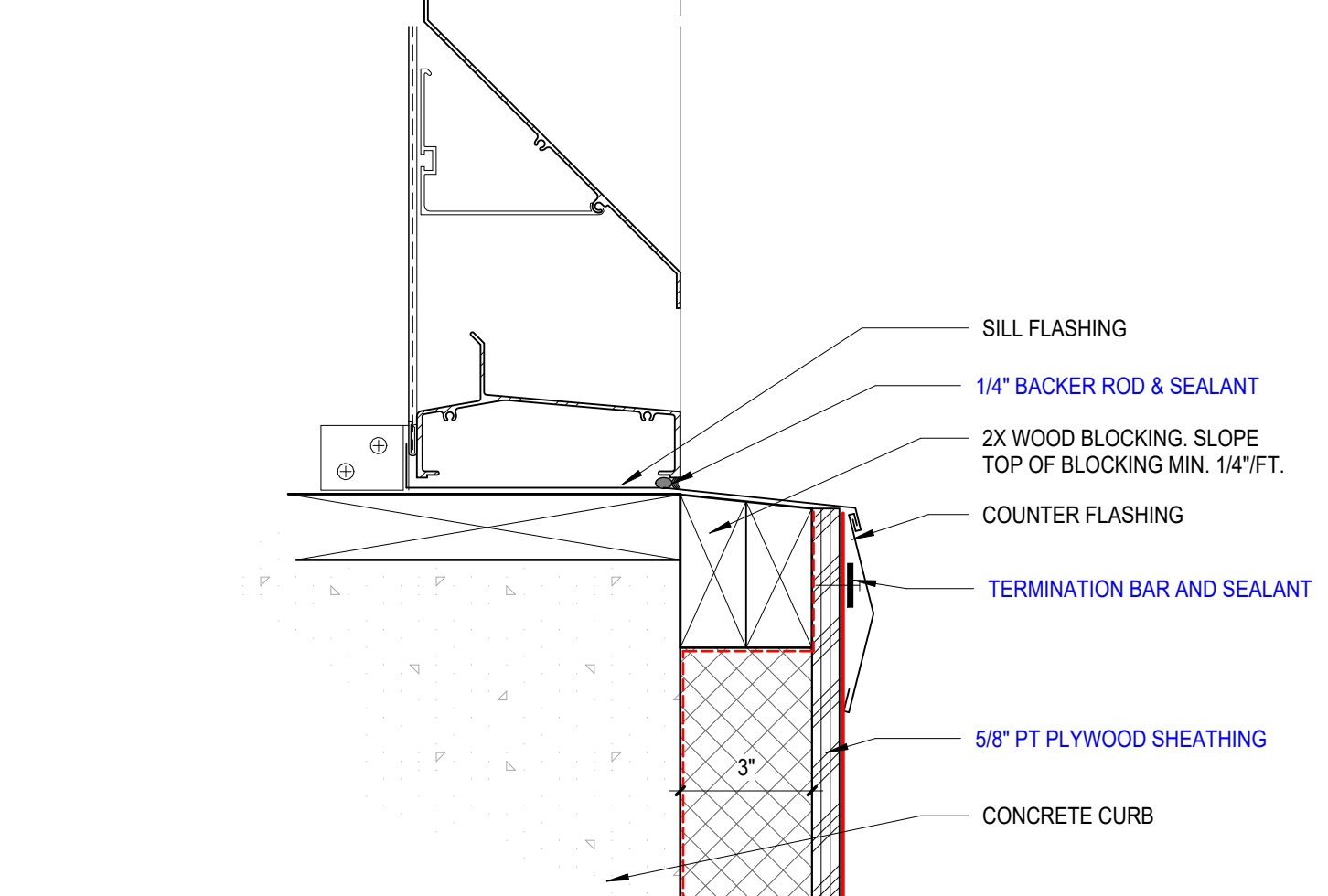
4 DETAIL - SCREEN WALL COPING  
3" = 1'-0"



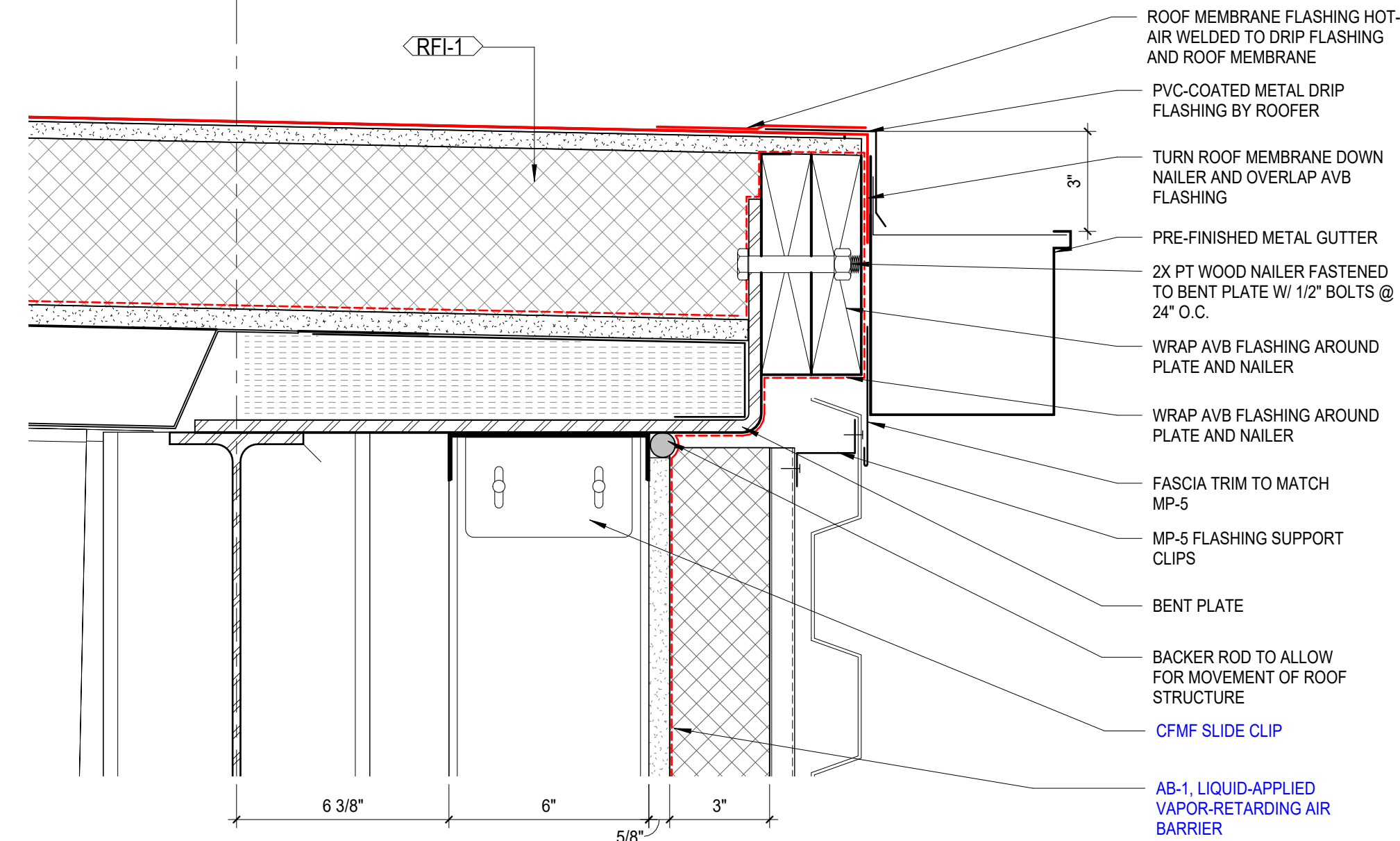
3 DETAIL - LOUVER HEAD AT SCREEN  
3" = 1'-0"



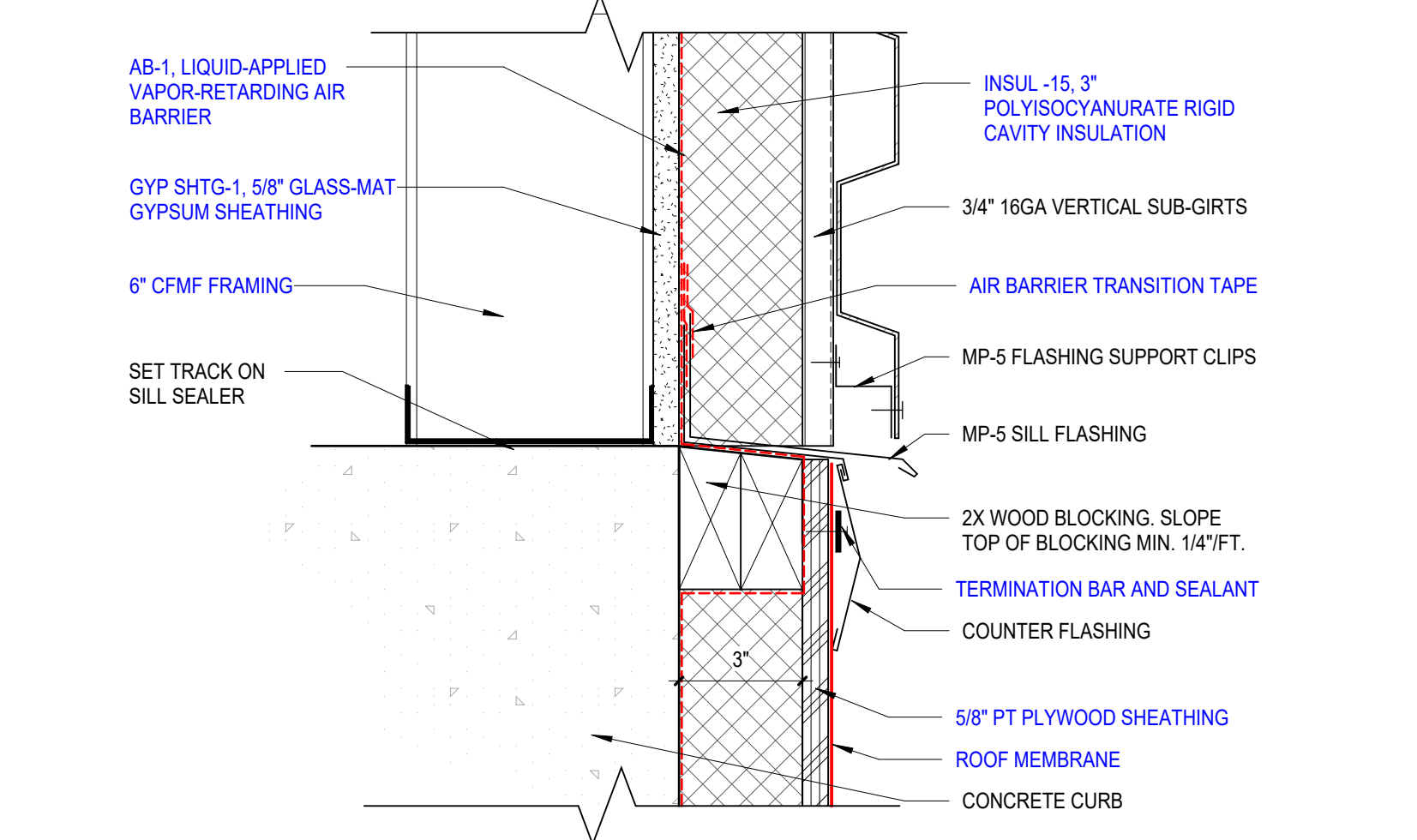
2 DETAIL - LOUVER HEAD AT MP-5  
3" = 1'-0"



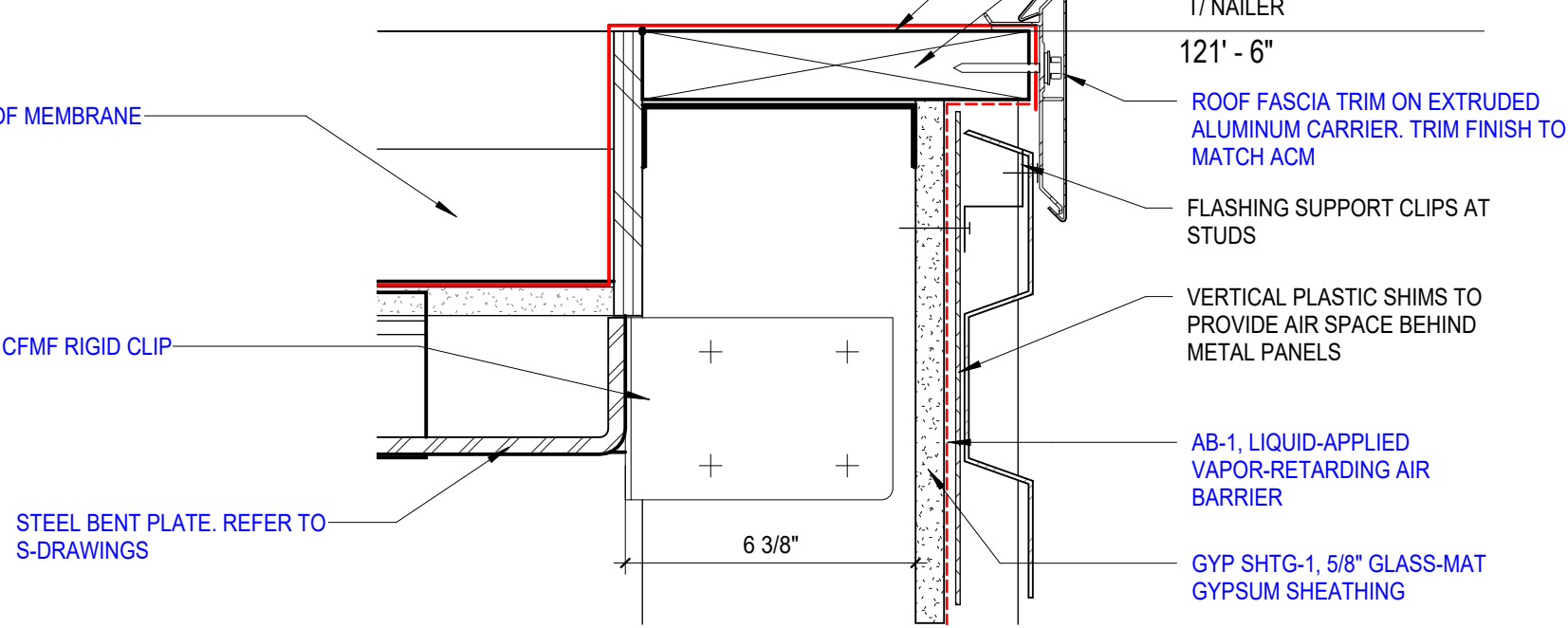
1 DETAIL - LOUVER SILL AT PENTHOUSE CURB  
3" = 1'-0"



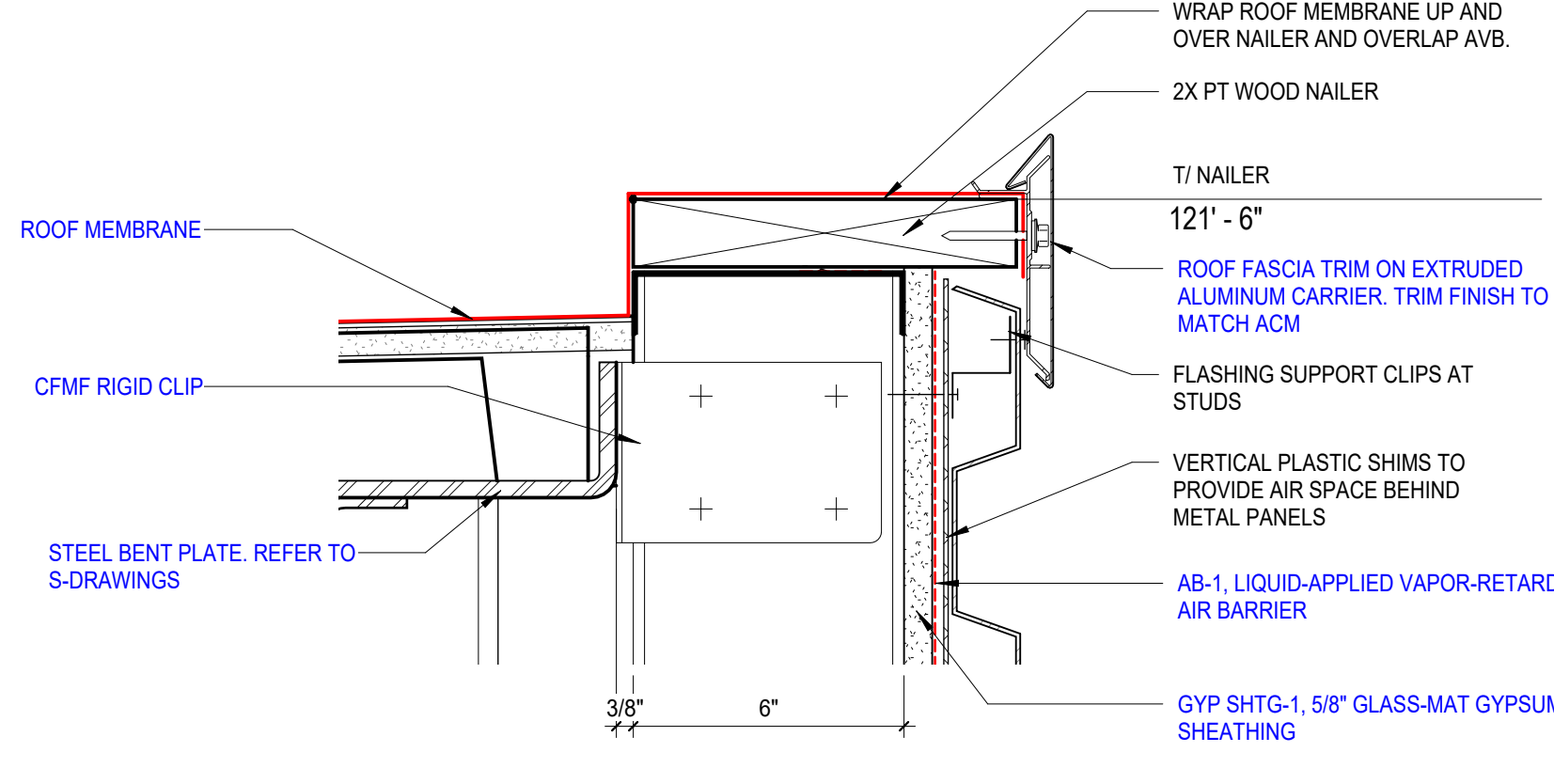
8 DETAIL - DOGHOUSE GUTTER  
3" = 1'-0"



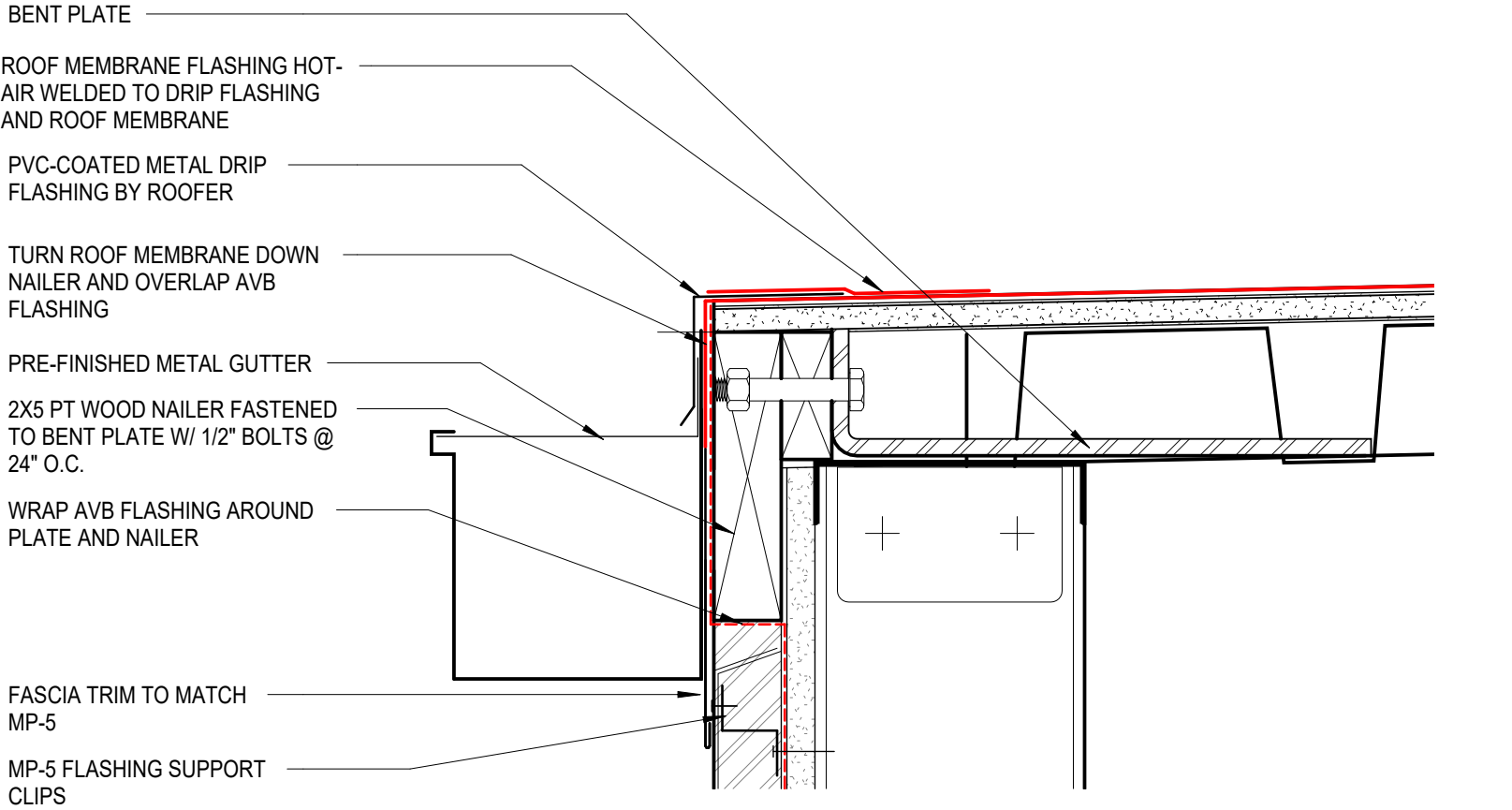
7 DETAIL - COUNTER FLASHING @ MP-5  
3" = 1'-0"



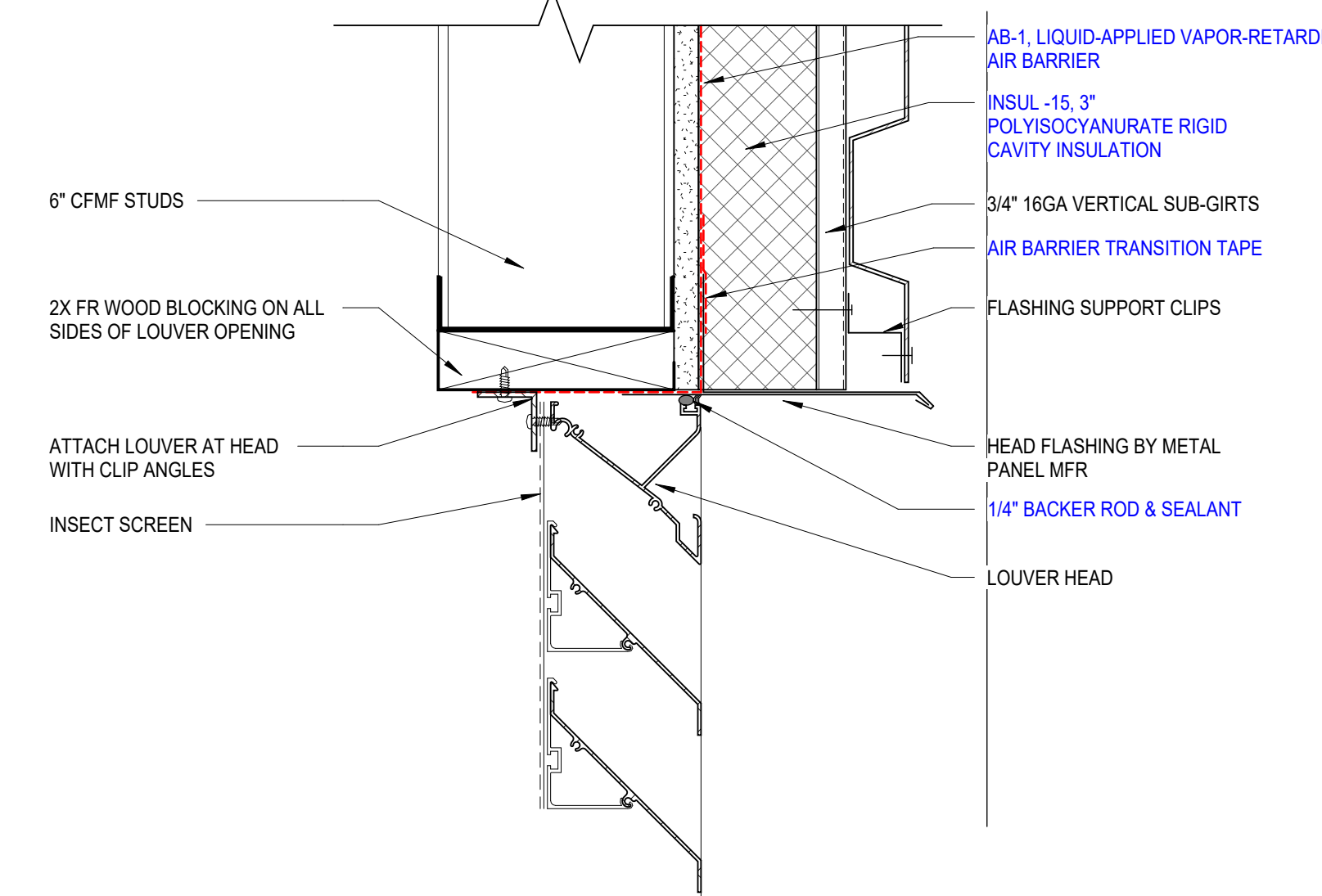
6 DETAIL - PAREPET AT DOGHOUSE SIDE 1  
3" = 1'-0"



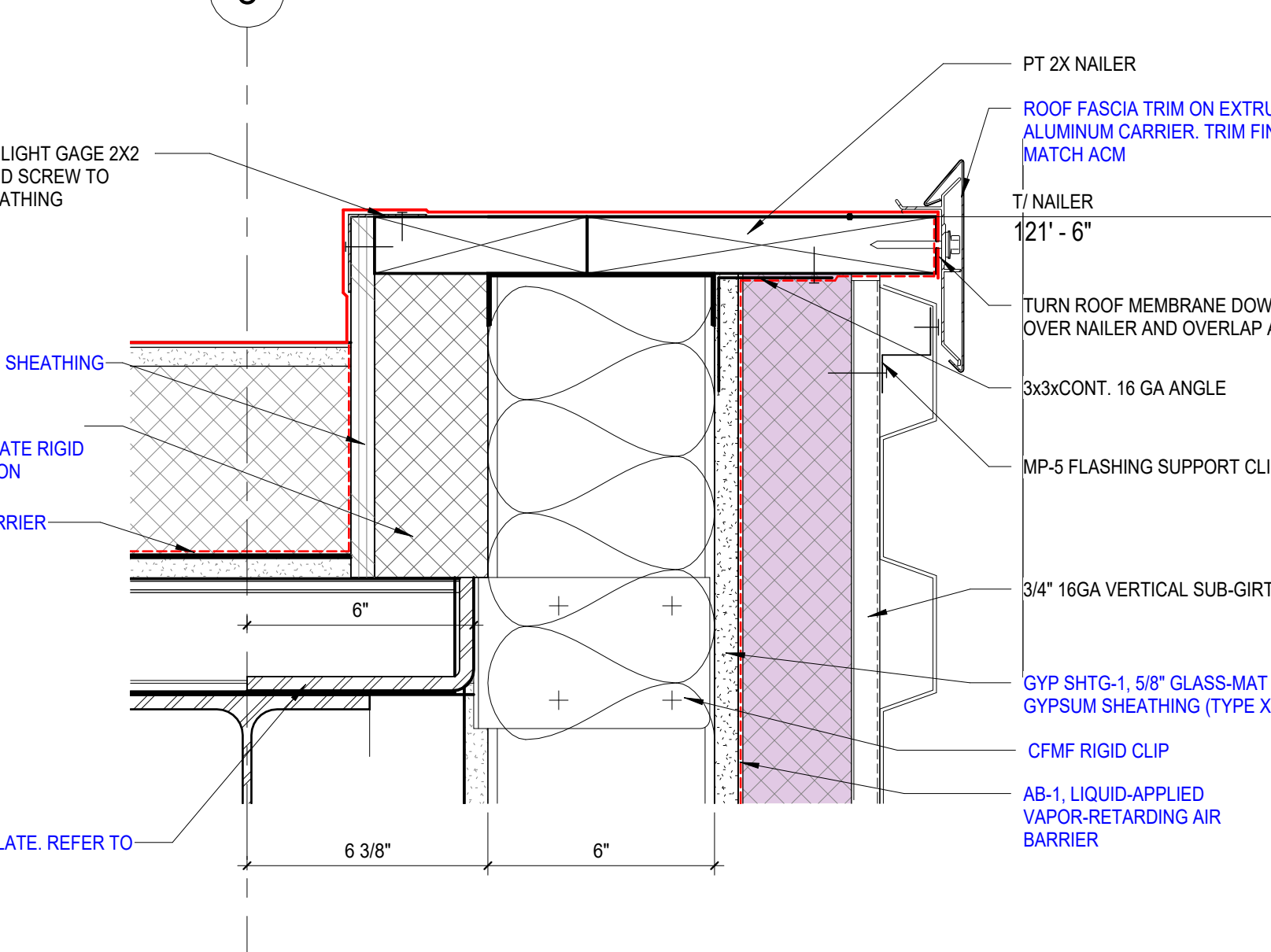
5 DETAIL - FASCIA AT DOGHOUSE  
3" = 1'-0"



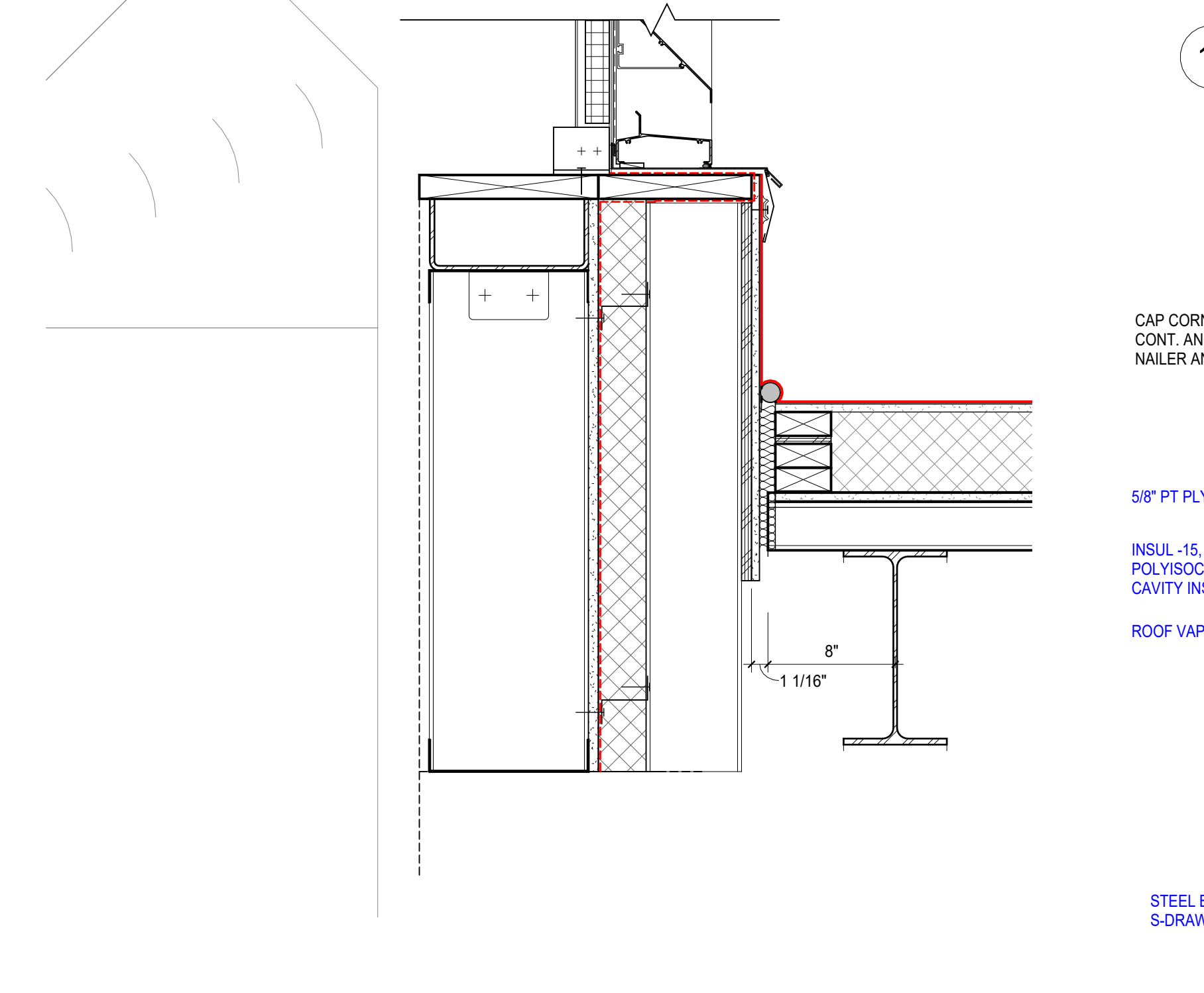
11 DETAIL - DOGHOUSE GUTTER 2  
3" = 1'-0"



10 DETAIL - LOUVER HEAD 2 AT MP-5  
3" = 1'-0"



9 DETAIL - PAREPET AT DOGHOUSE SIDE 2  
3" = 1'-0"



13 DETAIL - DOGHOUSE AT PH WALL  
1 1/2" = 1'-0"

ISSUANCES

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By

Author

Checked By

Checker

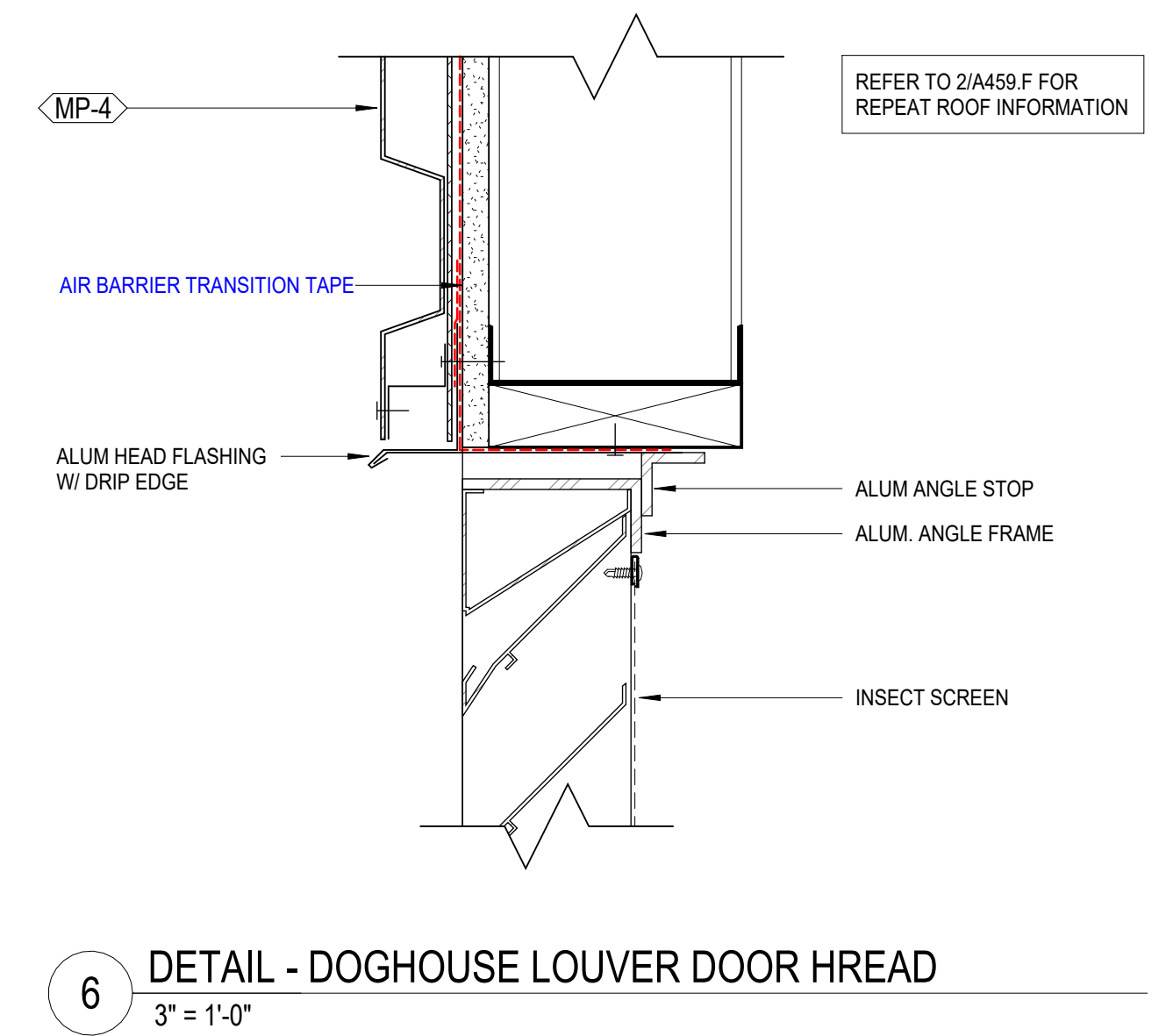
Client Number 514

Project Number 6926

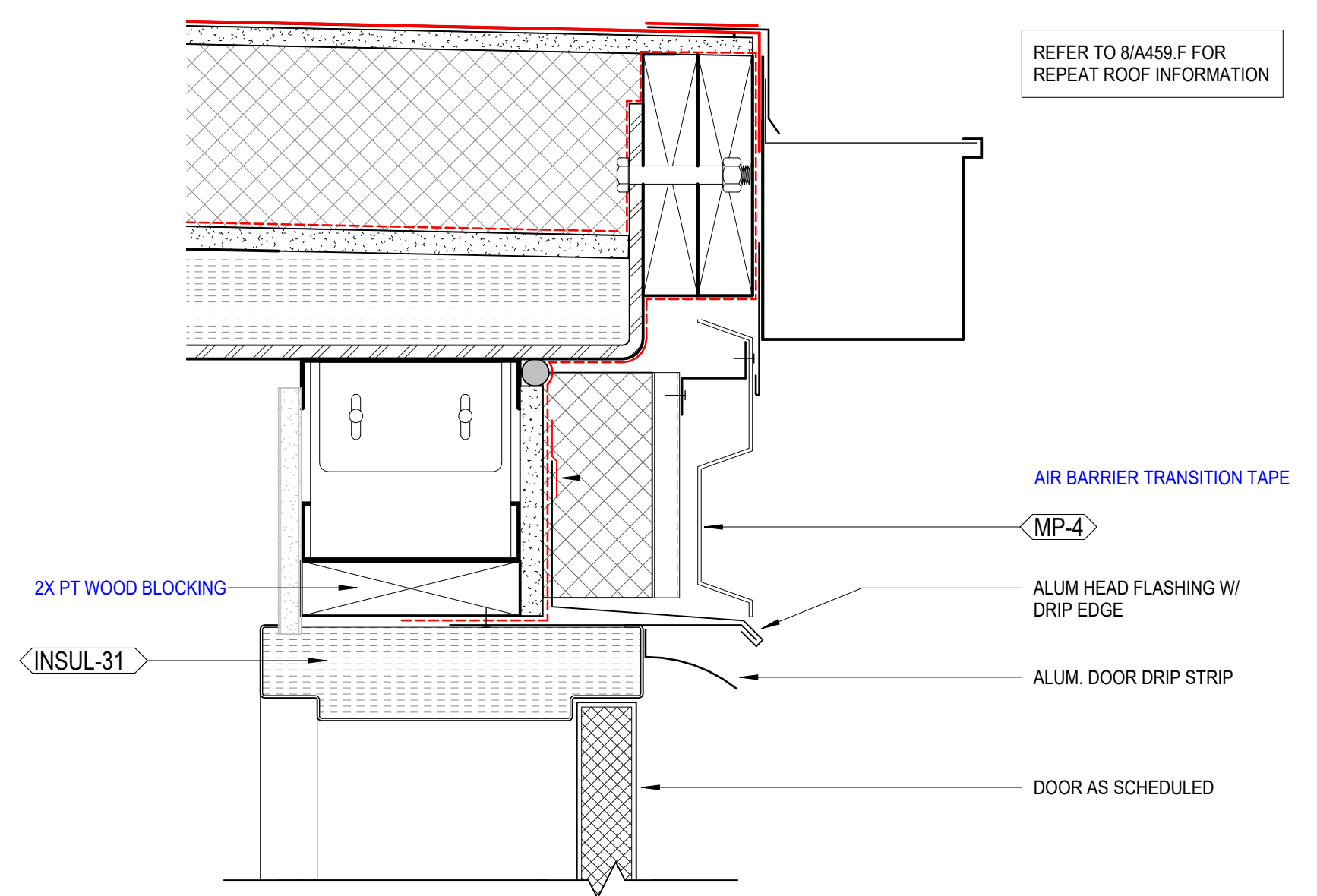
DRAWING TITLE

PENTHOUSE DETAILS

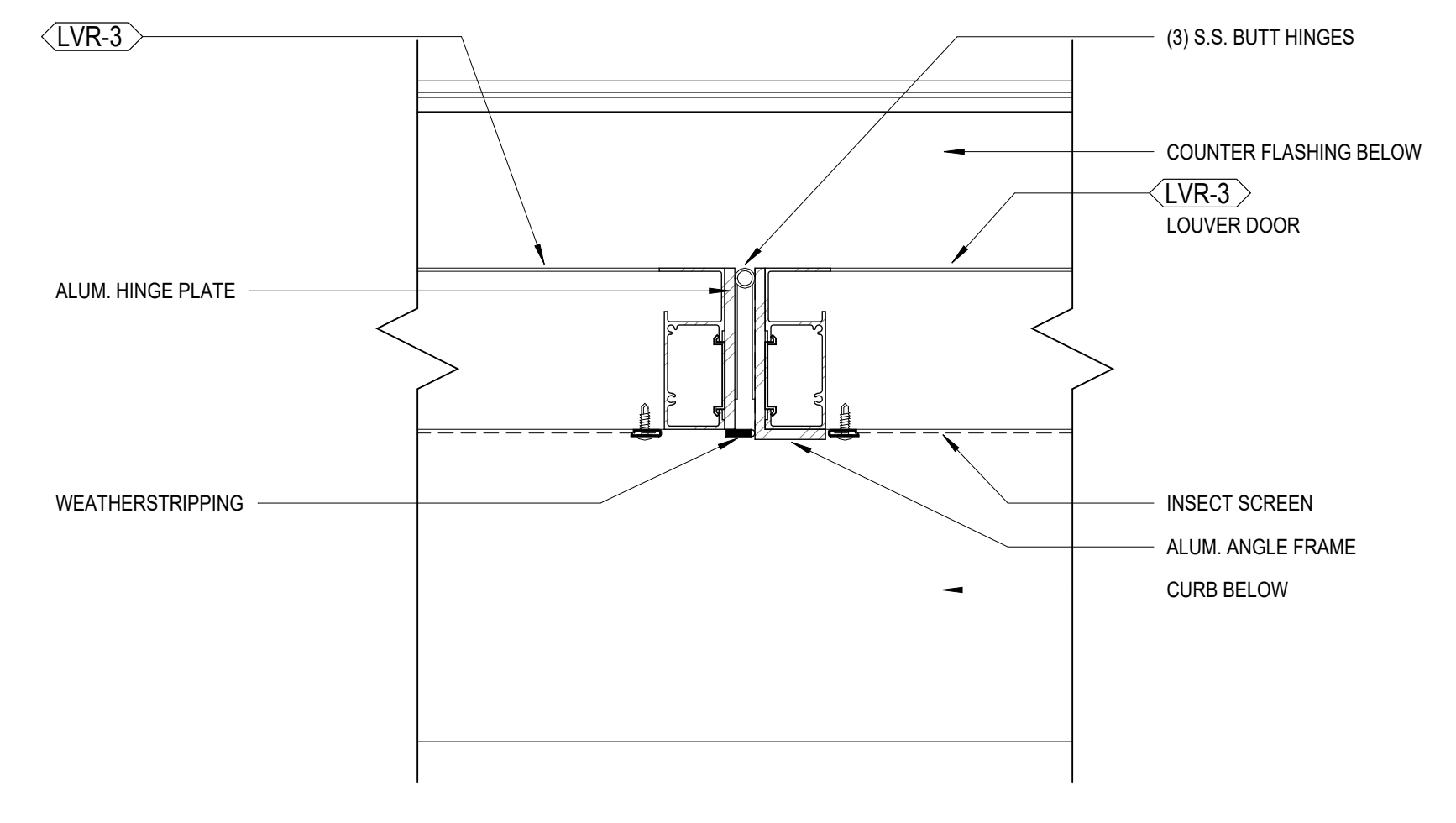
SHEET NO. **A459.G**



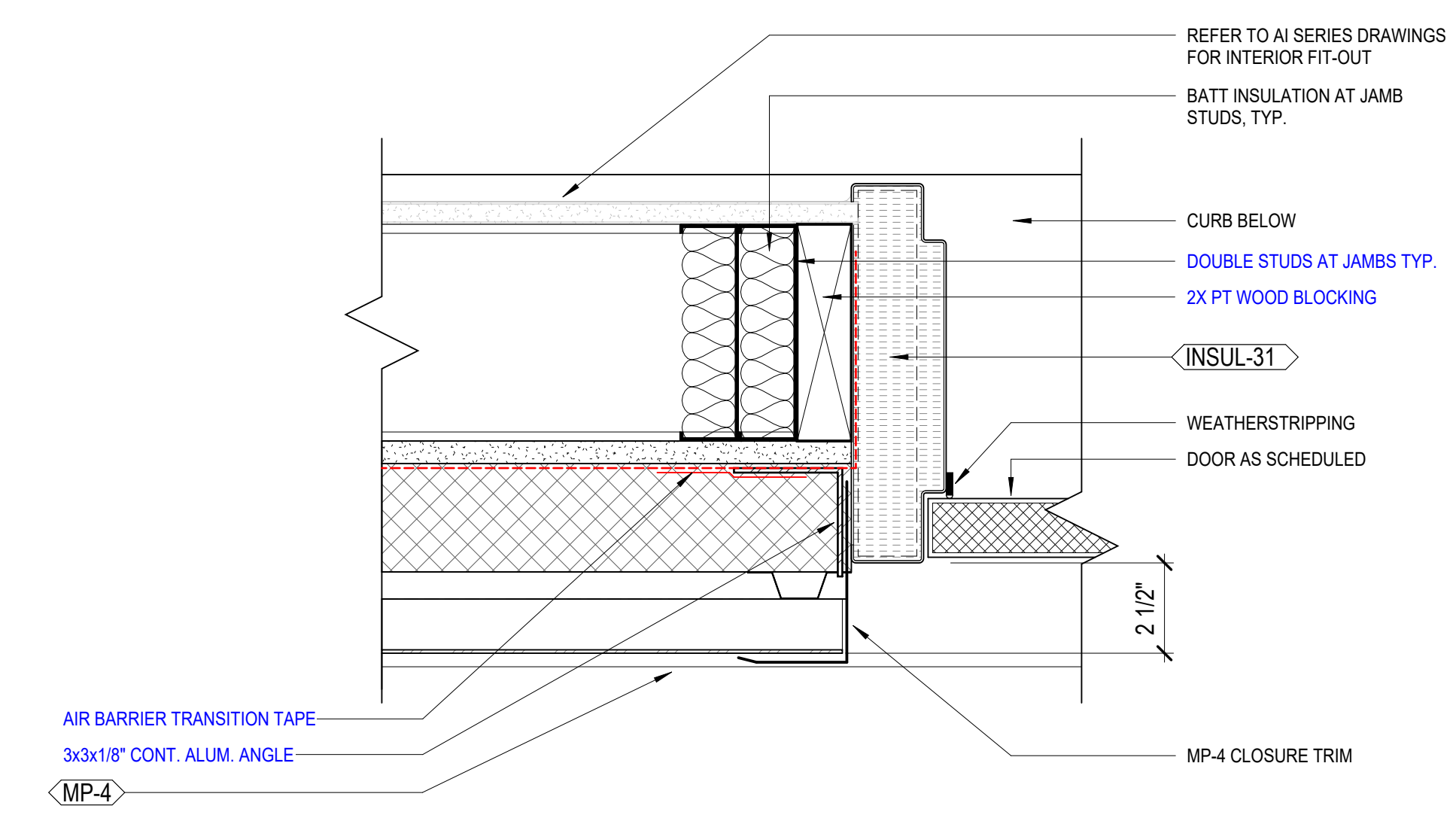
6 DETAIL - DOGHOUSE LOUVER DOOR HREAD  
3" = 1'-0"



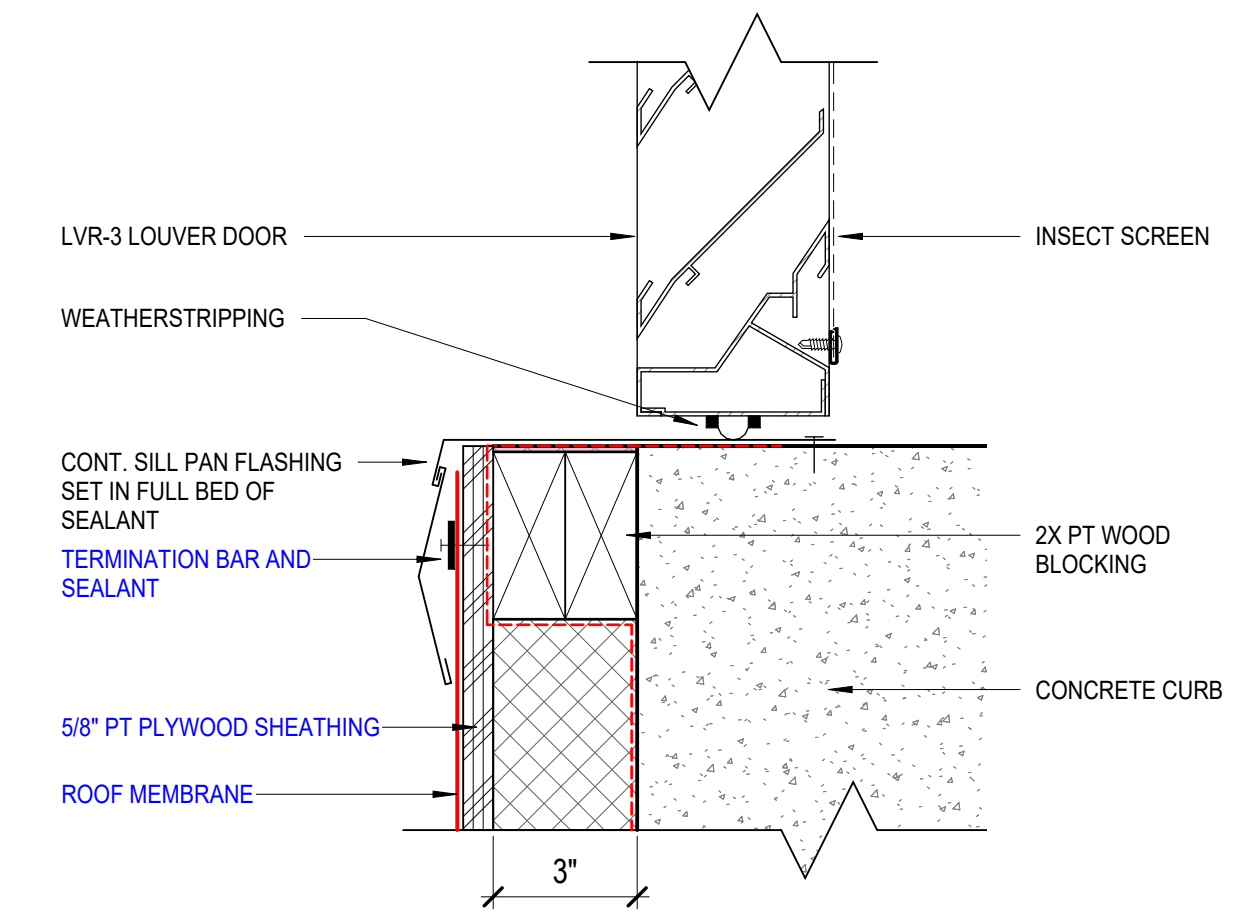
3 DETAIL - DOGHOUSE HOLLOW METAL DOOR HEAD  
3" = 1'-0"



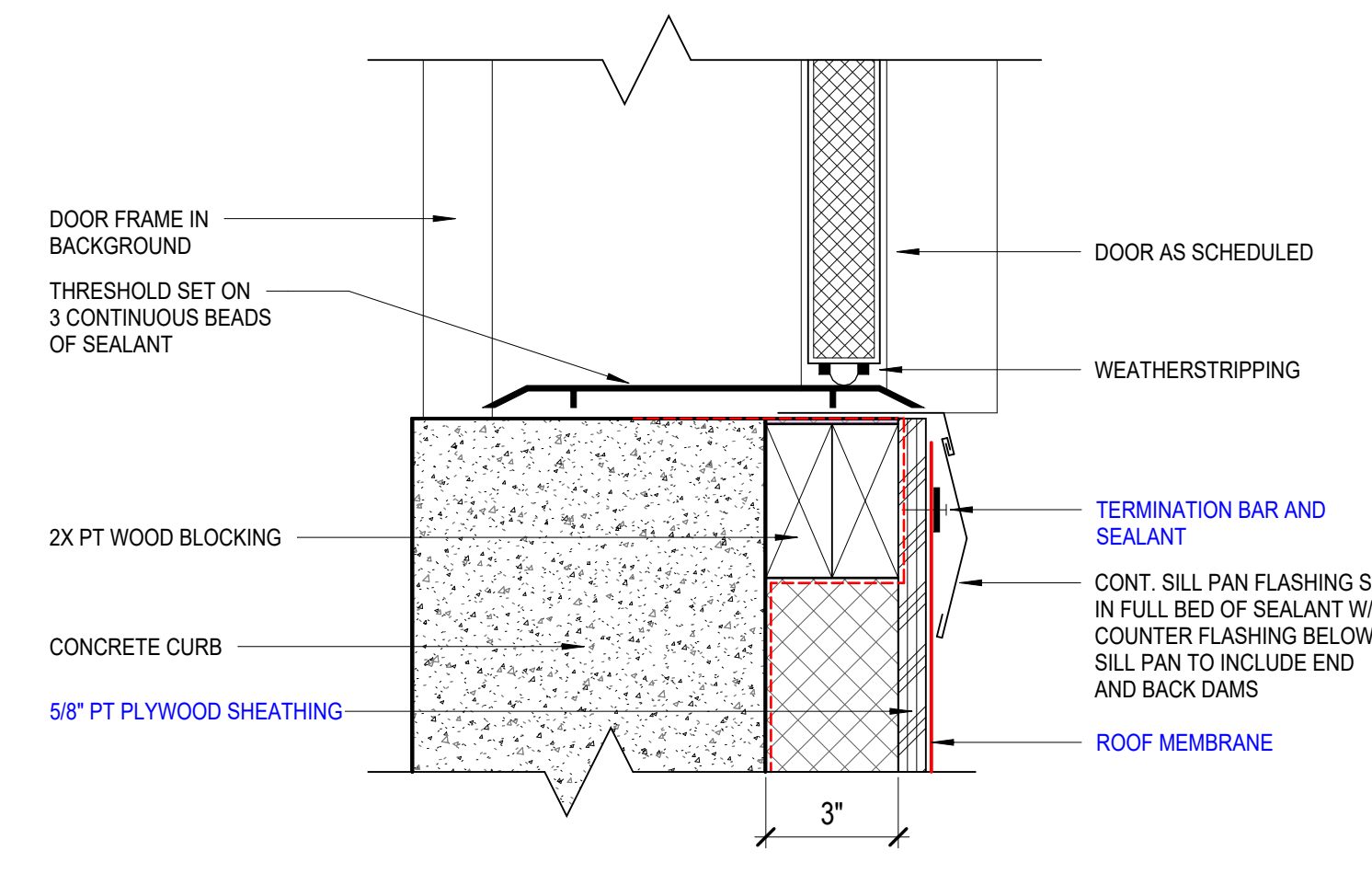
4 DETAIL - DOGHOUSE LOUVER DOOR JAMB  
3" = 1'-0"



2 DETAIL - DOGHOUSE HOLLOW METAL DOOR JAMB  
3" = 1'-0"



5 DETAIL - DOGHOUSE LOUVER DOOR SILL  
3" = 1'-0"

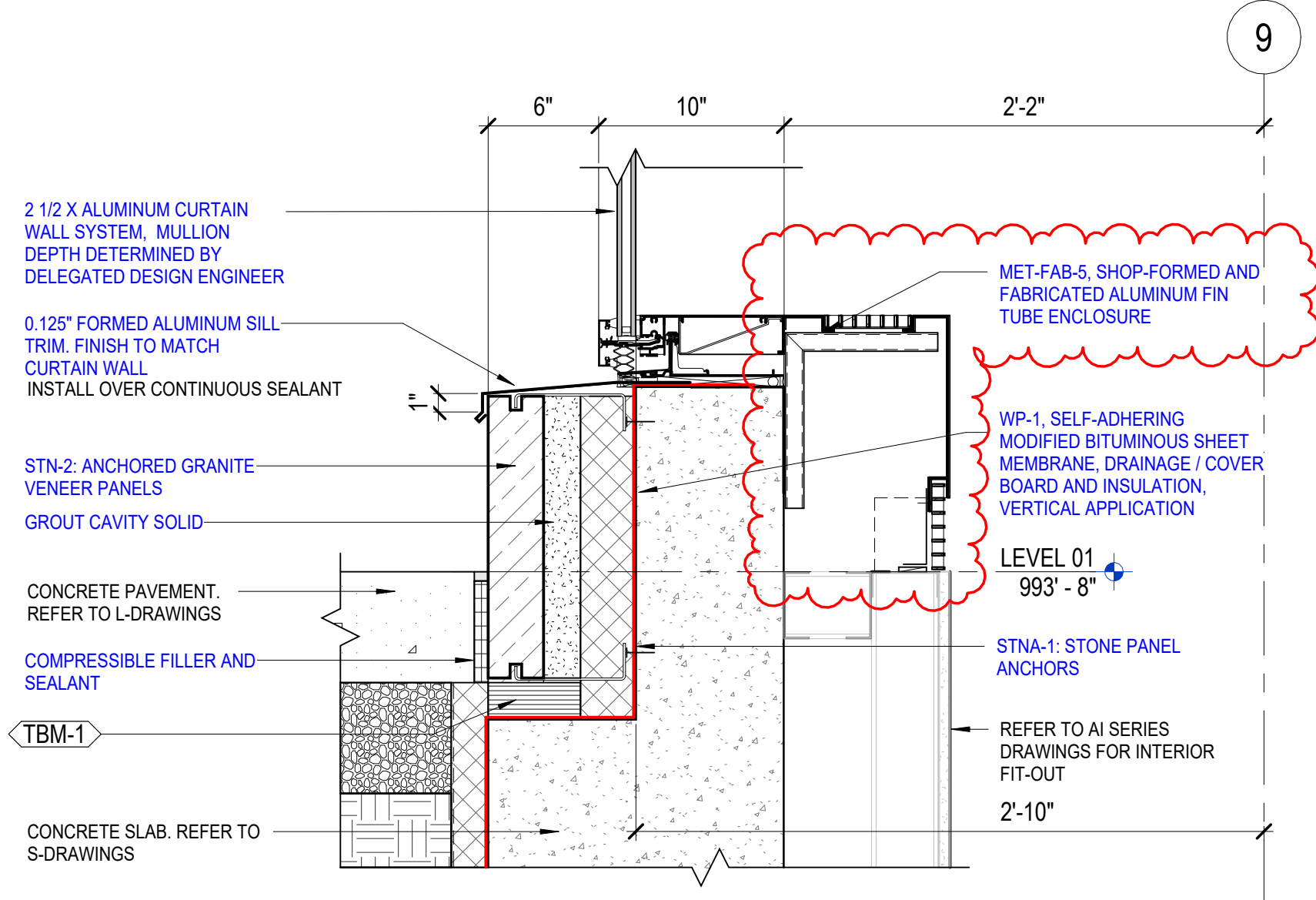


1 DETAIL - DOGHOUSE HOLLOW METAL DOOR SILL  
3" = 1'-0"

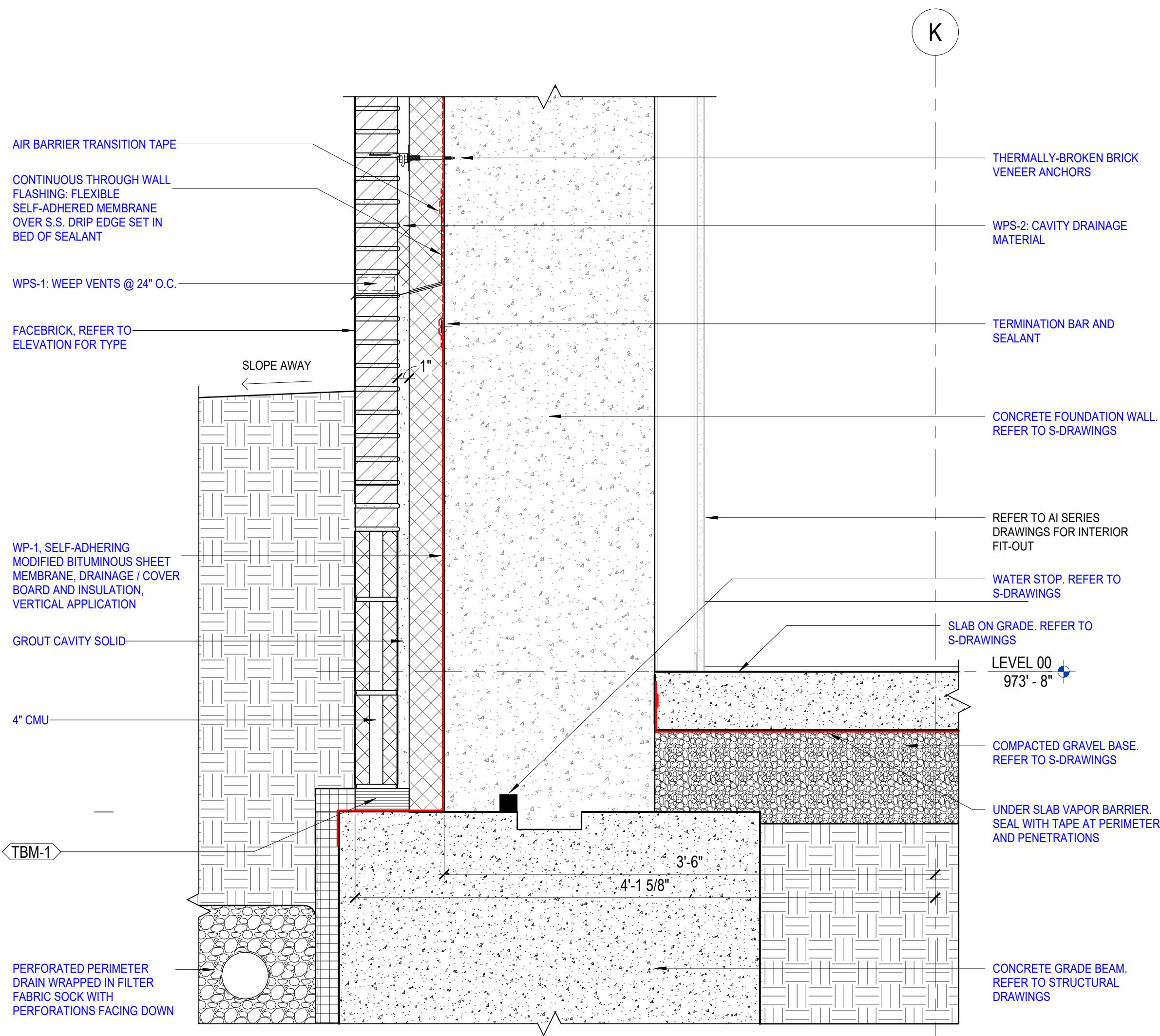


Author: 5/30/2024 11:12:17 AM Autodesk Docs: //14-69209 - UKHC Cancer Treatment & Advanced Ambulatory Center/453-LKVC-SHELL CORE-2/469209.rvt

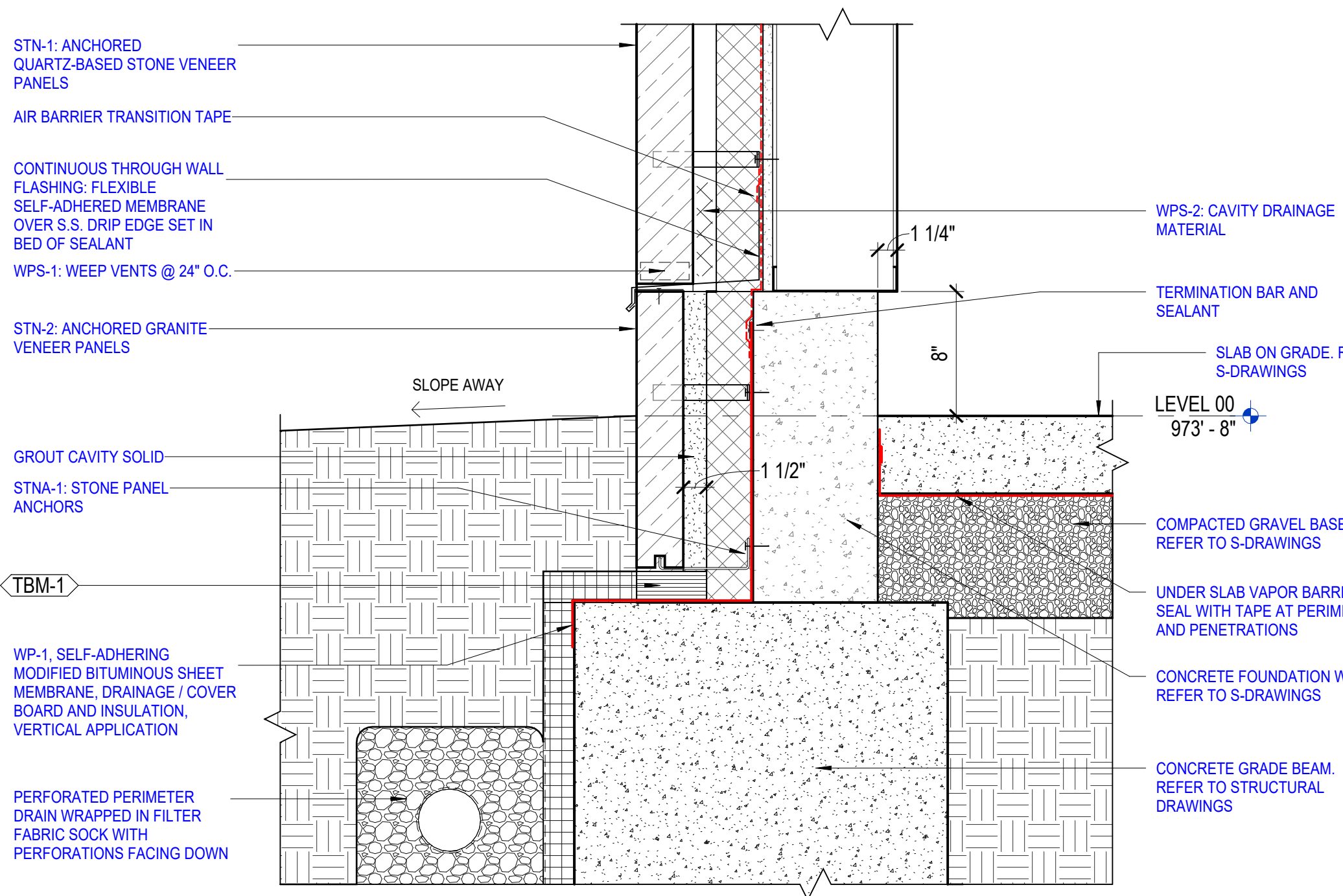
8 DETAIL - CURTAIN WALL SILL AND STONE BASE (STAIR)  
1 1/2" = 1'-0"  
2/A454.A



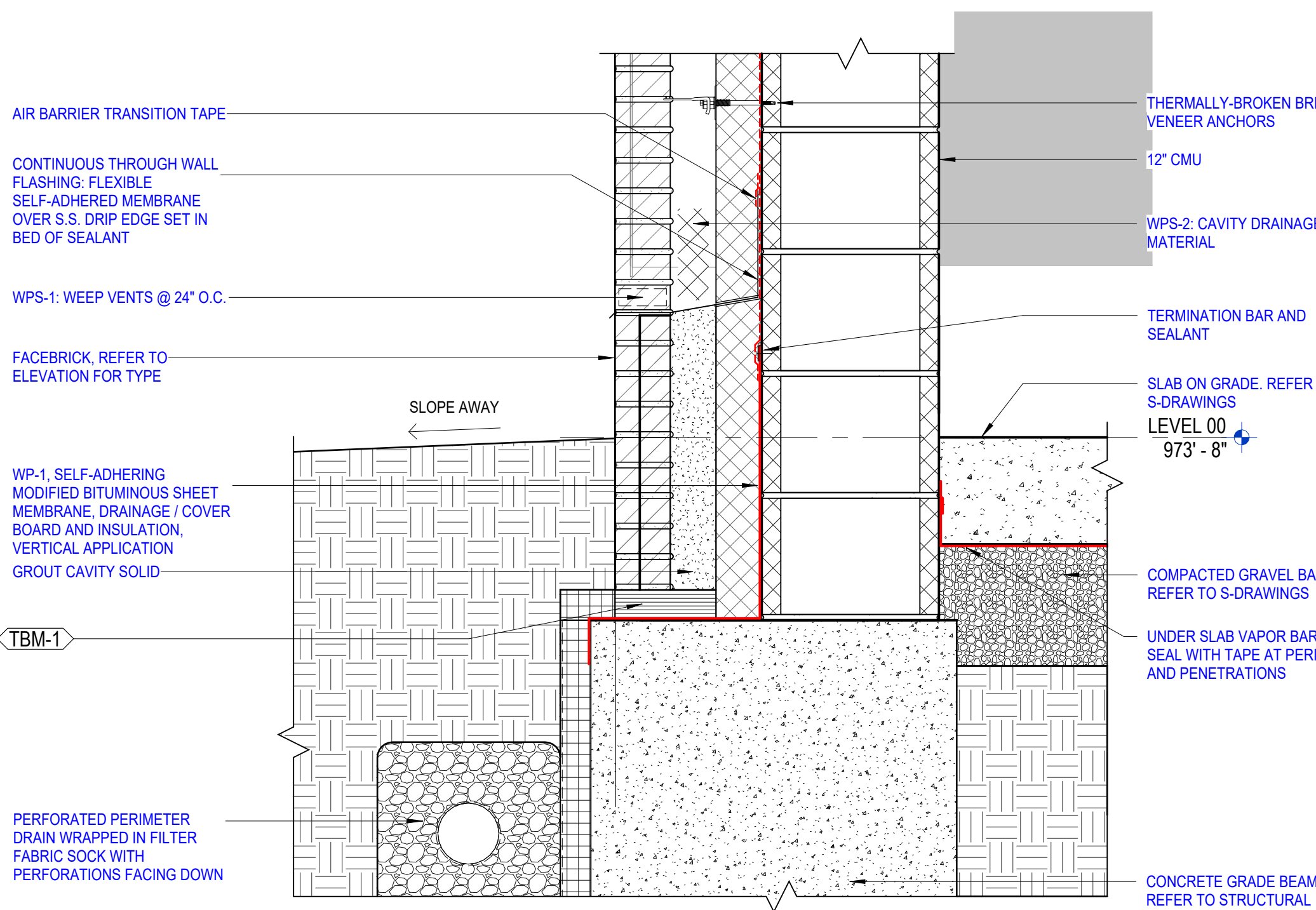
7 DETAIL - BELOW GRADE FOUNDATION WALL (GARDEN)  
1 1/2" = 1'-0"  
1/A456



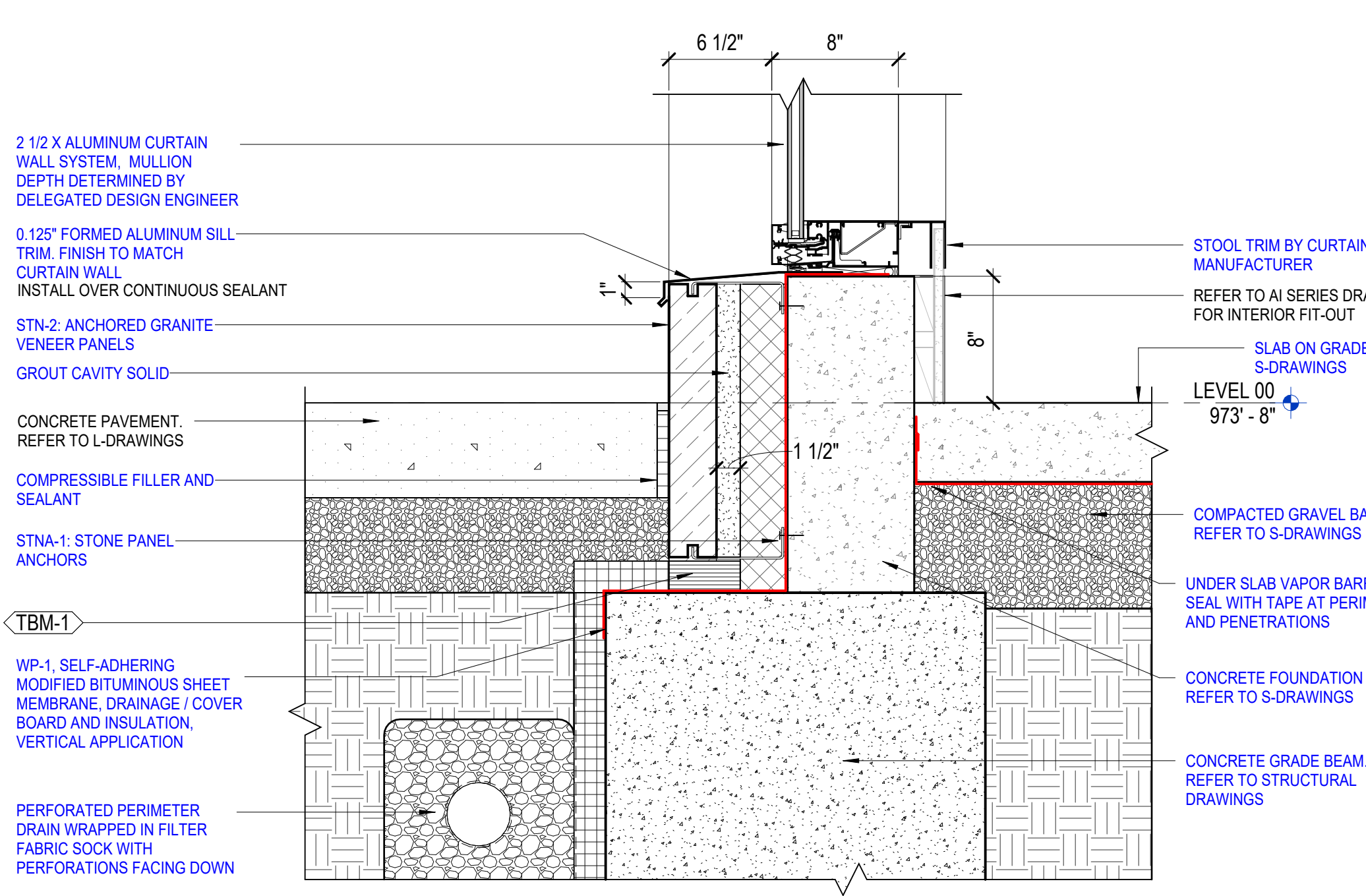
6 DETAIL - STONE BASE AND STONE WALL  
1 1/2" = 1'-0"  
3/A459.A



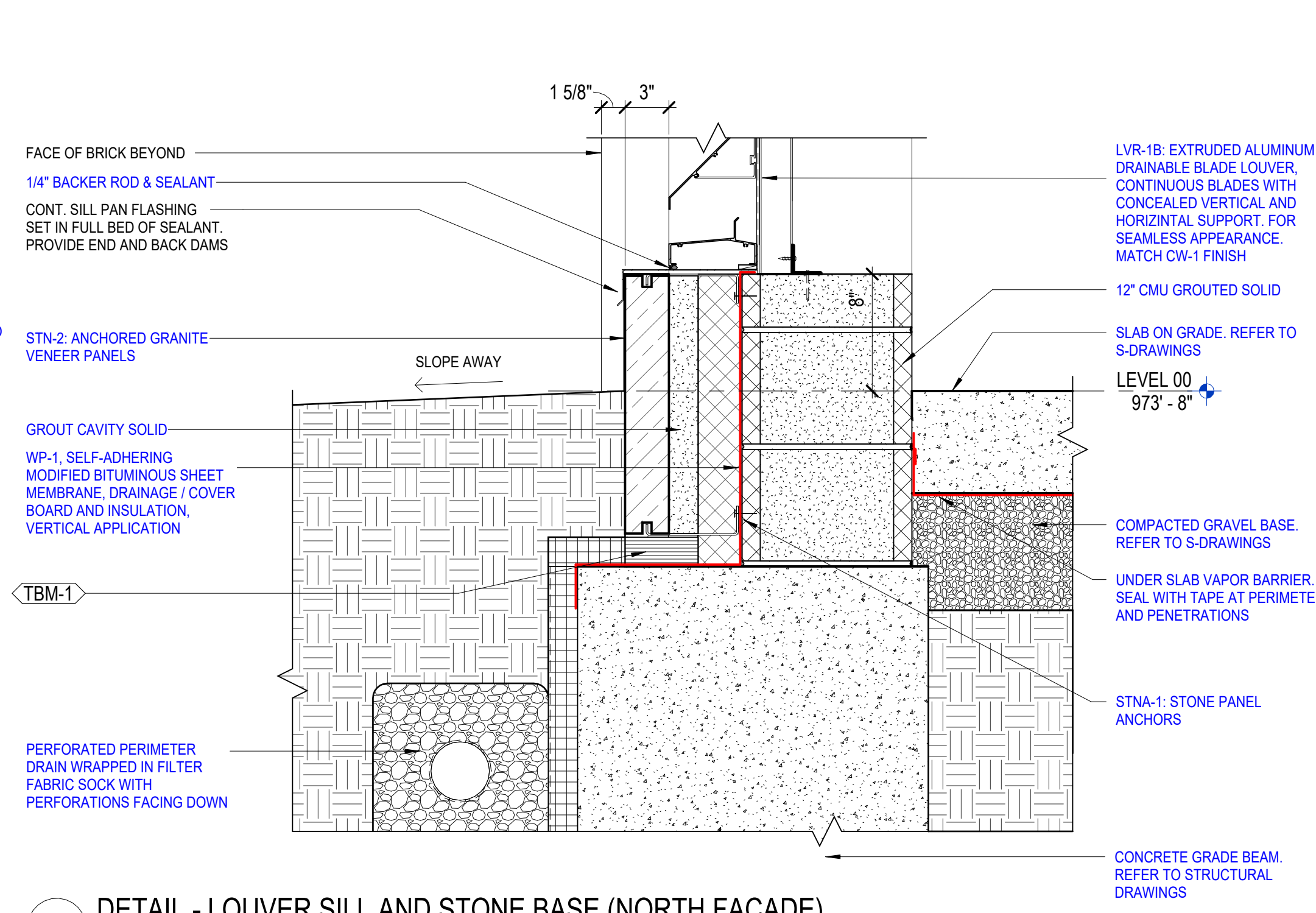
5 DETAIL - BRICK BASE AND BRICK WALL (NORTH FACADE)  
1 1/2" = 1'-0"  
1/A459



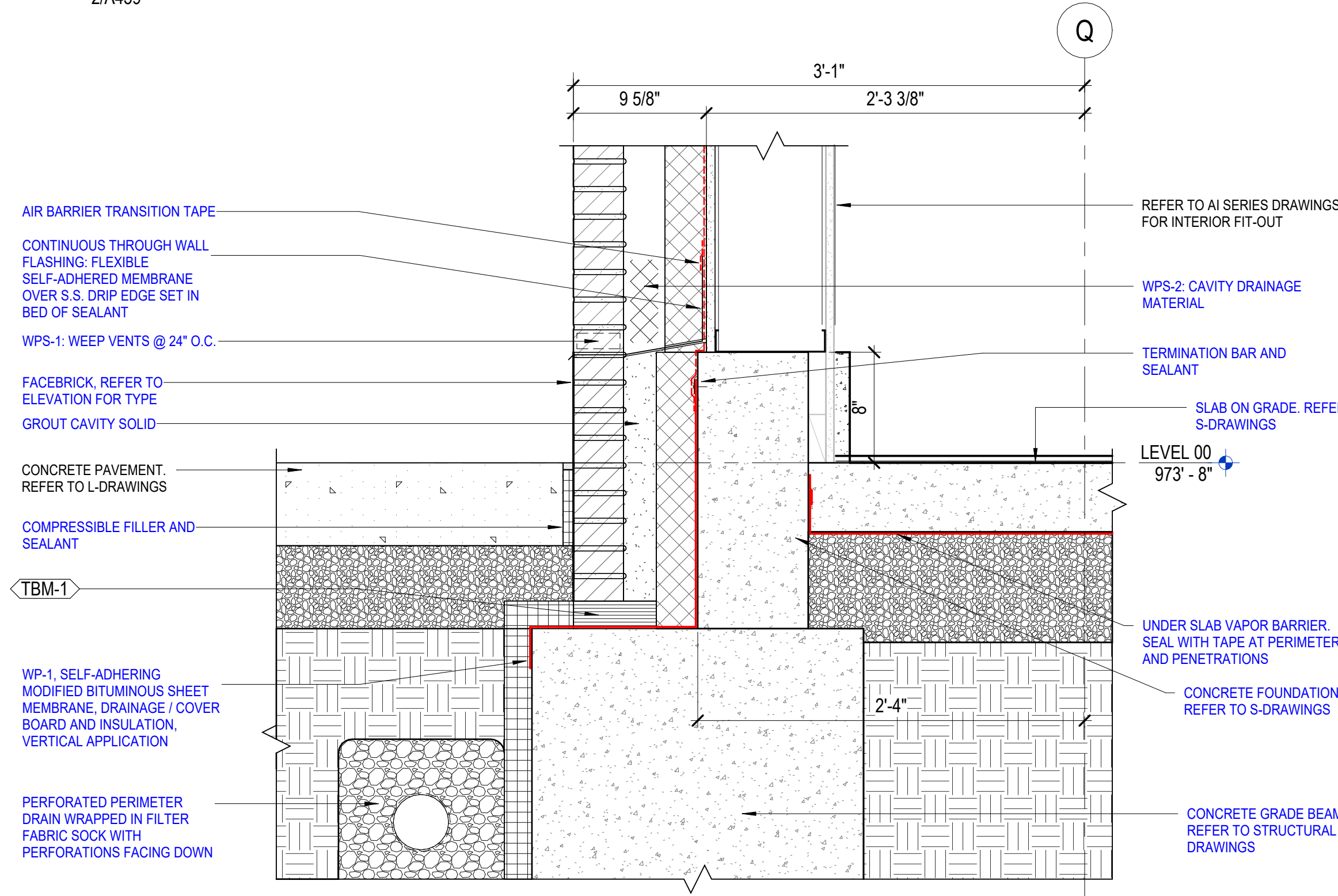
4 DETAIL - CURTAIN WALL SILL AND STONE BASE (NORTH FACADE)  
1 1/2" = 1'-0"  
7/A459.A



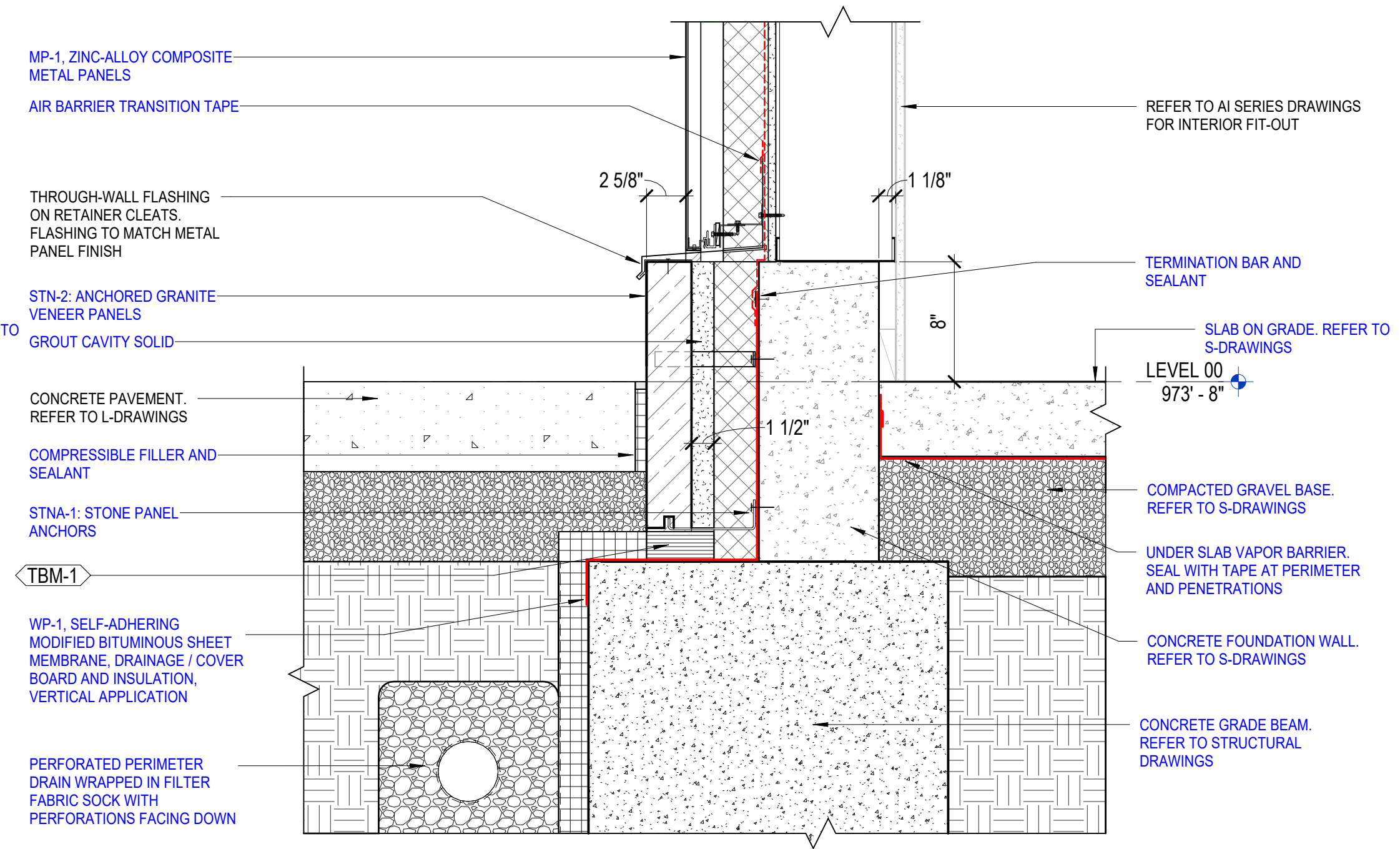
3 DETAIL - LOUVER SILL AND STONE BASE (NORTH FACADE)  
1 1/2" = 1'-0"  
2/A459



2 DETAIL - BRICK BASE AND BRICK WALL  
1 1/2" = 1'-0"  
4/A459.A



1 DETAIL - STONE BASE AND METAL PANEL (NORTH FACADE)  
1 1/2" = 1'-0"  
2/A423



ISSUANCES

No.	Description	Date
1	C&S 90% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By: [Blank]  
Author: [Blank]  
Checked By: [Blank]  
Checker: [Blank]  
Client Number: 514  
Project Number: 6926

DRAWING TITLE

FOUNDATION DETAILS

SHEET NO.  
A466

5/30/2024 11:12:17 AM

ISSUANCES

No.	Description	Date
1	C&S 90% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

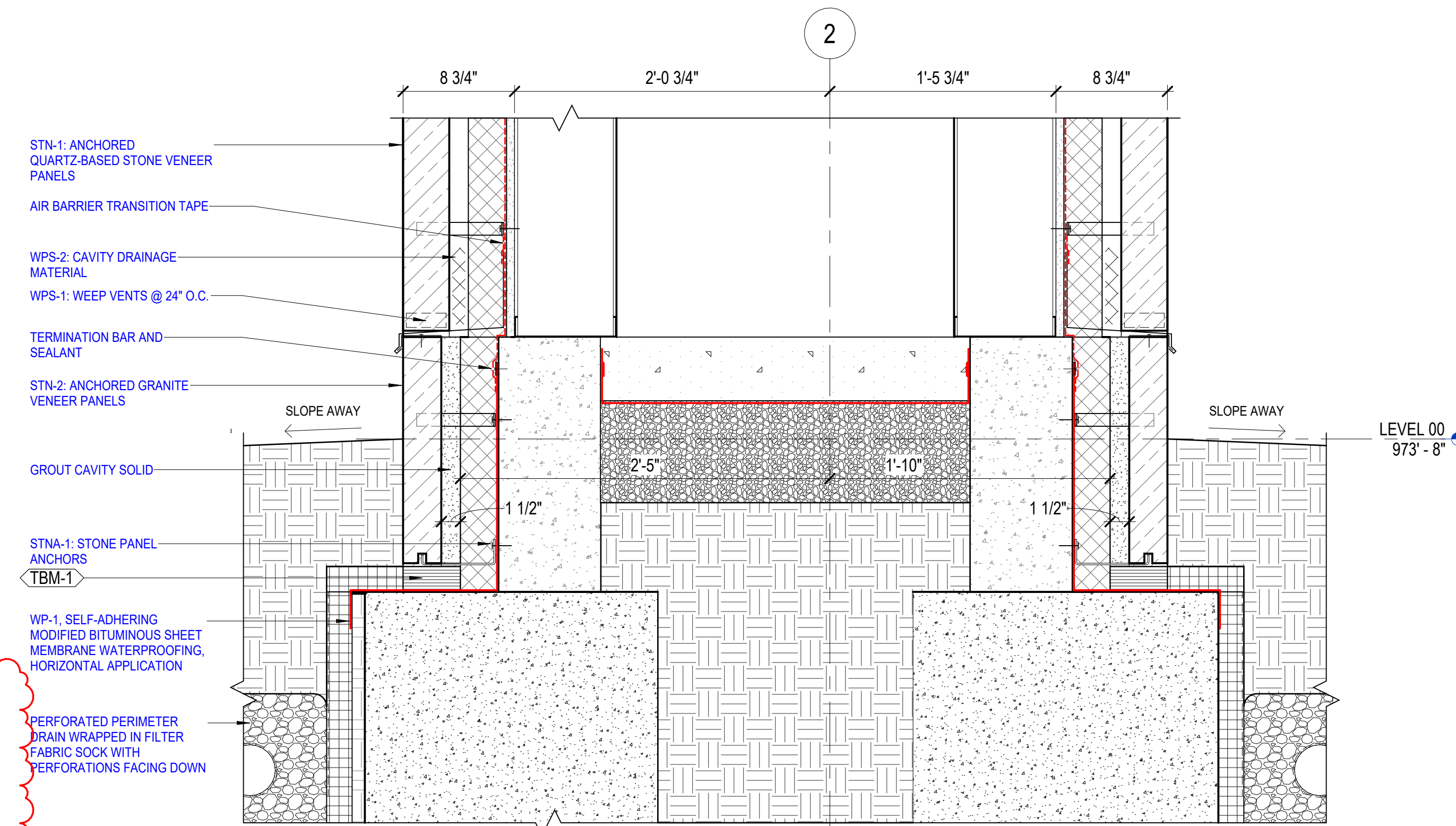
Drawn By \_\_\_\_\_  
Author \_\_\_\_\_  
Checked By \_\_\_\_\_  
Checker \_\_\_\_\_  
Client Number 514  
Project Number 6926

DRAWING TITLE

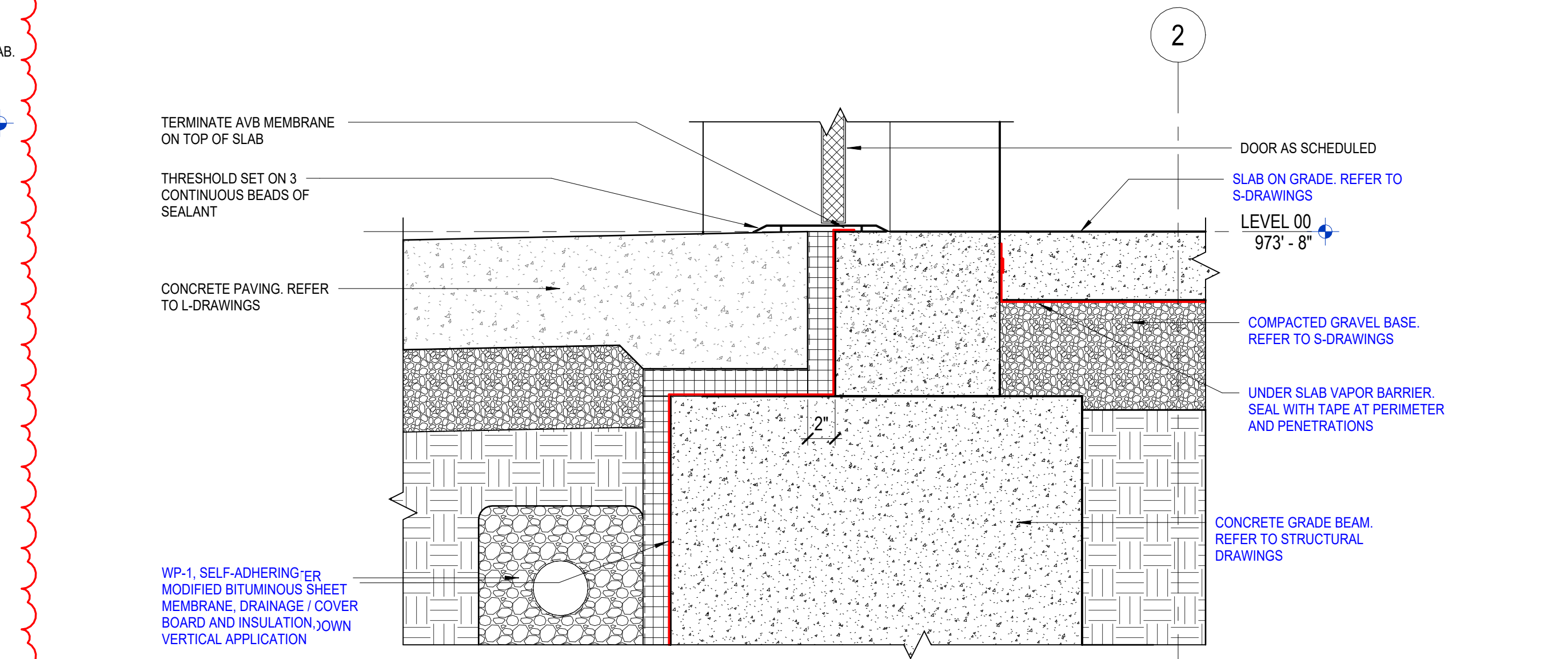
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SHEET NO.

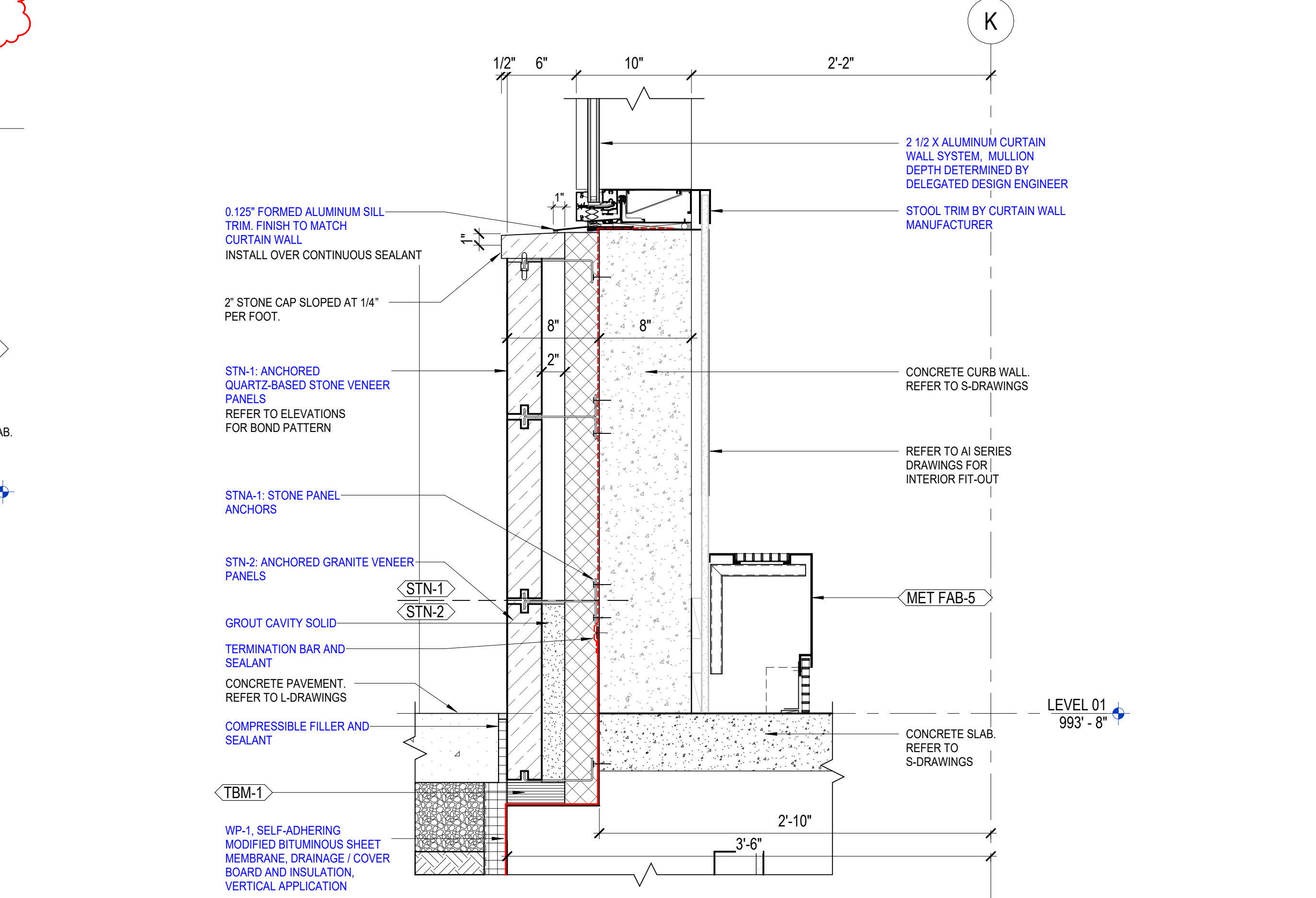
**A469**



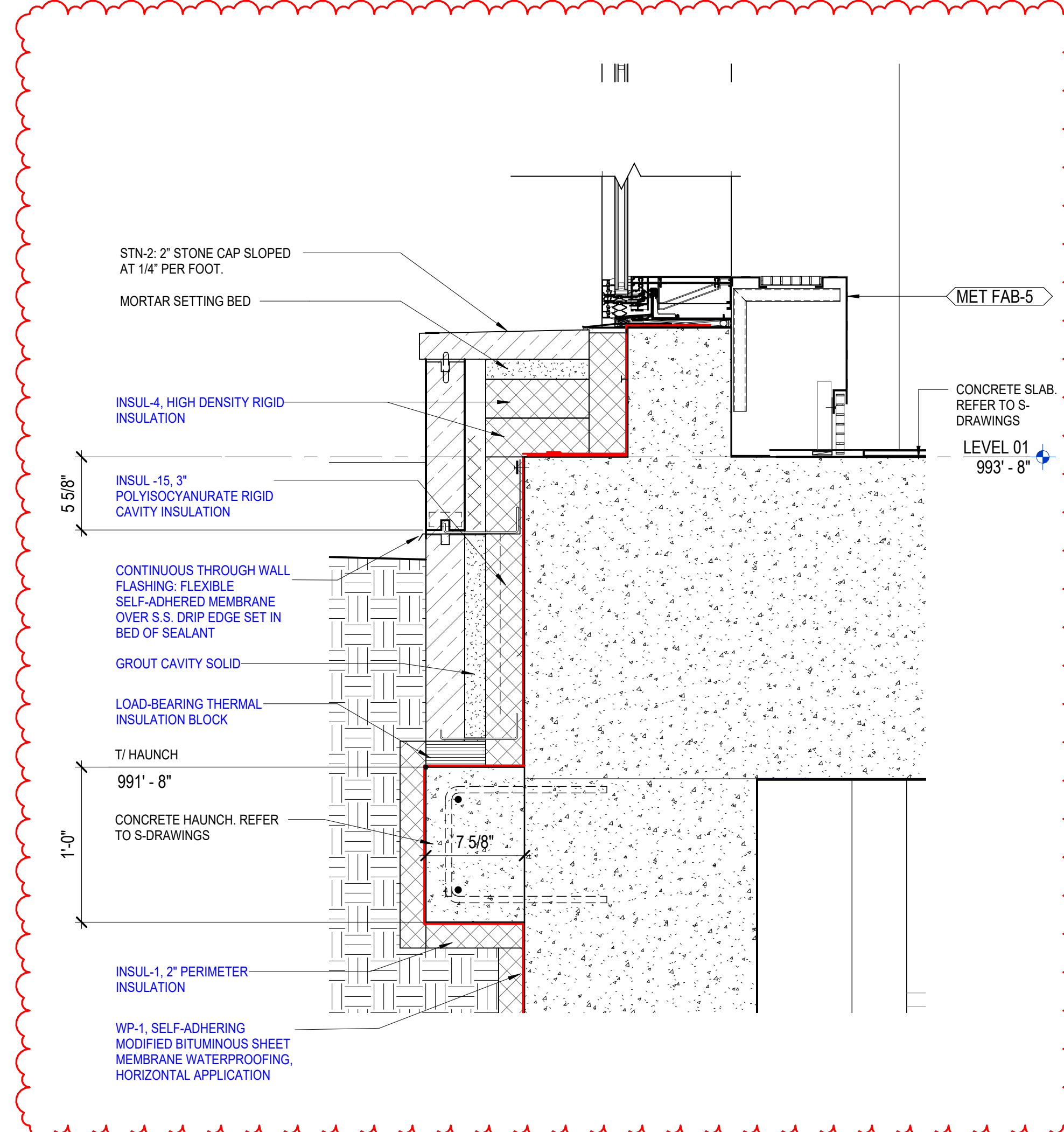
3 DETAIL - WING WALL STONE BASE AND STONE WALL  
1 1/2" = 1'-0"  
2/A459 A



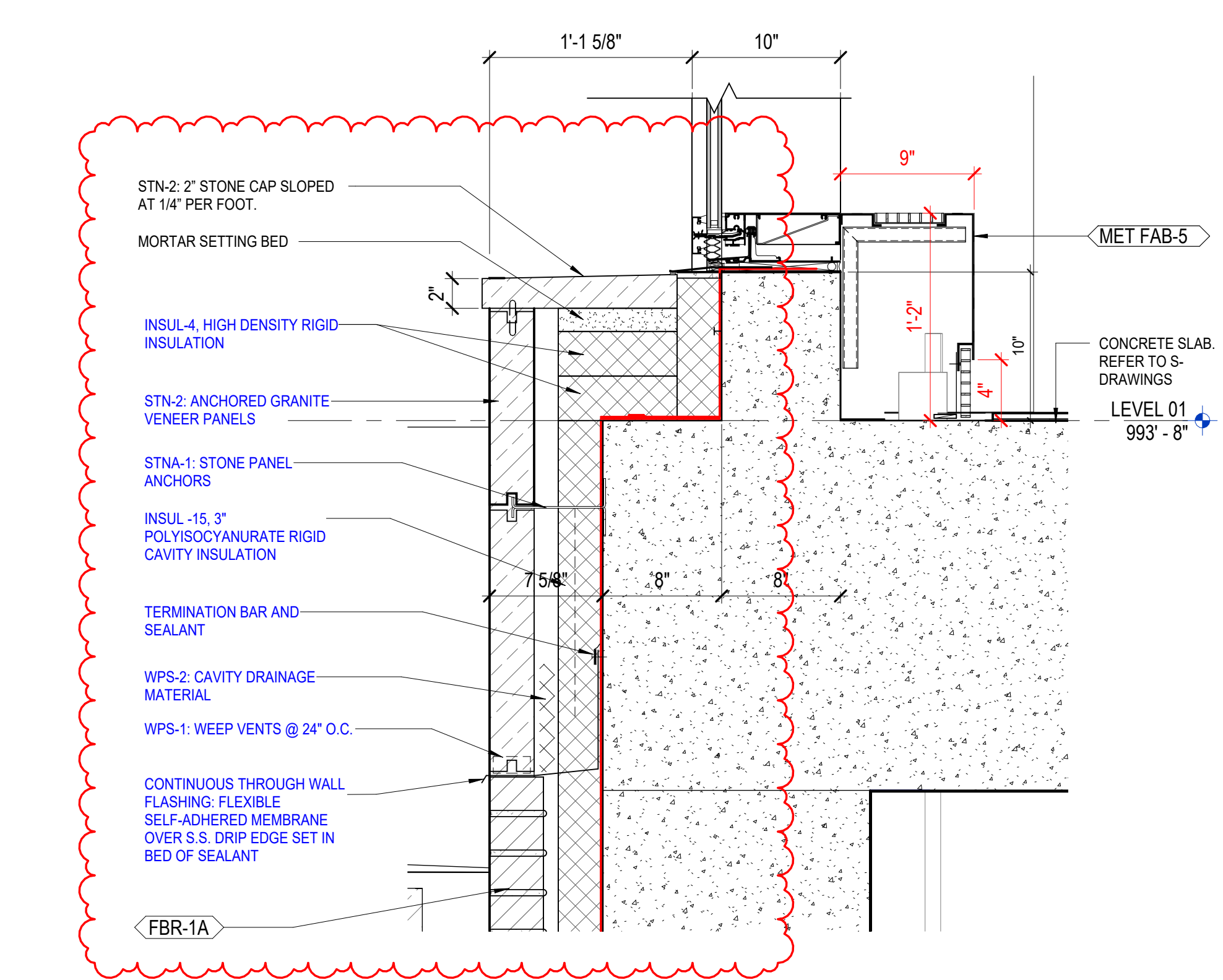
2 DETAIL - DOOR THRESHOLD  
1 1/2" = 1'-0"  
1/A452



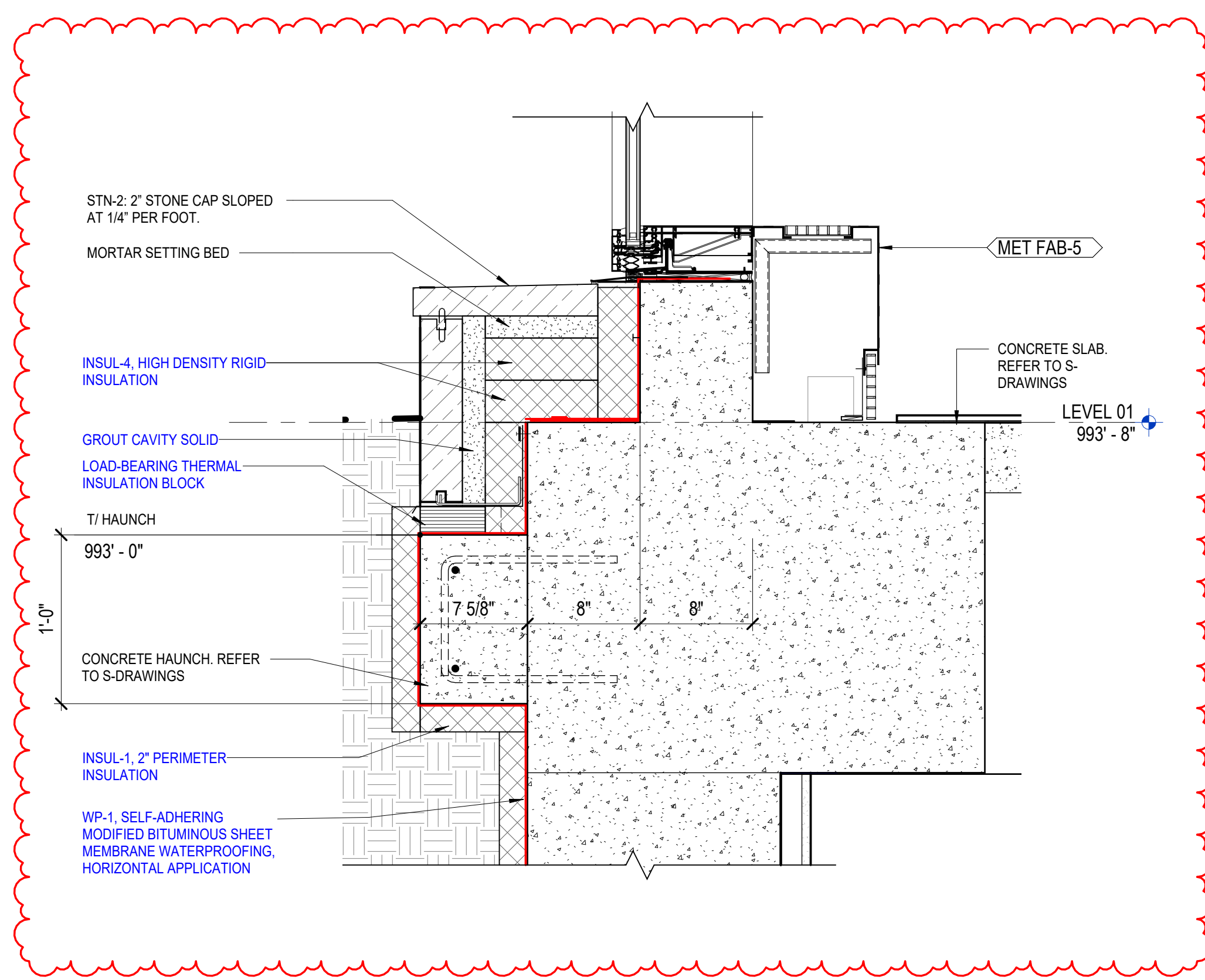
1 DETAIL - STONE & CURTAINWALL HIGH CURB AT LOBBY  
1 1/2" = 1'-0"  
2/A454



5 DETAIL - CURB ABOVE TUNNEL  
1 1/2" = 1'-0"



4 DETAIL - CURB AT SUNKEN GARDEN  
1 1/2" = 1'-0"  
1/A456



6 DETAIL - CURB EAST OF VESTIBULE  
1 1/2" = 1'-0"

5/30/2024 11:12:43 AM Author Autodesk Docs://14-6926- UKHC Cancer Treatment + Advanced Ambulatory Center/A469-UKHC\_SHELL CORE\_24/6926.rvt

5/30/2024 11:12:43 AM

ISSUANCES

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 90% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By	Author	Checked By	Checker
Client Number	514	Project Number	6926

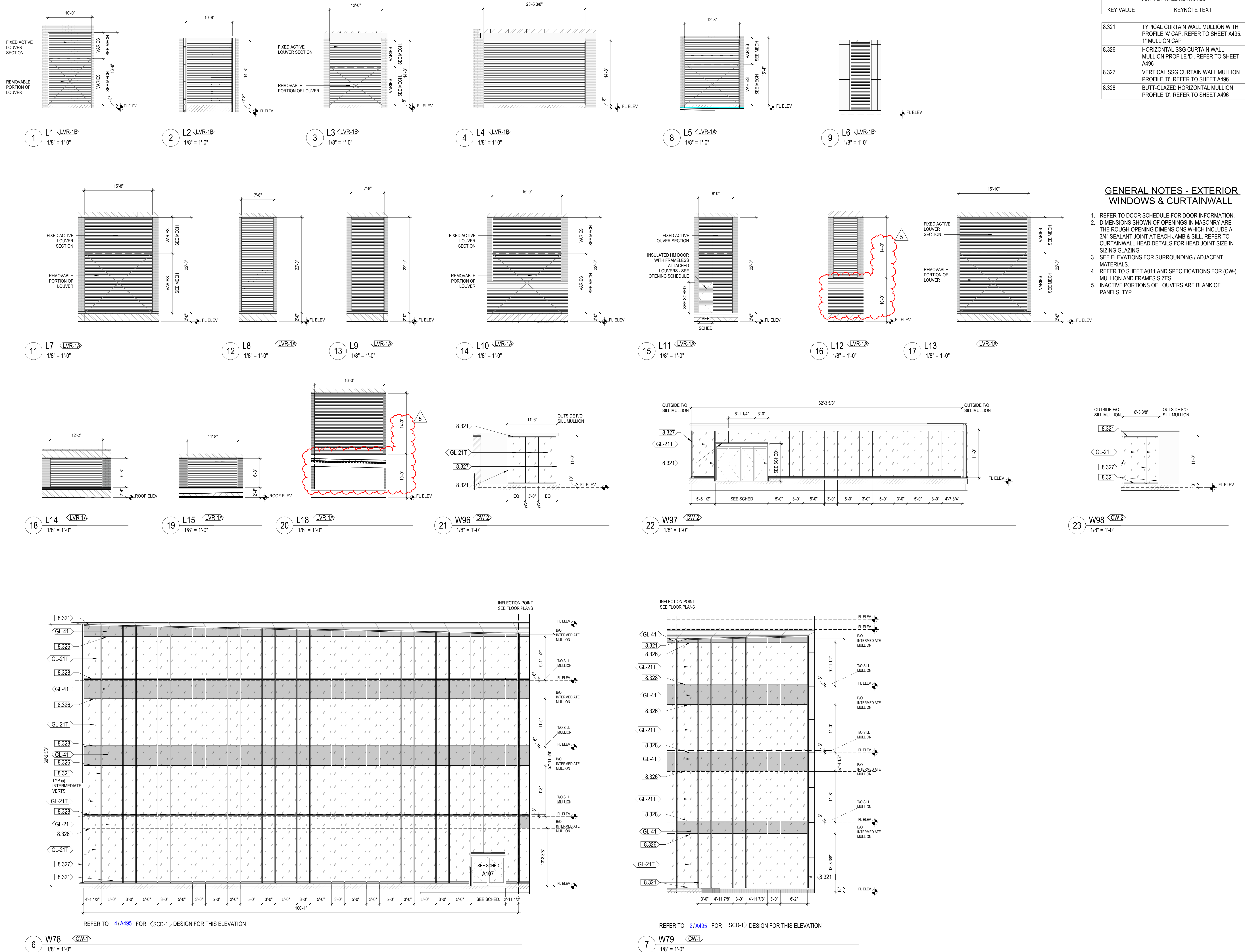
DRAWING TITLE  
**EXTERIOR WINDOW, CURTAINWALL, & LOUVER TYPES**

SHEET NO.  
**A492**

CURTAIN WALL KEYNOTES	
KEY VALUE	KEYNOTE TEXT
8.321	TYPICAL CURTAIN WALL MULLION WITH PROFILE 'A' CAP, REFER TO SHEET A495: 1" MULLION CAP
8.326	HORIZONTAL SSG CURTAIN WALL MULLION PROFILE 'D'. REFER TO SHEET A496
8.327	VERTICAL SSG CURTAIN WALL MULLION PROFILE 'D'. REFER TO SHEET A496
8.328	BUTT-GLAZED HORIZONTAL MULLION PROFILE 'D'. REFER TO SHEET A496

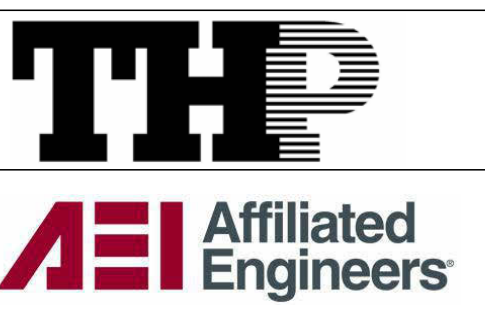
**GENERAL NOTES - EXTERIOR WINDOWS & CURTAINWALL**

- REFER TO DOOR SCHEDULE FOR DOOR INFORMATION.
- DIMENSIONS SHOWN OF OPENINGS IN MASONRY ARE THE ROUGH OPENING DIMENSIONS WHICH INCLUDE A 3/4" SEALANT JOINT AT EACH JAMB & SILL. REFER TO CURTAINWALL HEAD DETAILS FOR HEAD JOINT SIZE IN SIZING GLAZING.
- SEE ELEVATIONS FOR SURROUNDING / ADJACENT MATERIALS.
- REFER TO SHEET A011 AND SPECIFICATIONS FOR (CW-) MULLION AND FRAMES SIZES.
- INACTIVE PORTIONS OF LOUVERS ARE BLANK OF PANELS, TYP.



5/30/2024 11:15:01 AM Autodesk Docs://14-6926-14KC Cancer Treatment & Advanced Ambulatory Center/A492-14KC\_SHELL CORE 5/16/2024

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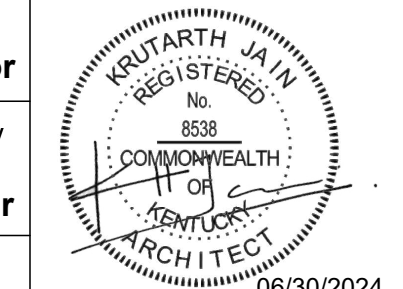


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1220 Elizabeth St.  
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UK Project Number 2563.0

ISSUANCES

No.	Description	Date
1	C&S 90% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By  
Author  
Checked By  
Checker  
Client Number 514  
Project Number 6926

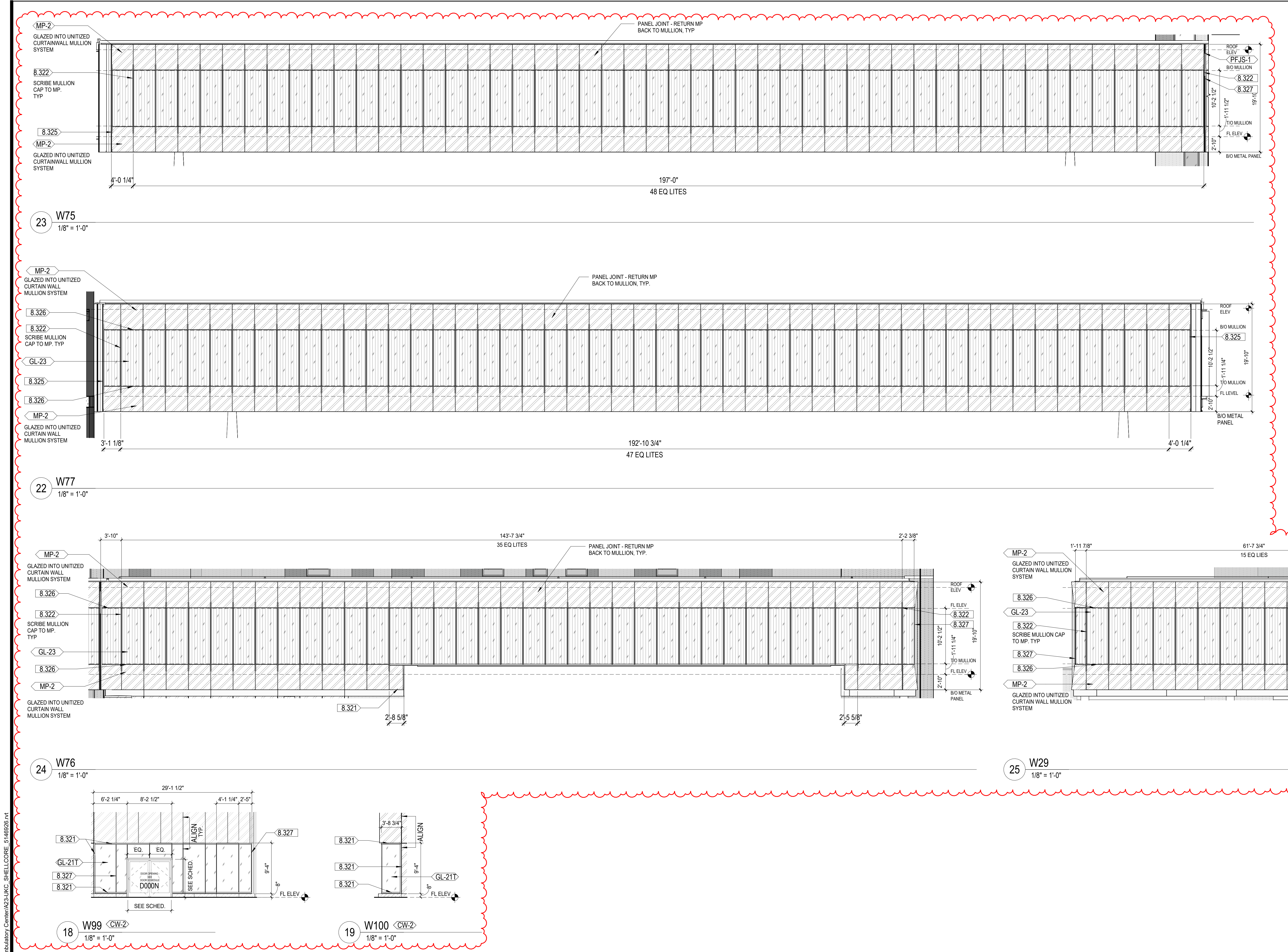


DRAWING TITLE  
**EXTERIOR WINDOW & CURTAINWALL TYPES**  
SHEET NO.  
**A494**

CURTAIN WALL KEYNOTES	
KEY VALUE	KEYNOTE TEXT
8.321	TYPICAL CURTAIN WALL MULLION WITH PROFILE 'A' CAP. REFER TO SHEET A495: 1" MULLION CAP
8.322	VERTICAL CURTAIN WALL MULLION WITH PROFILE 'B' CAP. REFER TO SHEET A495: 6" TAPERED MULLION EXTENSION CAP
8.325	CURTAIN WALL JAMB MULLION WITH PROFILE 'C' CAP. REFER TO SHEET A496: 10" DEEP TAPERED MULLION EXTENSION CAP
8.326	HORIZONTAL SSG CURTAIN WALL MULLION PROFILE 'D'. REFER TO SHEET A496
8.327	VERTICAL SSG CURTAIN WALL MULLION PROFILE 'D'. REFER TO SHEET A496

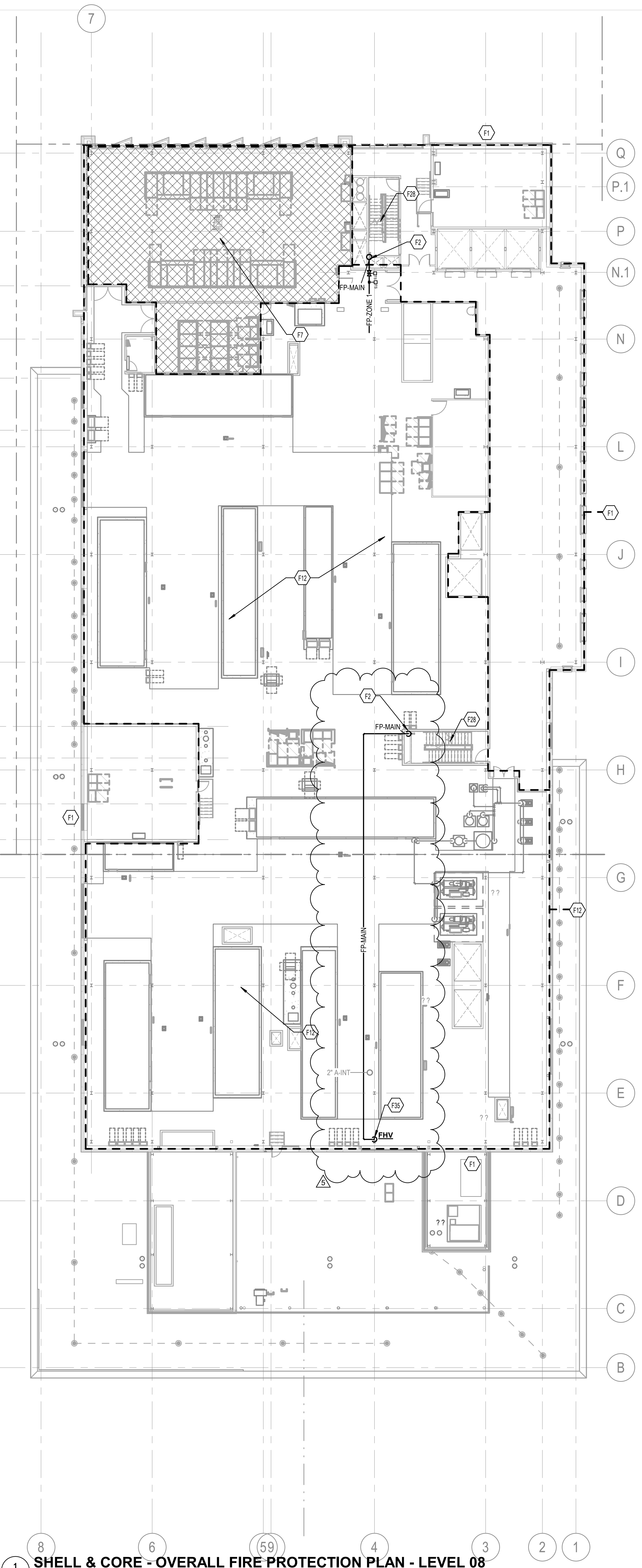
**GENERAL NOTES - EXTERIOR WINDOWS & CURTAINWALL**

- REFER TO DOOR SCHEDULE FOR DOOR INFORMATION.
- DIMENSIONS SHOWN OF OPENINGS IN MASONRY ARE THE ROUGH OPENING DIMENSIONS WHICH INCLUDE A 3/4" SEALANT JOINT AT EACH JAMB & SILL. REFER TO CURTAINWALL HEAD DETAILS FOR HEAD JOINT SIZE IN SIZING GLAZING.
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- REFER TO SHEET A011 AND SPECIFICATIONS FOR (CW-) MULLION AND FRAMES SIZES.
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Author: 5/30/2024 11:15:31 AM Autodesk Docs: Ifs1448298 - UKHC Cancer Treatment & Advanced Ambulatory Center/AS3-LAC\_SHELL CORE - 5/16/2023.dwg

5/30/2024 11:15:31 AM



**TAGGED NOTES**

- F1 PROVIDE 100% WET PIPE SPRINKLER COVERAGE SYSTEM OF ENTIRE BUILDING AS REQUIRED TO MEET NFPA-13 REQUIREMENTS. COORDINATE INSTALLATION PIPES AND SPRINKLER HEADS WITH NEW CEILING, DUCTWORK, LIGHTS AND OTHER TRADE PIPES. CORE AND SHELL PHASE SHALL INCLUDE BULK MAIN, STAND PIPES AND SPRINKLER ZONE PIPING AND SPRINKLER HEADS IN MECHANICAL ROOMS AND OTHER SERVICE AREAS AS NOTED ON PLANS. ALL OTHER AREAS SPRINKLER HEADS AND BRANCH PIPING WILL BE PROVIDED IN FIT-OUT BID PACKAGE.
- F2 WET FIRE PROTECTION STAND PIPE UP AND DOWN.
- F7 POWER, ATS AND ELECTRICAL EQUIPMENT ROOMS ARE NOT TO BE SPRINKLED, PER KENTUCKY BUILDING CODE EXEMPTIONS 903.3.1.1.1.
- F12 PROVIDE SPRINKLER PIPING AND SPRINKLER HEADS IN MECHANICAL ROOM SPACE. COORDINATE WITH HVAC PLANS AND PROVIDE SPRINKLER HEADS ABOVE AND BELOW LARGE DUCTS AS REQUIRED BY NFPA 13.
- F28 PROVIDE SPRINKLER HEADS IN STAIRWELL AS REQUIRED AS PART OF CORE AND SHELL BID PACKAGE.
- F35 PROVIDE EXPOSED STAND PIPE WITH HOSE VALVE CONNECTION.



**CHAMPLIN**  
ARCHITECTURE  
2333 Alexandria Drive  
Lexington, KY 40504  
T 859.331.5995  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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1220 Elizabeth St.  
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**ISSUANCES**

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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **RLB**  
Checked By **KJE**  
Client Number 514  
Project Number 6926

DRAWING TITLE: SHELL & CORE - OVERALL FIRE PROTECTION PLAN - LEVEL 08  
SHEET NO. **F108.S**

**1 SHELL & CORE - OVERALL FIRE PROTECTION PLAN - LEVEL 08**  
1/16" = 1'-0"

5/28/2024 6:52:23 PM Autodesk Docs://1446203 - UKHC Cancer Treatment & Advanced Ambulatory Center/PPM/023-UKC\_5146926.rvt

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PLUMBING GENERAL NOTES

- A. COORDINATE THE LOCATION OF DRAINS, THERMOSTATS, GAS OUTLETS, ETC. WITH ALL CASEWORK EQUIPMENT...
B. ALL NEW WORK SHALL BE HUNG FROM STRUCTURE, NOT FROM THE WORK OF OTHER TRADES...
C. OBSERVE ALL APPLICABLE CODES, RULES AND REGULATIONS THAT MAY APPLY TO THE WORK UNDER THIS CONTRACT...
D. ALL PENETRATIONS OF FIRE AND SMOKE RATED ASSEMBLIES SHALL BE APPROPRIATELY FIRE STOPPED PER AN APPROVED U.L. LISTED STANDARD...
E. ALL PIPING IN ROOMS WITH CEILINGS SHALL BE ABOVE CEILING EXCEPT AS NOTED...
F. IN ACCORDANCE WITH K.R.S. ALL PLUMBING WORK SHALL BE CONSTRUCTED IN COMPLIANCE WITH PLANS APPROVED BY AND BEARING THE APPROVAL STAMP OF THE KENTUCKY DIVISION OF PLUMBING AND/OR THE DIVISION OF WATER...
G. LOCATIONS OF PIPING AND EQUIPMENT ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD...
H. ALL OFFSETS IN PIPING ARE NOT NECESSARILY SHOWN. PROVIDE ADDITIONAL OFFSETS WHERE NECESSARY...
I. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY COMPANY FEES OR OTHER COSTS THAT ANY UTILITY COMPANY MAY REQUIRE TO COMPLETE THEIR WORK...
J. INSTALL ALL PIPING AND EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTION...
K. SEAL AIRTIGHT AROUND ALL DUCTS AND PIPING PENETRATIONS THROUGH WALLS, FLOORS AND ROOF...
L. WHERE MOUNTING HEIGHTS ARE NOT INDICATED OR ARE IN CONFLICT WITH ANY OTHER BUILDING SYSTEM...
M. ANY VIBRATING, OSCILLATING OR OTHER NOISE OR MOTION PRODUCING EQUIPMENT SHALL BE ISOLATED FROM SURROUNDING SYSTEMS IN AN APPROVED MANNER...
N. DEVIATIONS IN SIZE, CAPACITIES, FIT, FINISH, ETC. FOR EQUIPMENT FROM THAT USED AS BASIS OF DESIGN SHALL BE THE RESPONSIBILITY OF THE PURCHASER...
O. VALVES OR ANY MECHANICAL/ELECTRICAL ITEM REQUIRING ACCESS SHALL NOT BE LOCATED ABOVE A HARD CEILING...
P. WHEN RUNNING ANY TYPE OF PIPING BELOW A FOOTER, OR IN THE ZONE OF INFLUENCE THE PIPING SHALL BE BACKFILLED WITH GEMENTITIOUS FLOWABLE FILL PER SPECIFICATIONS...
Q. THE DOCUMENTS COMPLY WITH 2012 IECC.
R. WORK IN CONFINED AREAS SHALL BE IN ACCORDANCE WITH OWNERS' SAFETY POLICY REQUIREMENTS.

ABBREVIATIONS

Table with 2 columns: Abbreviation and Description. Includes AC (ALTERNATING CURRENT), ADJ (ADJUSTABLE), AFF (ABOVE FINISHED FLOOR), AFR (ABOVE FINISHED ROOF), AFUE (ANNUAL FUEL UTILIZATION EFFICIENCY), AHJ (AUTHORITY HAVING JURISDICTION), AMP (AMPERE (AMP, AMPS)), ANSI (AMERICAN NATIONAL STANDARD INSTITUTE), APD (AIR PRESSURE DROP), ASHRAE (AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS), AVG (AVERAGE), BAS (BUILDING AUTOMATION SYSTEM), BTU (BRITISH THERMAL UNIT), CAP (CAPACITY), CD (CONDENSATE DRAIN), CFM (CUBIC FEET PER MINUTE), C.I. (CAST IRON), CLG (CEILING), CLR (CLEAR), COND (CONDENS (-ER, -ING, -ATION, -ATE)), CONT (CONTINU (-ED, -OUS)), CU IN (CUBIC INCHES), CV (CULVIC FLOW COEFFICIENT), dB (DECIBEL), DB (DRY BULB), DC (DIRECT CURRENT), DDC (DIRECT DIGITAL CONTROLS), DEG (DEGREE (-S)), DIA (DIAMETER (-S)), DN (DOWN), DWG (DRAWING), EC (ELECTRICAL CONTRACTOR), ELEV (ELEVATION, -TOR), ENGR (ENGINEER), EQ (EQUAL), ESP (EXTERNAL STATIC PRESSURE), EVAP (EVAPORAT (-E, -ING, -ED, -OR, -ION)), EWT (ENTERING WATER TEMPERATURE), EXP (EXPANSION), EXT (EXTERIOR), FLA (FULL LOAD AMPS), FRRH (FREEZE PROOF ROOF HYDRANT), FWH (FREEZE PROOF WALL HYDRANT), FPH (FREEZE PROOF YARD HYDRANT), FPM (FEET PER MINUTE).

ABBREVIATIONS (CONTINUED)

Table with 2 columns: Abbreviation and Description. Includes FPS (FEET PER SECOND), FT (FEET OR FOOT), FUT (FUTURE), GA (GAGE/GAUGE), GAL (GALLON (-S)), GC (GENERAL CONTRACTOR), GPD (GALLONS PER DAY), GPH (GALLONS PER HOUR), GPM (GALLONS PER MINUTE), GR (GRAINS), HG (MERCURY), HORIZ (HORIZONTAL), HP (HORSEPOWER, -EAT PUMP), HR (HOUR (-S)), Hz (HERTZ), IA (INSTRUMENT AIR), ID (IDENTIFICATION, -NSIDE DIAMETER, -NSIDE DIMENSION), IN (INCH (-ES)), INT (INTER (-OR, -ERVAL)), IPS (IRON PIPE SIZE), kW (KILOWATT), kWh (KILOWATT HOUR), LBS (POUNDS), LF (LINEAR FEET/FOOT), LWT (LEAVING WATER TEMPERATURE), LN2 (LIQUID NITROGEN), LNVL (LIQUID NITROGEN RELIEF VALVE VENT), LPA (LINE PRESSURE ALARM (MEDICAL GAS AREA ALARM)), LPA-# (LINE PRESSURE ALARM PANEL DESIGNATION), MA (MEDICAL AIR), MAX (MAXIMUM), MBH (BTU PER HOUR [THOUSANDS]), MCA (MINIMUM CIRCUIT AMPS), MFG (MANUFACTURER), MG-# (MEDICAL GAS SHUT-OFF VALVE DESIGNATOR), SVB-# (MEDICAL GAS SHUT-OFF VALVE BOX DESIGNATOR), MIN (MINIMUM, -UTE), MSA (MULTI-SINGLE ALARM (MEDICAL GAS MASTER ALARM)), MTG (MOUNTING), N/A (NOT APPLICABLE), NC (NOISE CRITERIA OR NORMALLY CLOSED), NI (NOT IN CONTRACT), LN2 (LIQUID NITROGEN), LNVL (LIQUID NITROGEN RELIEF VALVE VENT), N2O (NITROUS OXIDE), N2O - VT (NITROUS OXIDE MANIFOLD RELIEF VALVE VENT).

ABBREVIATIONS (CONTINUED)

Table with 2 columns: Abbreviation and Description. Includes NO (NORMALLY OPEN OR NUMBER), NTS (NOT TO SCALE), OC (ON CENTER), OD (OUTSIDE DIAMETER, -MENSION), CFCI (CONTRACTOR FURNISHED, CONTRACTOR INSTALLED), OFCI (OWNER FURNISHED, CONTRACTOR INSTALLED), OFOI (OWNER FURNISHED, OWNER INSTALLED), OR (OPEN RECEPTACLE), OZ (OUNCE (-S)), PC (PLUMBING CONTRACTOR), PD (PRESSURE DROP), PH (PHASE [ELECTRICAL]), PPM (PARTS PER MILLION), PRS (PRESSURE REDUCING STATION), PRV (PRESSURE REDUCING VALVE (STEAM, WATER, GAS)), PSF (POUNDS PER SQUARE FOOT), PSI (POUNDS PER SQUARE INCH), PSIG (PSI GAUGE), RPM (REVOLUTIONS PER MINUTE), SQ (SQUARE), SQ FT (SQUARE FEET OR FOOT), SQ IN (SQUARE INCH OR INCHES), TAB (TESTING AND BALANCING), TBD (TO BE DETERMINED), TE (TOP ELEVATION), TEMP (TEMPERATURE), TP (TRAP PRIMER), TP-# (TRAP PRIMER MANIFOLD DESIGNATOR), TSP (TOTAL STATIC PRESSURE), TYP (TYPICAL), UNO (UNLESS NOTED OTHERWISE), V (VOLT (-AGE, -S)), VAR (VARIABLE, -IES), V, VAC (VACUUM), VEL (VELOCITY), VFD (VARIABLE FREQUENCY DRIVE), W (WATT (-AGE, -S)), WB (WET BULB), WBT (WET BULB TEMPERATURE), WT (WEIGHT), W/ (WITH), W/O (WITHOUT), % (PERCENT), DP (DIFFERENTIAL PRESSURE), DT (TEMPERATURE DIFFERENCE), CL (CENTERLINE).

GENERAL SYMBOLS

Table with 2 columns: Symbol and Description. Includes TAGGED NOTE DESIGNATOR, REVISION TRIANGLE, ROOM TAG, EQUIPMENT TAG, DOMESTIC WATER RISER TAG, SANITARY, WASTE, & VENT RISER TAG, FIRE SUPPRESSION RISER TAG, POINT OF CONNECTION / CONNECT TO EXISTING, POINT OF DEMOLITION, PIPING TO BE DEMOLISHED, EXISTING PIPING, ABANDONED IN PLACE PIPING, LINE PRESSURE ALARM PANEL DESIGNATION, MEDICAL GAS OUTLET DESIGNATOR, MEDICAL GAS SHUT-OFF VALVE BOX DESIGNATOR, VALVE SYMBOL LEGEND (TWO-WAY CONTROL VALVE, THREE-WAY CONTROL VALVE, AUTOMATIC AIR VENT (AAV), MANUAL AIR VENT (MAV), MANUAL BALANCING VALVE (BV), BALL VALVE, BUTTERFLY VALVE, TRIPLE DUTY VALVE (TDV), STRAINER, GLOBE VALVE, OSRY (GATE) VALVE, PRESSURE REDUCING VALVE (STEAM, GAS, WATER, ETC.), AUTO-FLOW CONTROL VALVE, CHECK VALVE, DOUBLE CHECK VALVE ASSEMBLY).

PLUMBING SYMBOL LEGEND

Table with 2 columns: Symbol and Description. Includes FLEXIBLE PIPE CONNECTION, FLOW METER (VENTURI), PIPING UNION, FLOW SWITCH, PRESSURE SWITCH, TAMPER SWITCH, THERMOMETER, PETS'S PLUG; TEMPERATURE/PRESSURE PORT.

PLUMBING PIPING LEGEND

Table with 2 columns: Symbol and Description. Includes PIPE ELBOW TURNING UP, PIPE ELBOW TURNING DOWN, PIPE TEE: CONNECTION ON TOP, PIPE TEE: CONNECTION ON BOTTOM, PIPE CAP, CONDENSATE DRAIN, CLEAN STEAM PIPING, DOMESTIC COLD WATER (CW), DOMESTIC HOT WATER (HW), RECIRCULATED DOMESTIC HOT WATER (RHW), DOMESTIC SOFT COLD WATER, IRRIGATION WATER PIPING, SANITARY VENT PIPING, ROOF LEADER PIPING, OVERFLOW ROOF LEADER PIPING, SANITARY SEWER PIPING, GREASE WASTE PIPING.

MEDICAL GAS PIPING LEGEND

Table with 2 columns: Symbol and Description. Includes COMPRESSED AIR PIPING, MEDICAL AIR PIPING, INSTRUMENT AIR PIPING, VACUUM PIPING, INSTRUMENT VACUUM PIPING, OXYGEN PIPING, WASTE ANESTHETIC GAS DISPOSAL PIPING, NITROUS OXIDE PIPING, CARBON DIOXIDE PIPING, LIQUID NITROGEN PIPING, LIQUID NITROGEN VENT PIPING.

PLUMBING FIXTURE SCHEDULE - CORE & SHELL

Table with 4 columns: TAG, DESCRIPTION, CW, HW, VENT, WASTE/DRAIN. Includes DSN-1 (DOWN SPOUT NOZZLE), FD-1 (FLOOR DRAIN), FD-2 (FLOOR DRAIN), FD-3 (FLOOR DRAIN), FD-4 (FLOOR DRAIN), FFWH (FREEZE-PROOF WALL HYDRANT), FFYH (FREEZE-PROOF YARD HYDRANT), HB (HOSE BIBB), HB-2 (HOSE BIBB), HB-3 (HOSE BIBB), RD-1 (ROOF DRAIN), RD-2 (ROOF DRAIN), RD-3 (GREEN ROOF DRAIN), RD-4 (GREEN ROOF DRAIN), TP-1 (TRAP PRIMER TYPE-1), TP-2 (TRAP PRIMER TYPE-1).

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ISSUANCES

Table with 3 columns: No., Description, Date. Includes C&S 100 DD REVIEW (01/10/24), C&S 80% CD (03/05/24), C&S 100% CD REVIEW (04/09/24), BP-07 BID & PERMIT (04/30/24), BP-07 ADDENDUM #1 (05/28/24).

Empty table for tracking issues.

Drawn By: RLB. Checked By: KJE. Client Number: 514. Project Number: 6926. Includes professional seal of Kevin Elser, Registered Professional Engineer, License # 28967.

DRAWING TITLE: SHELL & CORE - PLUMBING LEGEND. SHEET NO. P010.S. Date: 5/28/2024 8:46:13 PM.

**TAGGED NOTES**

P24 DUPLEX DEWATERING SUMP PUMP; REFER TO SUMP SCHEDULE AND DUPLEX DEWATERING SUMP PUMP DETAIL.

P47 TRAP PRIMER PIPES UP TO TRAP PRIMER MANIFOLD ABOVE.

P65 OPEN RECEPTACLE LOCATED IN WALL.

**CHAMPLIN ARCHITECTURE**  
 2333 Alexandria Drive  
 Lexington, KY 40504  
 T 859.331.5995  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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**ISSUANCES**

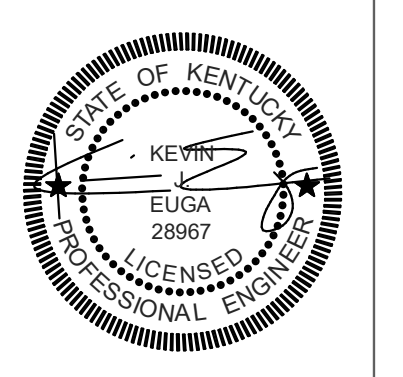
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5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**RLB**

Checked By  
**KJE**

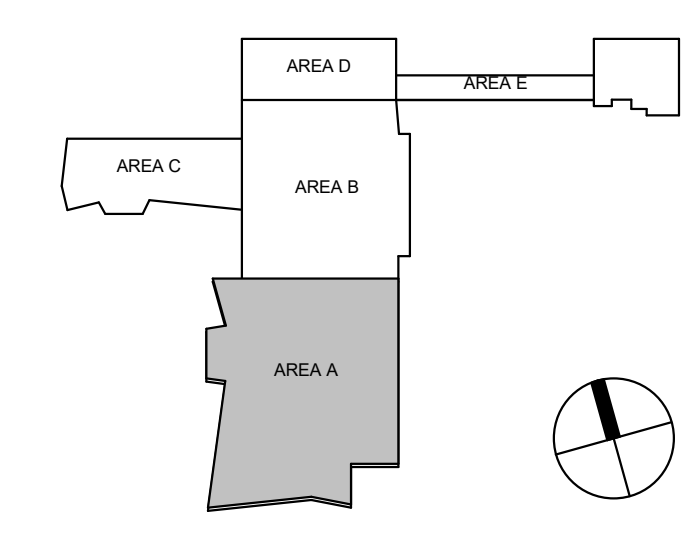
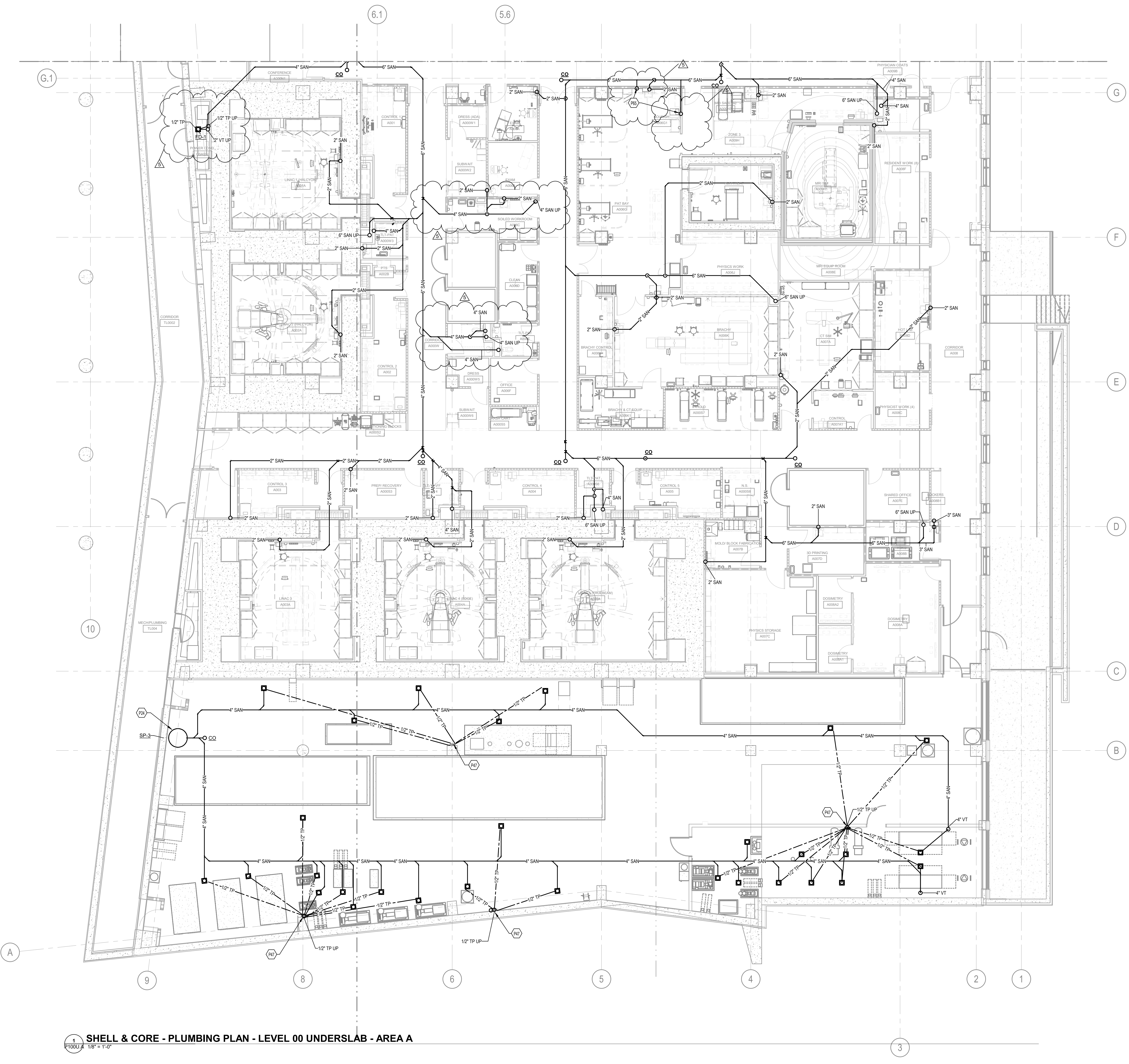
Client Number  
514

Project Number  
6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 00 UNDERSLAB - AREA A**

SHEET NO.  
**P100U.A**

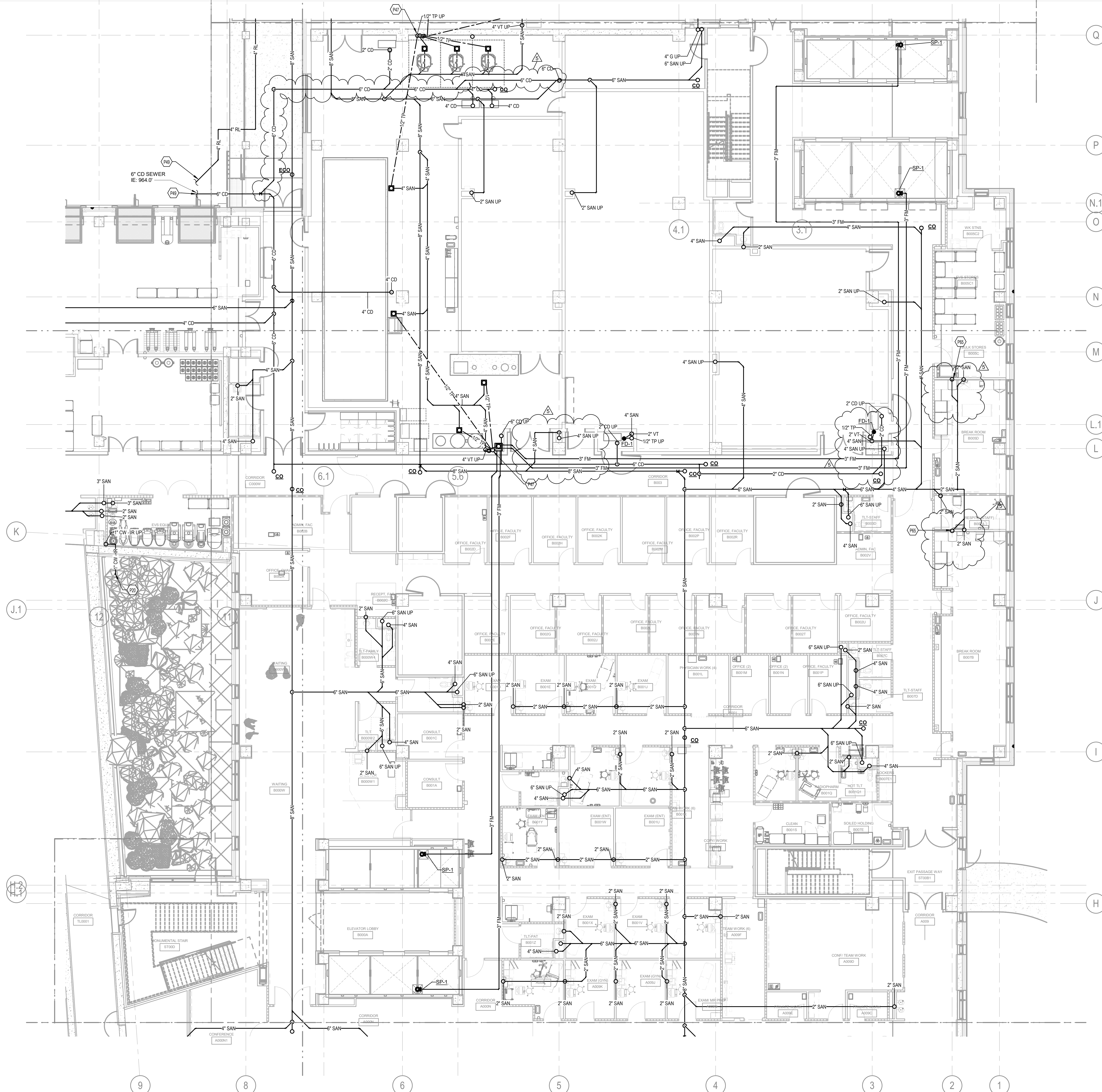


**1 SHELL & CORE - PLUMBING PLAN - LEVEL 00 UNDERSLAB - AREA A**

1/100U.A 1/8" = 1'-0"

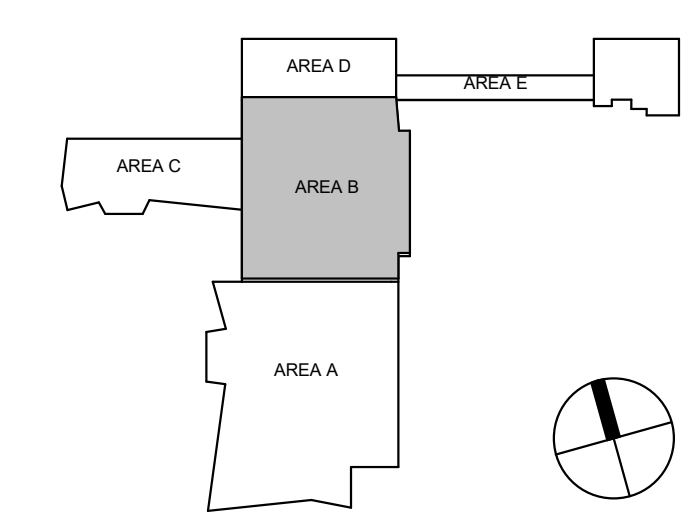
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5/28/2024 8:46:38 PM



- TAGGED NOTES**
- P20 CAP WATER SUPPLY BELOW GRADE FOR CONNECTION TO IRRIGATION SYSTEM. REFER TO LANDSCAPING PLANS FOR CONNECTION REQUIREMENTS.
  - P47 TRAP PRIMER PIPES UP TO TRAP PRIMER MANIFOLD ABOVE.
  - P49 CONNECT TO STORM AT TRENCH DRAIN. REFER TO CIVIL DRAINAGE PLAN.
  - P65 OPEN RECEPTACLE LOCATED IN WALL.

**1 SHELL & CORE - PLUMBING PLAN - LEVEL 00 UNDERSLAB - AREA B**



**CHAMPLIN ARCHITECTURE**  
 2333 Alexandria Drive  
 Lexington, KY 40504  
 T 859.331.5995  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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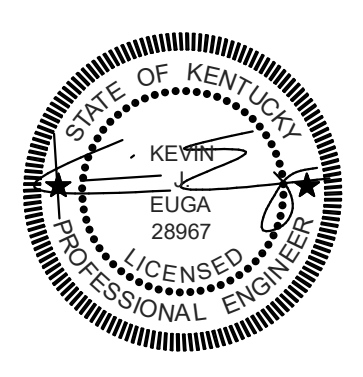
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5	BP-07 ADDENDUM #1	05/28/24

Drawn By **RLB**  
 Checked By **KJE**  
 Client Number 514  
 Project Number 6926



DRAWING TITLE: SHELL & CORE - PLUMBING PLAN - LEVEL 00 UNDERSLAB - AREA B

SHEET NO. **P100U.B**

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**TAGGED NOTES**

- P8 REFER TO CIVIL SITE DRAINAGE PLAN FOR CONTINUATION.
- P10 REFER TO CIVIL SITE UTILITY PLAN FOR CONTINUATION.
- P11 COLD WATER SUPPLY UP TO YARD HYDRANT; REFER TO LEVEL 1 PLUMBING PLAN.
- P16 REFER TO PLUMBING SITE PLAN FOR CONTINUATION AND LOCATION OF GREASE TRAP.
- P44 PROVIDE 4" NATURAL GAS DOWN TO BOILER CONNECTION. REFER TO MECHANICAL SCHEDULES FOR GAS INLET PRESSURE. REFER TO PLUMBING DETAILS FOR GAS CONNECTION.
- P51 CAP PIPE ABOVE SLAB FOR CONNECTION IN FIT-OUT BID PACKAGE.
- P65 OPEN RECEPTACLE LOCATED IN WALL.

#

**CHAMPLIN**  
ARCHITECTURE

2333 Alexandria Drive  
Lexington, KY 40504  
T 859.331.5995  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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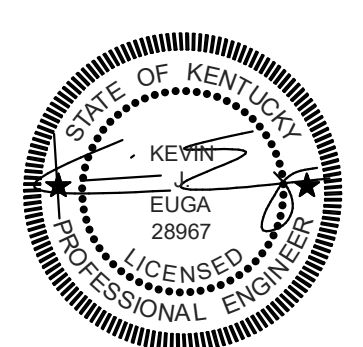
**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

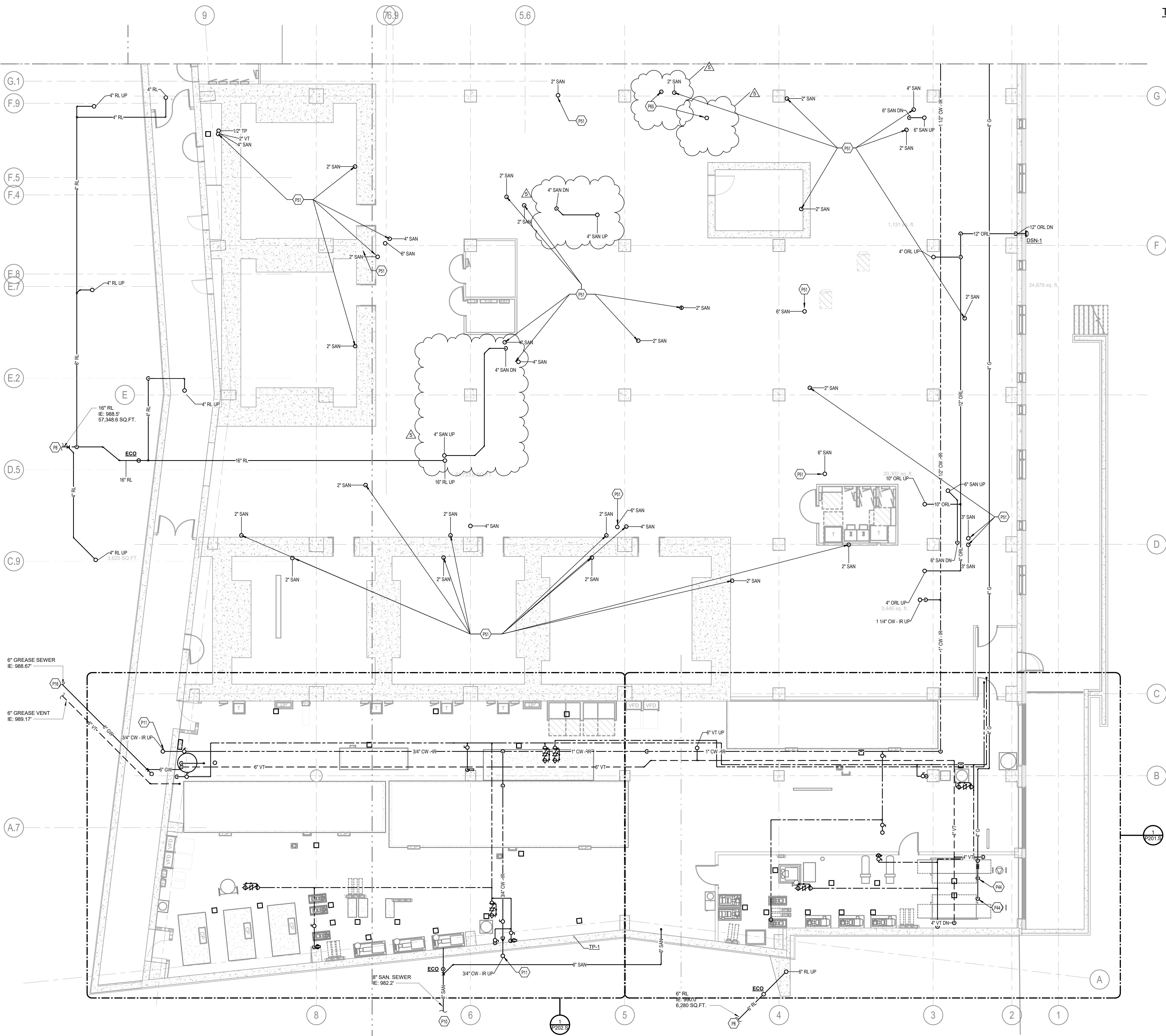
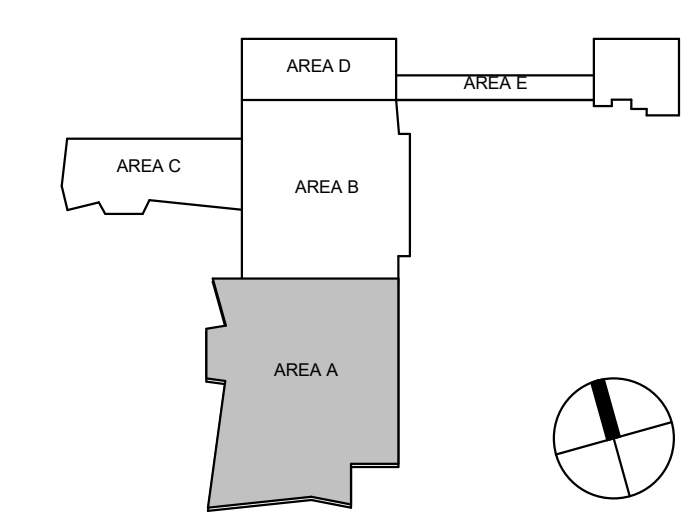
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3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **RLB**  
Checked By **KJE**  
Client Number 514  
Project Number 6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 00 - AREA A**

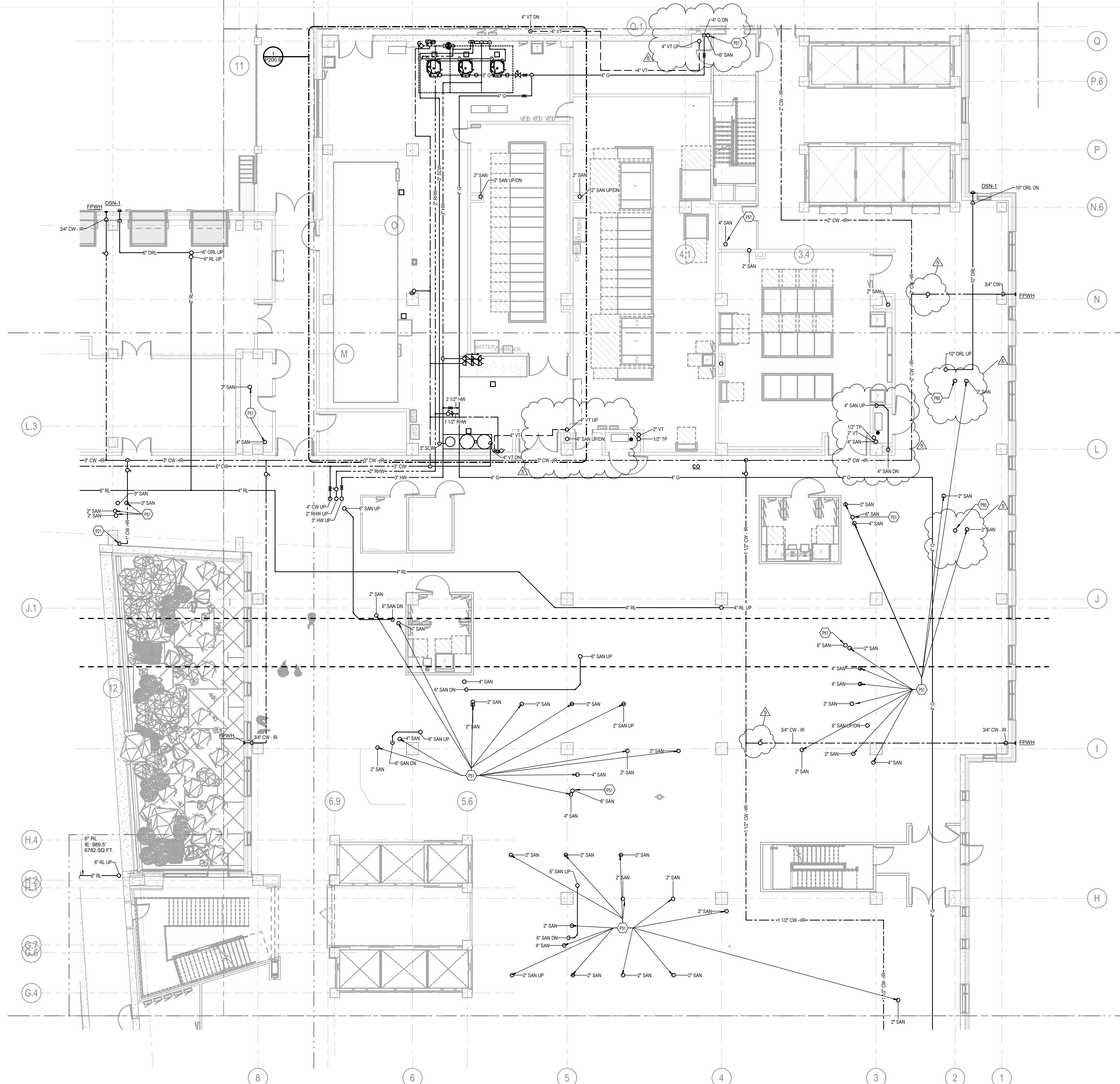
SHEET NO.  
**P100.A**



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 00 - AREA A**  
1/8" = 1'-0"

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5/28/2024 8:47:37 PM



**TAGGED NOTES**

P21 WATER SUPPLY DOWN TO BELOW SLAB TO RECESSED GARDEN IRRIGATION POINT OF CONNECTION. REFER TO UNDERSLAB PLUMBING PLAN.

P51 CAP PIPE ABOVE SLAB FOR CONNECTION IN FIT-OUT BID PACKAGE.

P65 OPEN RECEPTACLE LOCATED IN WALL

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 2333 Alexandria Drive  
 Lexington, KY 40504  
 T 859.331.5995  
 thinkchamplin.com  
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**HGA**  
 420 North 5th Street, Suite 100  
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 Telephone 612.758.4000

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**WALSH**  
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**PIVOTAL**  
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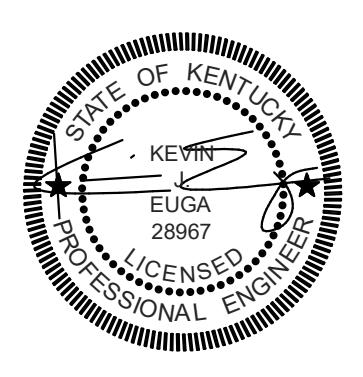
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**ISSUANCES**

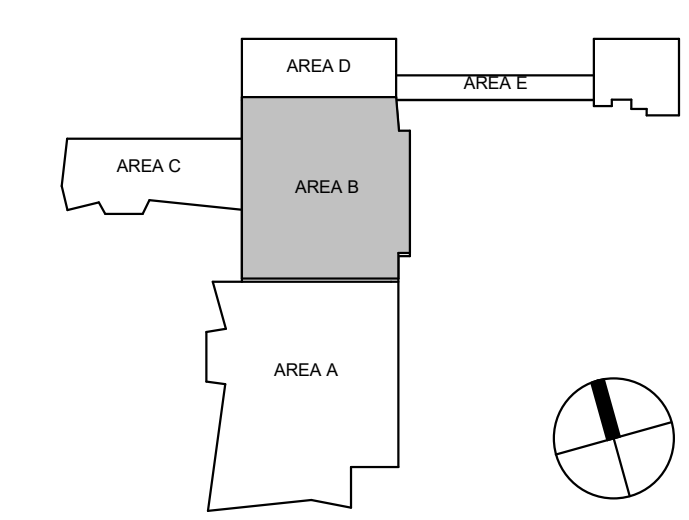
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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **RLB**  
 Checked By **KJE**  
 Client Number 514  
 Project Number 6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 00 - AREA B**

SHEET NO.  
**P100.B**



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 00 - AREA B**  
 P100.B 1/8" = 1'-0"

5/28/2024 8:47:58 PM Autodesk Docs://1446203 - UKHC Cancer Treatment + Advanced Ambulatory Center/PPM/23-UKCS\_5146203.rvt RLB

5/28/2024 8:47:58 PM

**TAGGED NOTES**

- P8 REFER TO CIVIL SITE DRAINAGE PLAN FOR CONTINUATION.
- P11 COLD WATER SUPPLY UP TO YARD HYDRANT; REFER TO LEVEL 1 PLUMBING PLAN.
- P20 CAP WATER SUPPLY BELOW GRADE FOR CONNECTION TO IRRIGATION SYSTEM; REFER TO LANDSCAPING PLANS FOR CONNECTION REQUIREMENTS.
- P21 WATER SUPPLY DOWN TO BELOW SLAB TO RECESSED GARDEN IRRIGATION POINT OF CONNECTION; REFER TO UNDERSLAB PLUMBING PLAN.
- P51 CAP PIPE ABOVE SLAB FOR CONNECTION IN FIT-OUT BID PACKAGE.

**CHAMPLIN**  
ARCHITECTURE  
2333 Alexandria Drive  
Lexington, KY 40504  
T 859.331.5995  
thinkchamplin.com  
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**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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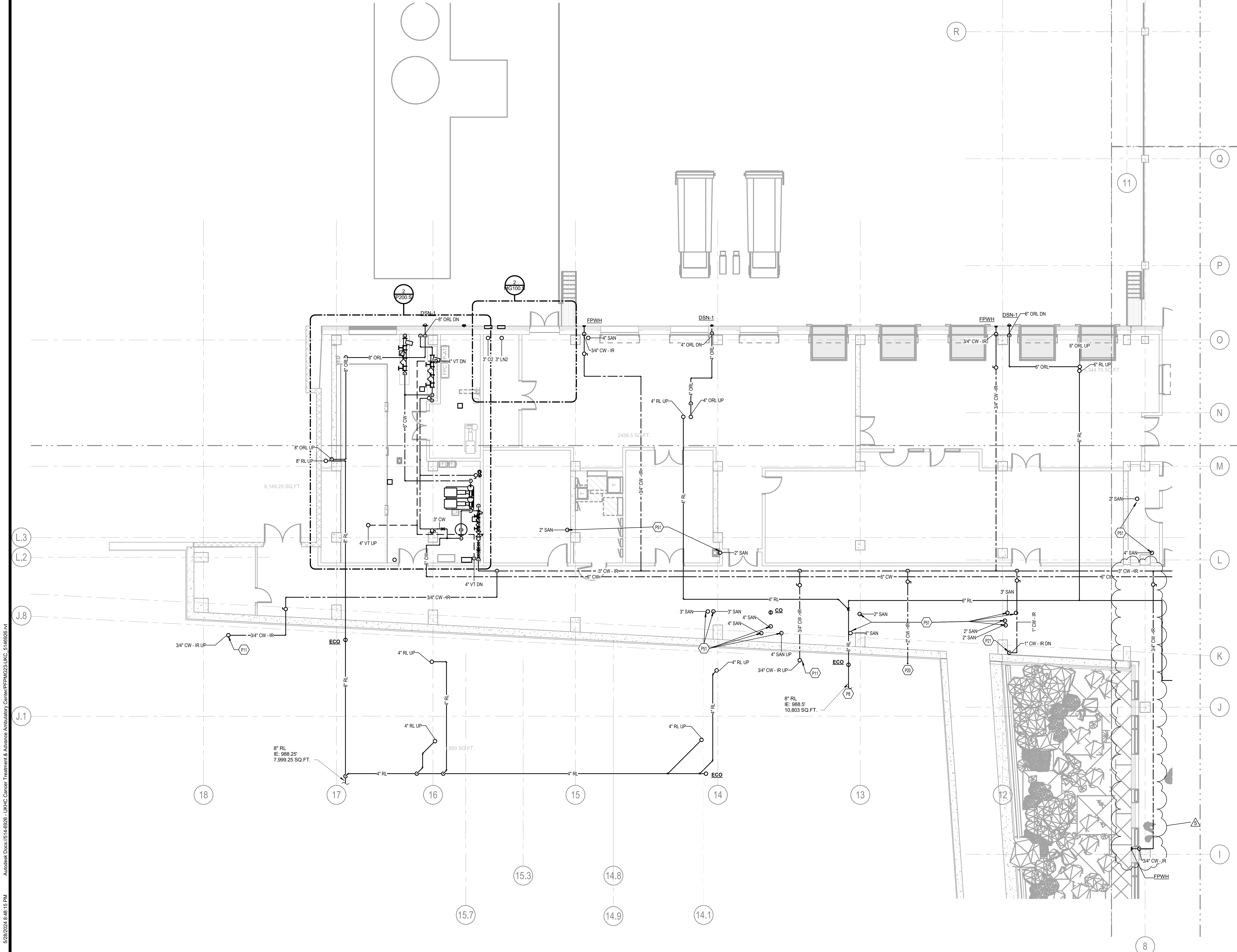
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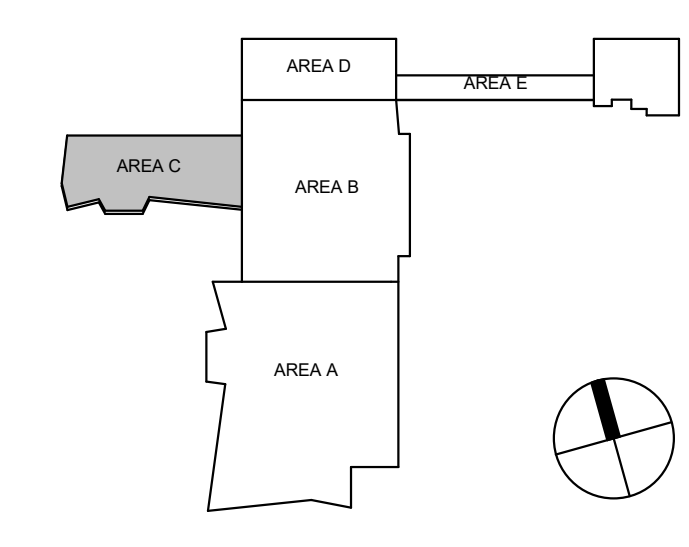
Drawn By **RLB**  
Checked By **KJE**  
Client Number **514**  
Project Number **6926**

DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 00 - AREA C**

SHEET NO.  
**P100.C**



**SHELL & CORE - PLUMBING PLAN - LEVEL 00 - AREA C**



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5/28/2024 8:48:15 PM

**TAGGED NOTES**

P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

P50 ROOF LEADER DOWN IN COLUMN WRAP; REFER TO ARCHITECTURAL DETAILS FOR INSTALLATION REQUIREMENTS.

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 2333 Alexandria Drive  
 Lexington, KY 40504  
 T 859.331.5995  
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 Telephone 612.758.4000

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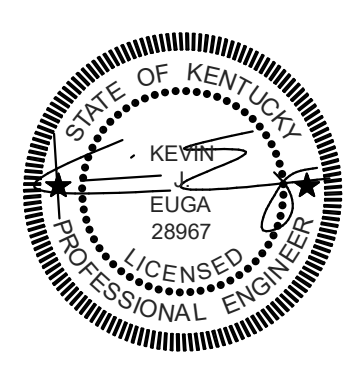
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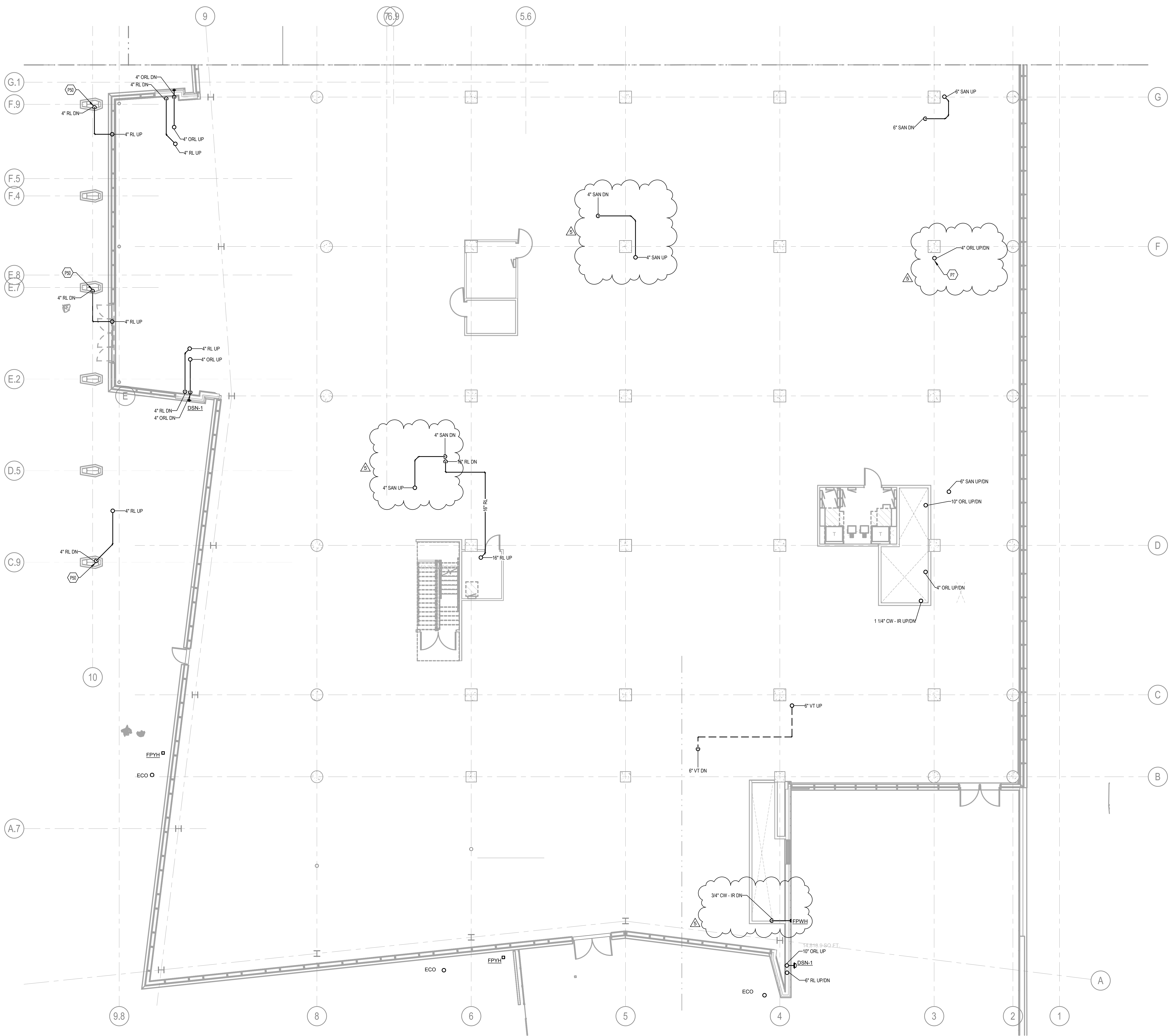
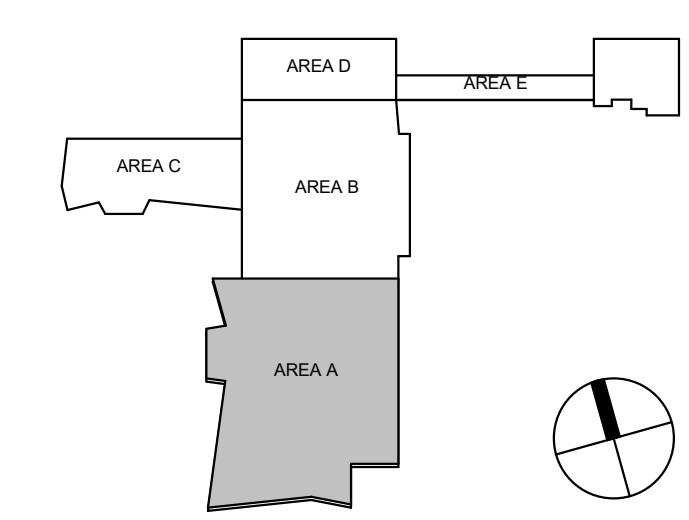
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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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 Checked By **KJE**  
 Client Number 514  
 Project Number 6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 01 - AREA A**

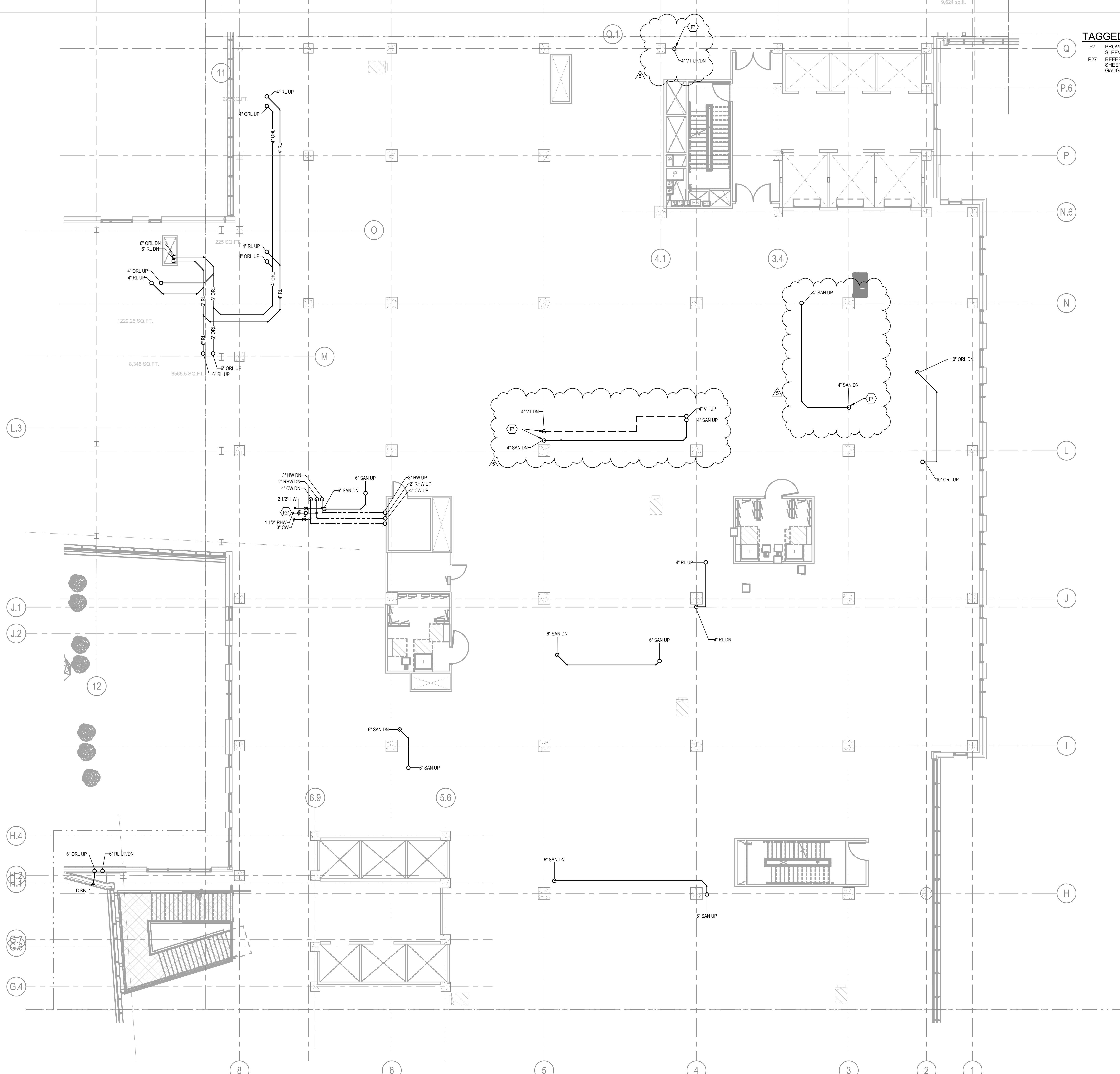
SHEET NO.  
**P101.A**



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 01 - AREA A**  
 P101.A 1/8" = 1'-0"

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5/28/2024 8:48:47 PM



**TAGGED NOTES**

P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400.S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.

**CHAMPLIN**  
ARCHITECTURE

2333 Alexandria Drive  
Lexington, KY 40504  
T 859.331.5995  
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**ISSUANCES**

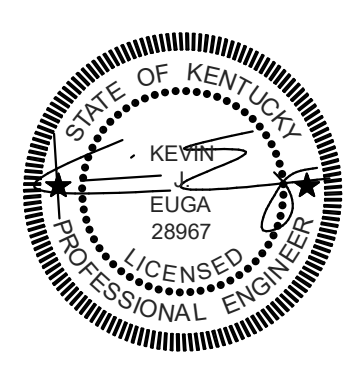
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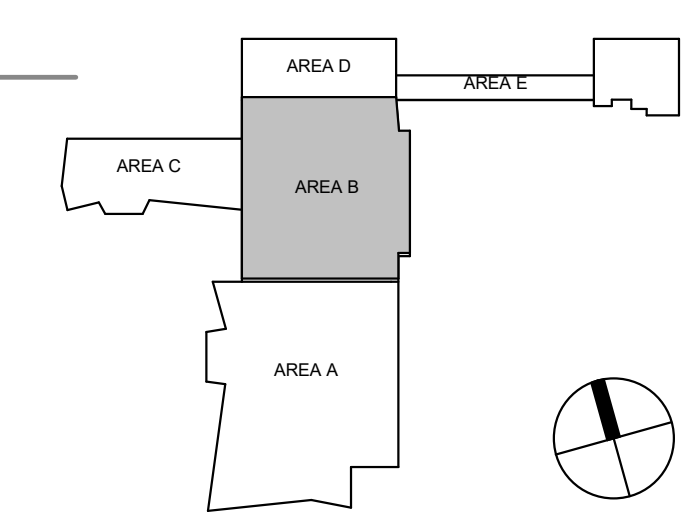
Client Number  
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Project Number  
6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 01 - AREA B**

SHEET NO.  
**P101.B**



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 01 - AREA B**  
P101.B 1/8" = 1'-0"

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**ISSUANCES**

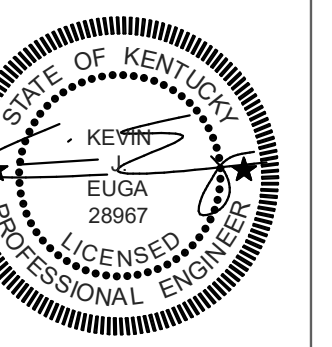
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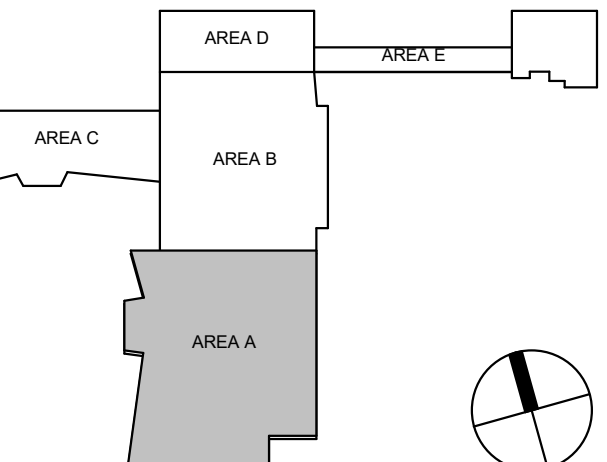
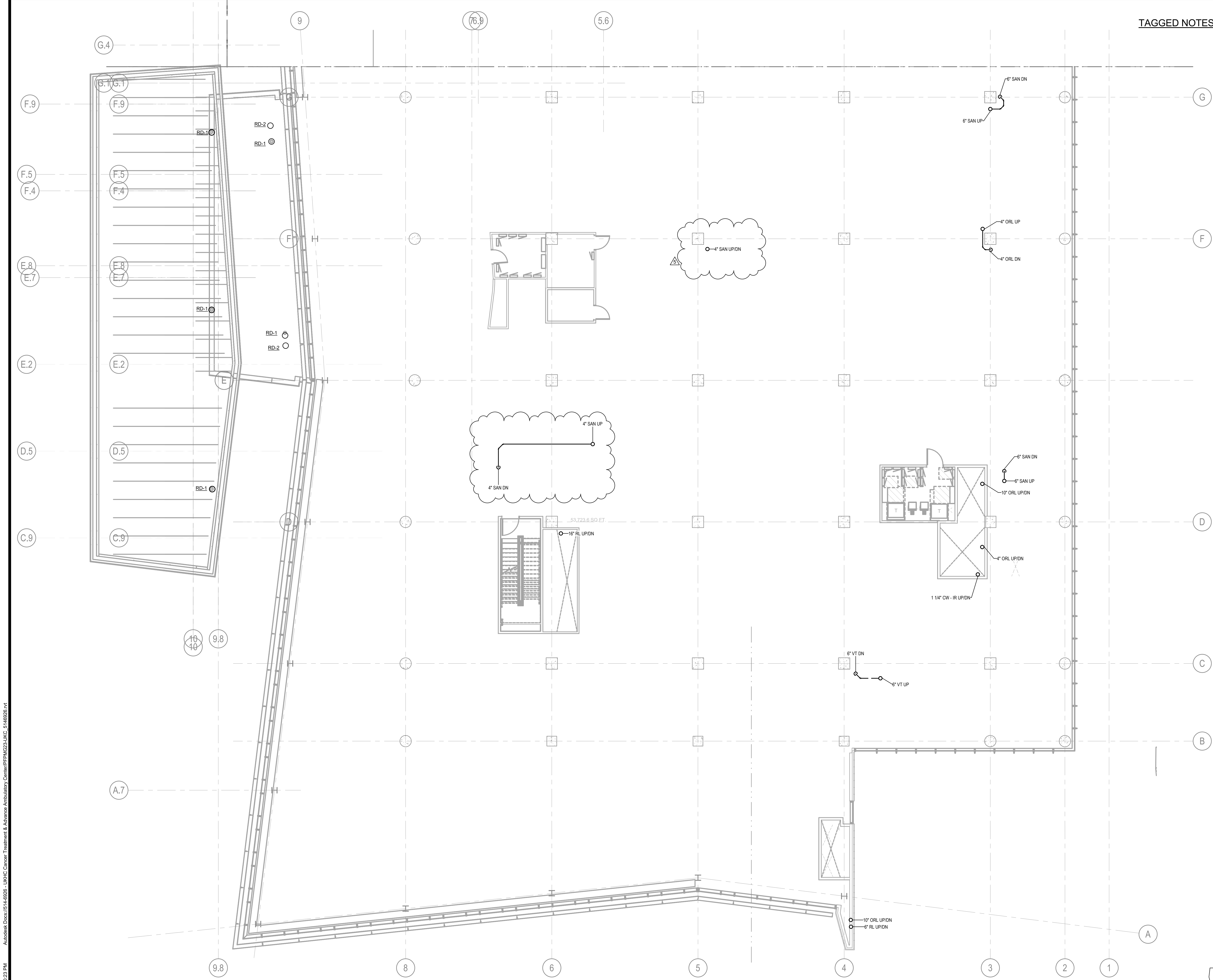
Project Number  
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DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 02 - AREA A**

SHEET NO.  
**P102.A**

5/28/2024 8:50:23 PM



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 02 - AREA A**  
PT102.A 1/8" = 1'-0"

5/28/2024 8:50:23 PM Autodesk Docs://1446203 - UKHC Cancer Treatment & Advanced Ambulatory Center/PP/AC23-UKC\_S146826.rvt RLB

5/28/2024 8:50:42 PM Autodesk Docs://1446203 - UKHC Cancer Treatment & Advanced Ambulatory Center/PPM/23-UKC\_5146203.rvt

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ARCHITECTURE  
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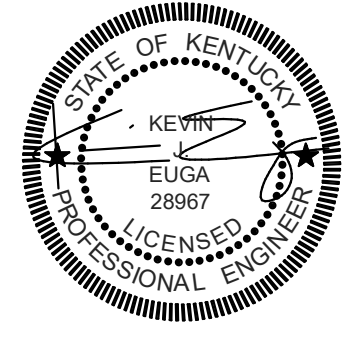
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Checked By  
**KJE**

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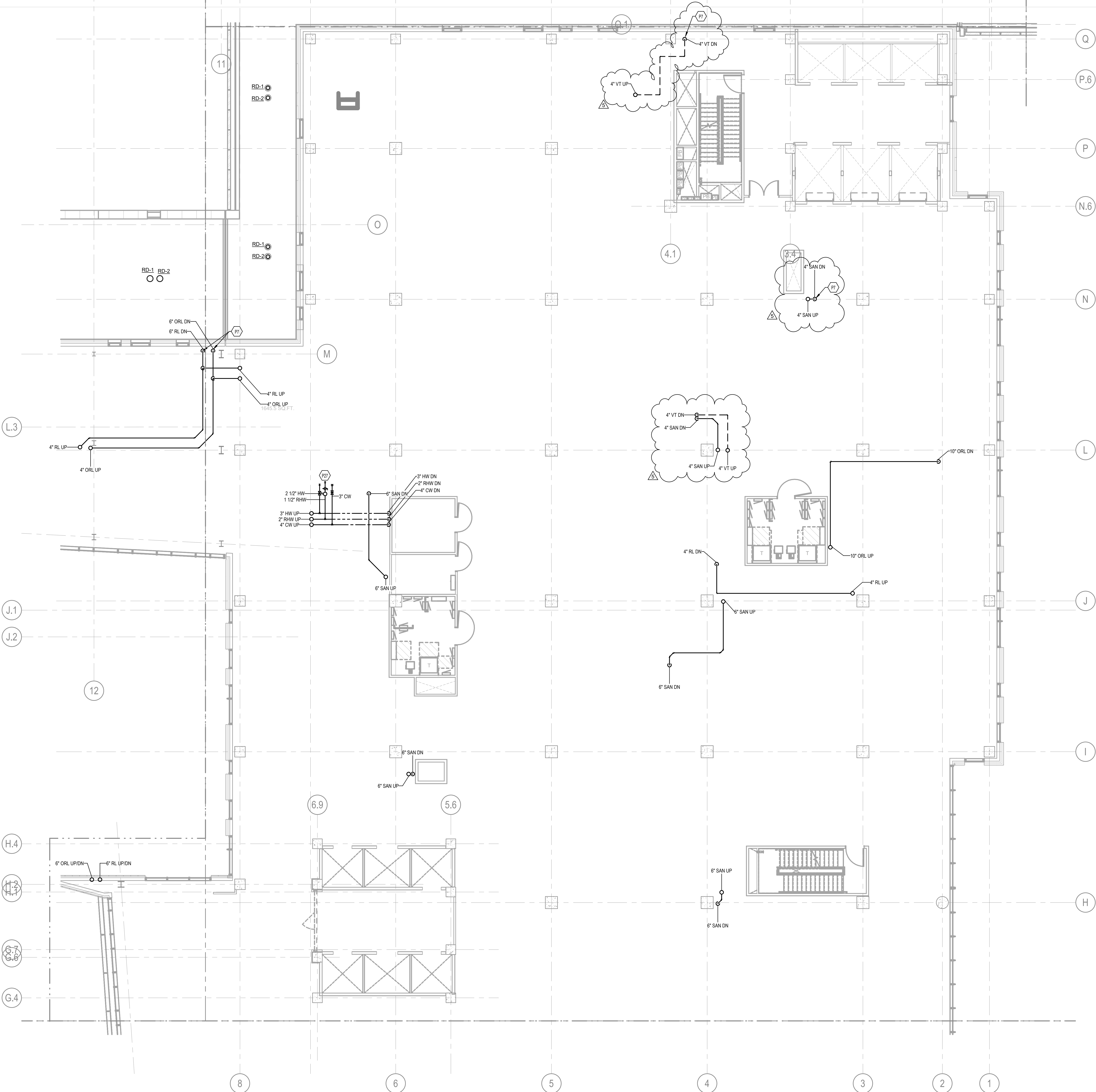
Project Number  
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DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 02 - AREA B**

SHEET NO.  
**P102.B**

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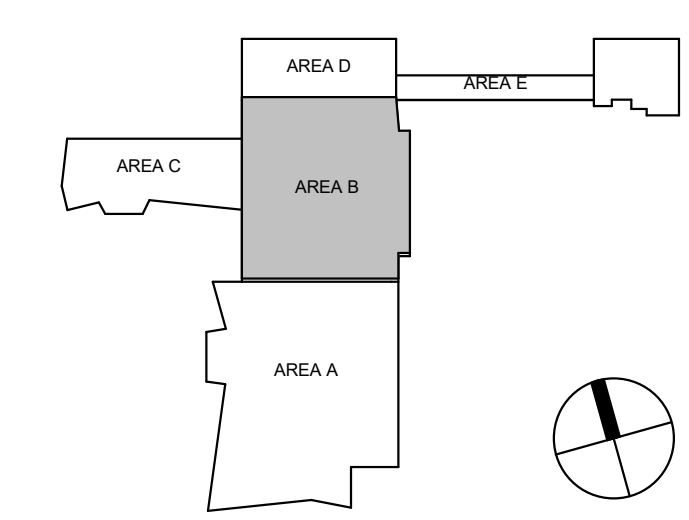


**TAGGED NOTES**

# P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

# P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400.S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.

**SHELL & CORE - PLUMBING PLAN - LEVEL 02 - AREA B**  
P102.B 1/8" = 1'-0"



**TAGGED NOTES**  
 P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

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 2333 Alexandria Drive  
 Lexington, KY 40504  
 T 859.331.5995  
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 Minneapolis, Minnesota 55401  
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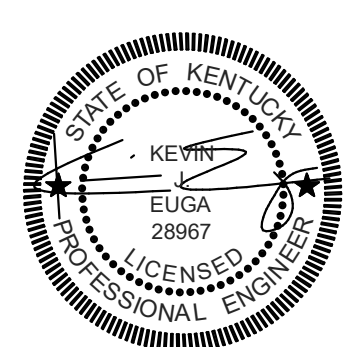
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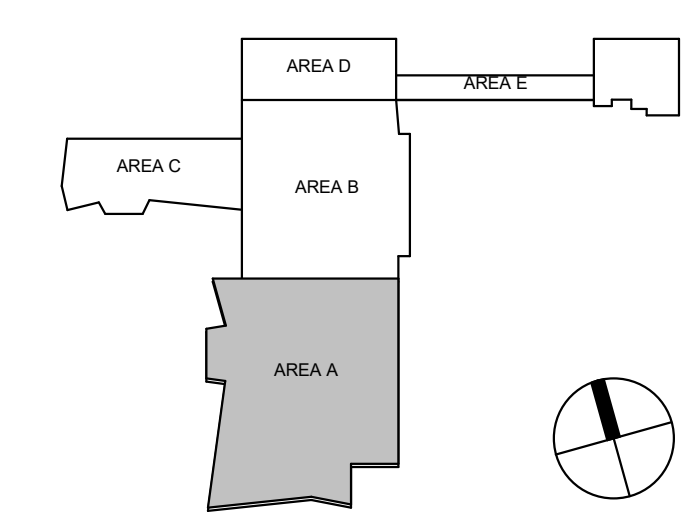
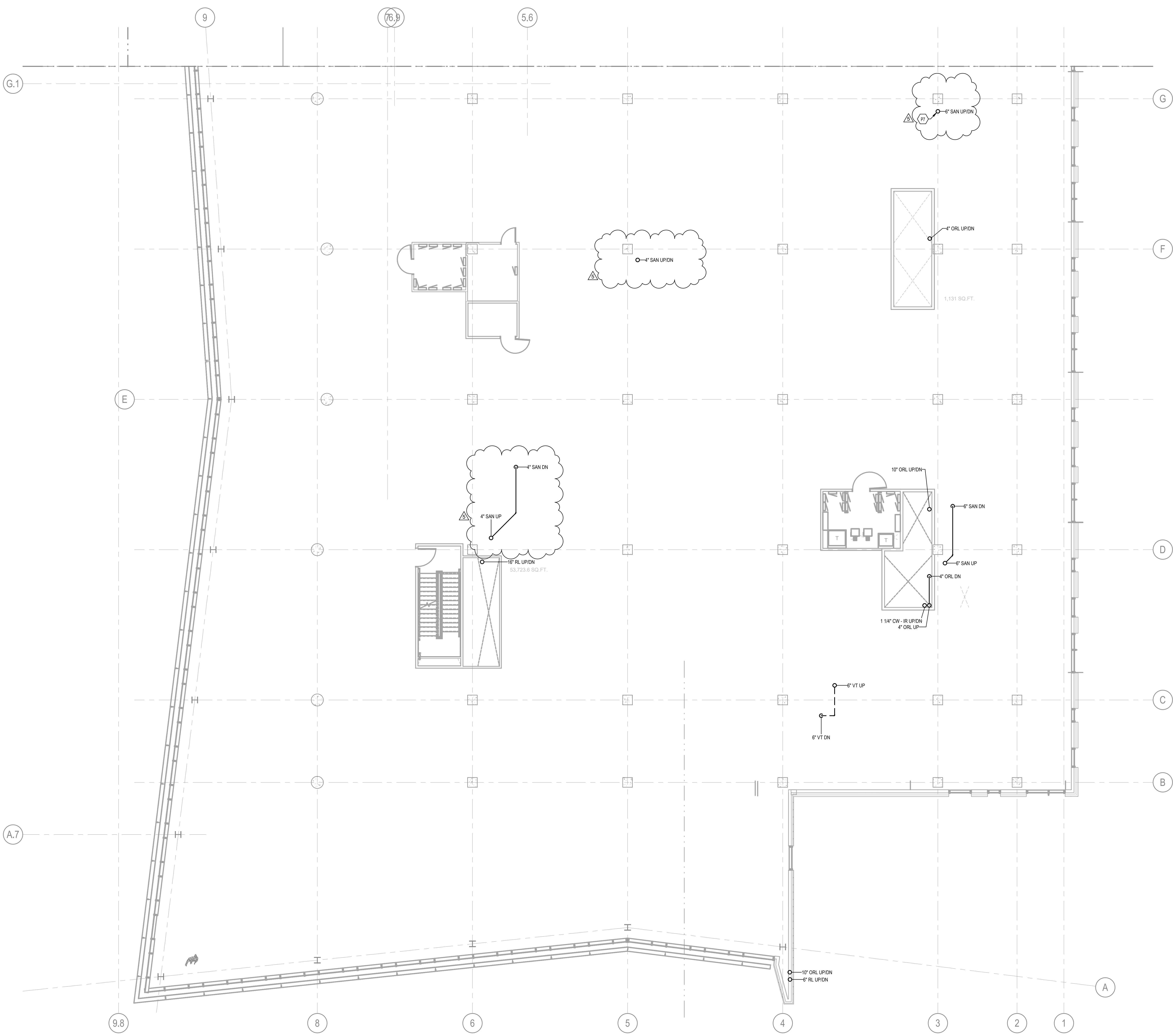
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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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 Project Number 6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 03 - AREA A**  
 SHEET NO.  
**P103.A**



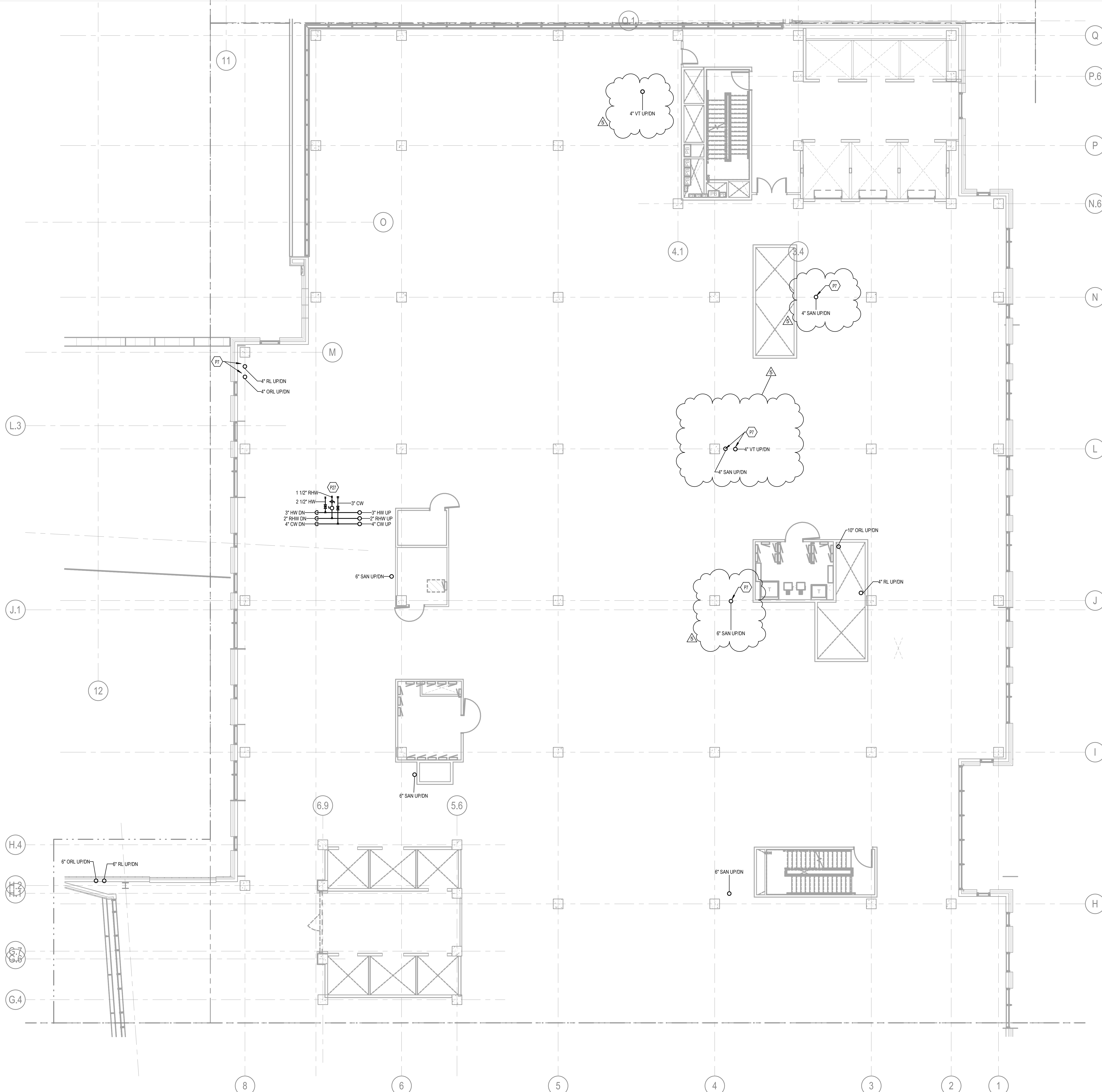
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 P103.A 1/8" = 1'-0"

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5/28/2024 8:51:55 PM Autodesk Docs://1446203 - UKHC Cancer Treatment & Advanced Ambulatory Center/PPM/23-UKC\_5146203.rvt



**TAGGED NOTES**

P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400, S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.

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ARCHITECTURE

2333 Alexandria Drive  
Lexington, KY 40504  
T 859.331.5995  
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**CDM**  
**Smith**

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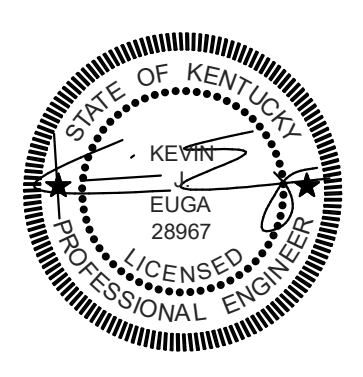
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Checked By  
**KJE**

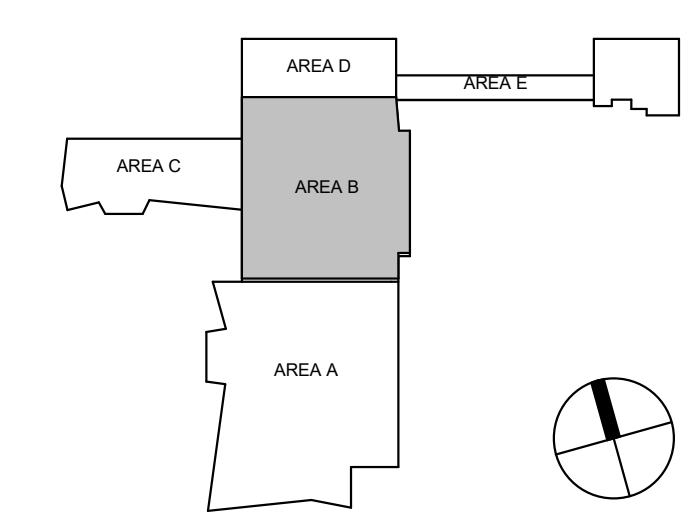
Client Number  
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6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 03 - AREA B**

SHEET NO.  
**P103.B**



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 03 - AREA B**  
P103.B 1/8" = 1'-0"

5/28/2024 8:51:55 PM

**TAGGED NOTES**

P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

P22 WATER SUPPLY UP ROOF GREENSCAPE; REFER TO LEVEL 5 PLUMBING PLAN.

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 2333 Alexandria Drive  
 Lexington, KY 40504  
 T 859.331.5995  
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 CONSULTING GROUP

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**PIVOTAL**  
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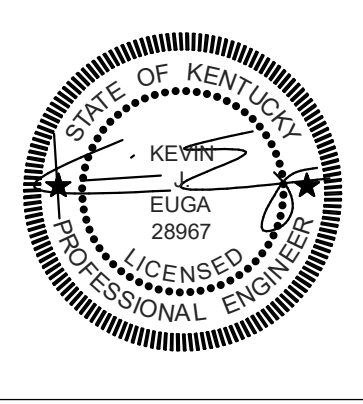
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**ISSUANCES**

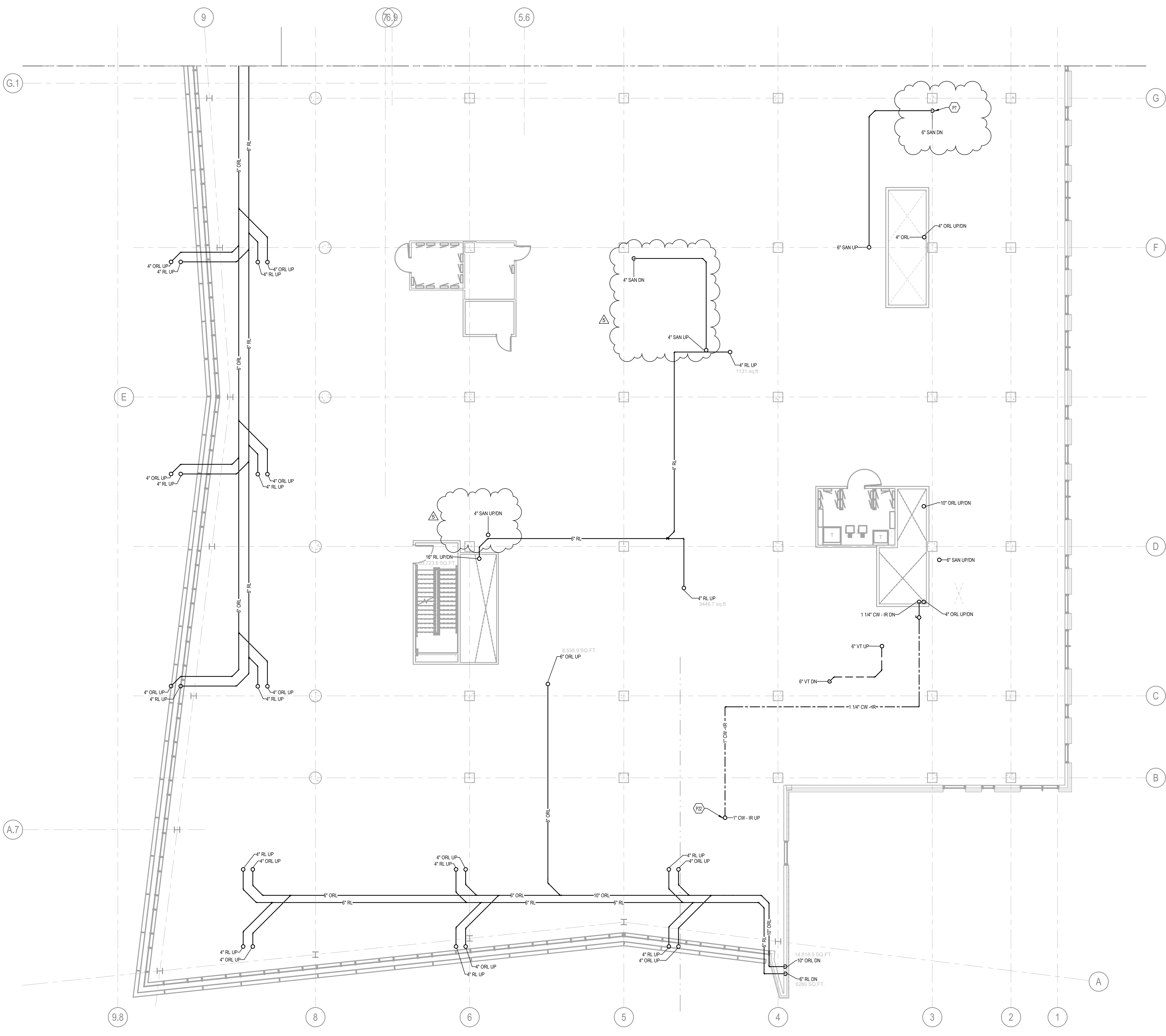
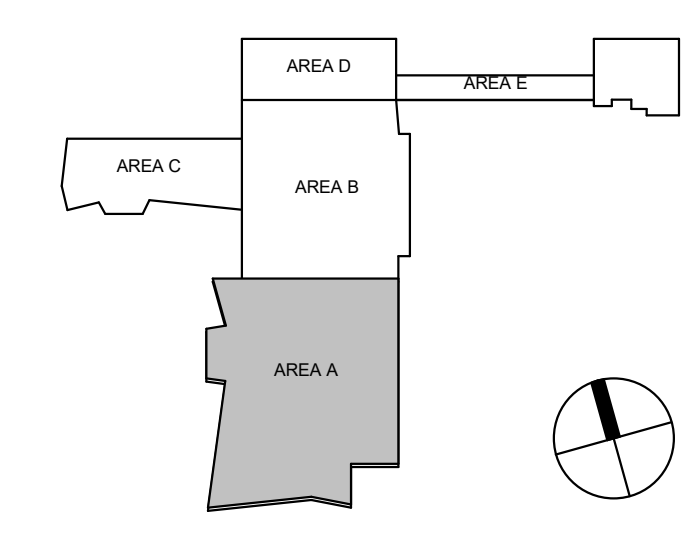
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5	BP-07 ADDENDUM #1	05/28/24

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 Project Number 6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 04 - AREA A**

SHEET NO.  
**P104.A**

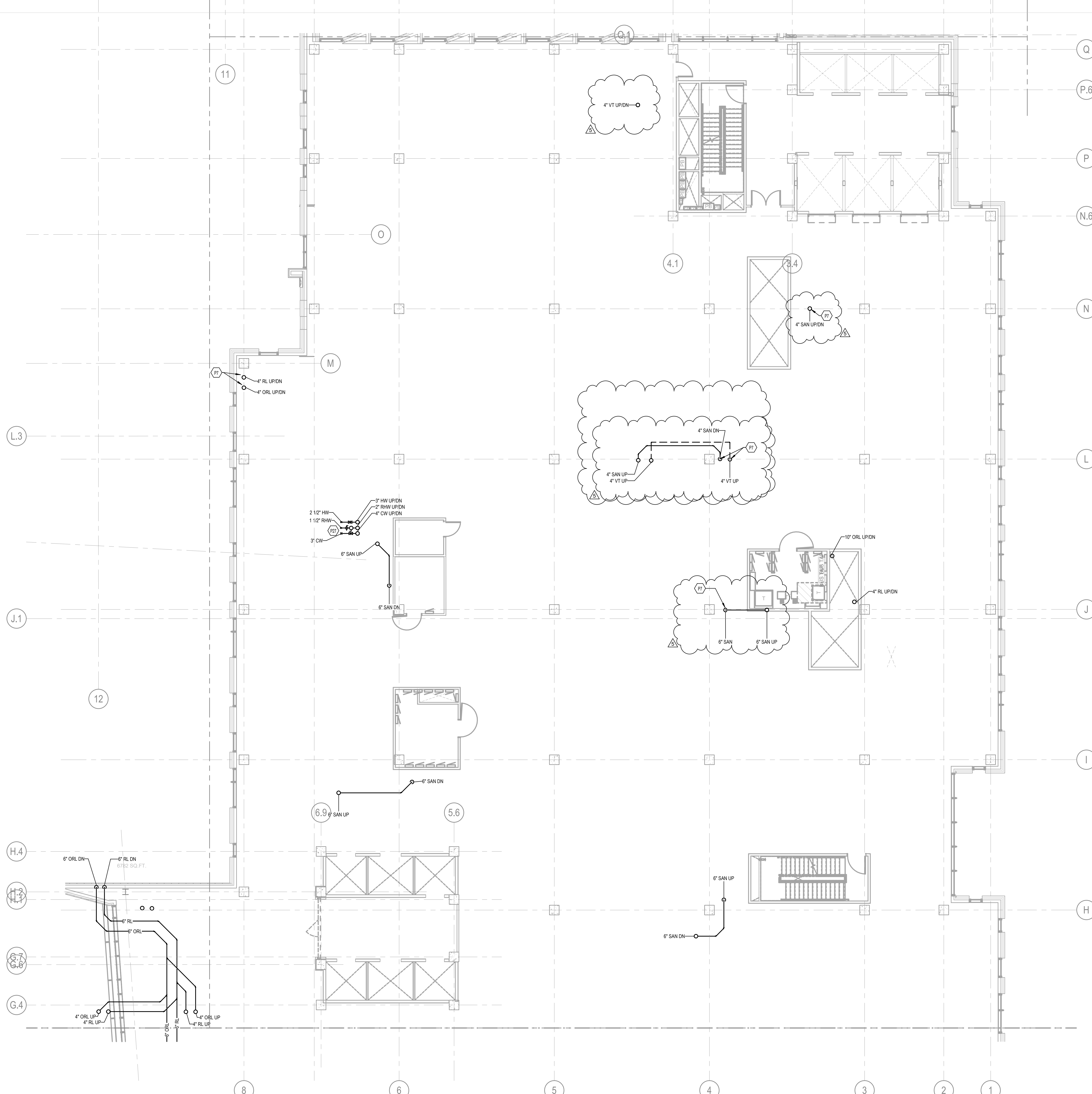


**1 SHELL & CORE - PLUMBING PLAN - LEVEL 04 - AREA A**  
 P104.A 1/8" = 1'-0"

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5/28/2024 8:52:43 PM Autodesk Docs://1446293 - UKHC Cancer Treatment & Advanced Ambulatory Center/PP/023-UKC\_5146293.rvt



**TAGGED NOTES**  
 P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.  
 P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400, S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.

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 PLANNING CIVIL ENGINEERING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

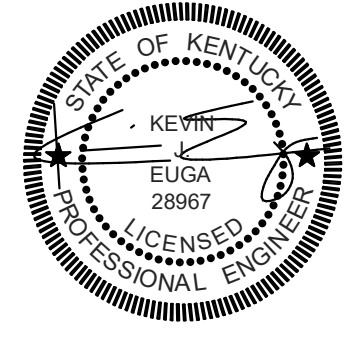
**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

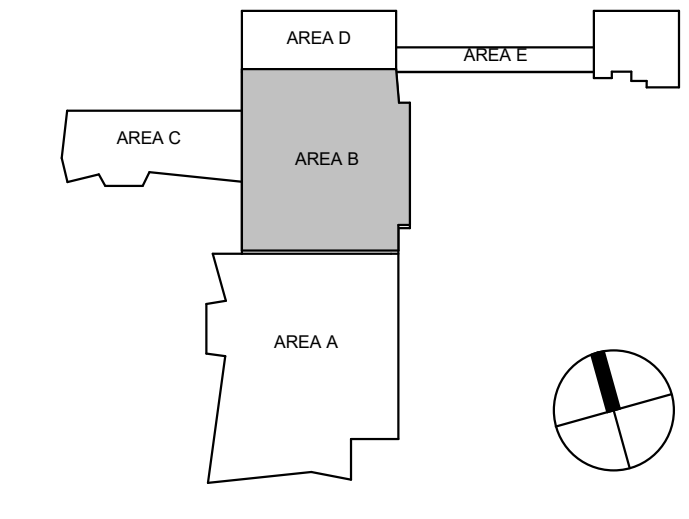
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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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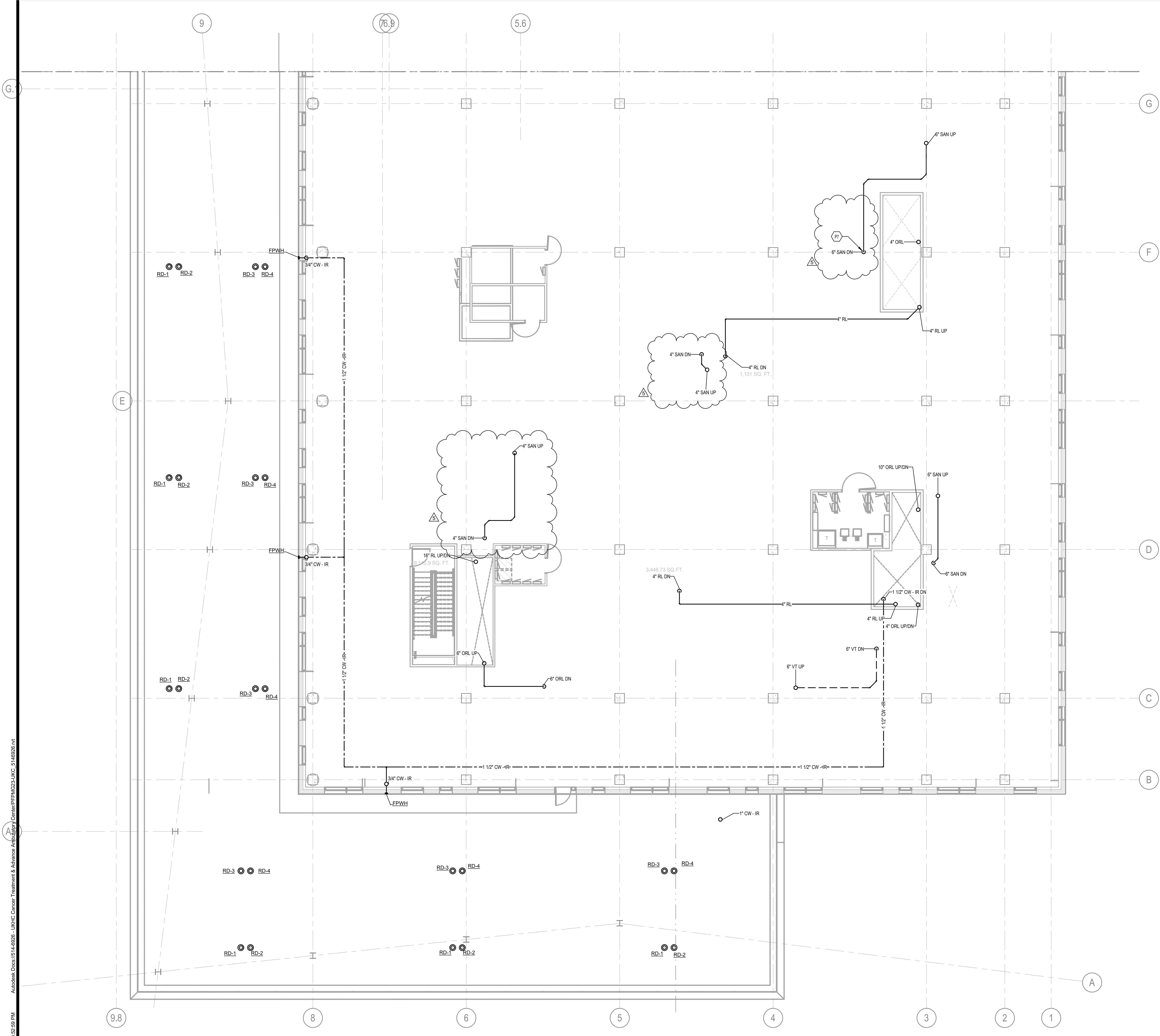
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**SHELL & CORE - PLUMBING PLAN - LEVEL 04 - AREA B**

SHEET NO.  
**P104.B**



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 04 - AREA B**  
 (PT04.B) 1/8" = 1'-0"

5/28/2024 8:52:43 PM



**TAGGED NOTES**  
 P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

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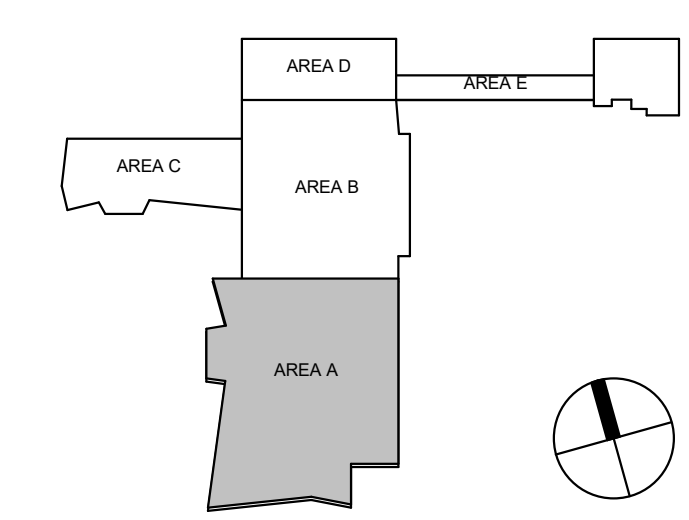
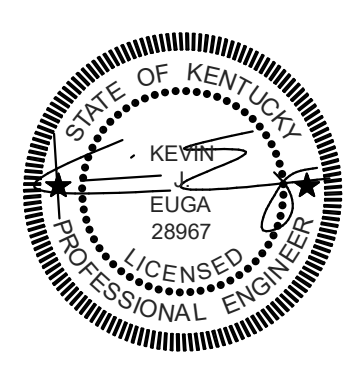
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**ISSUANCES**

No.	Description	Date
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3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
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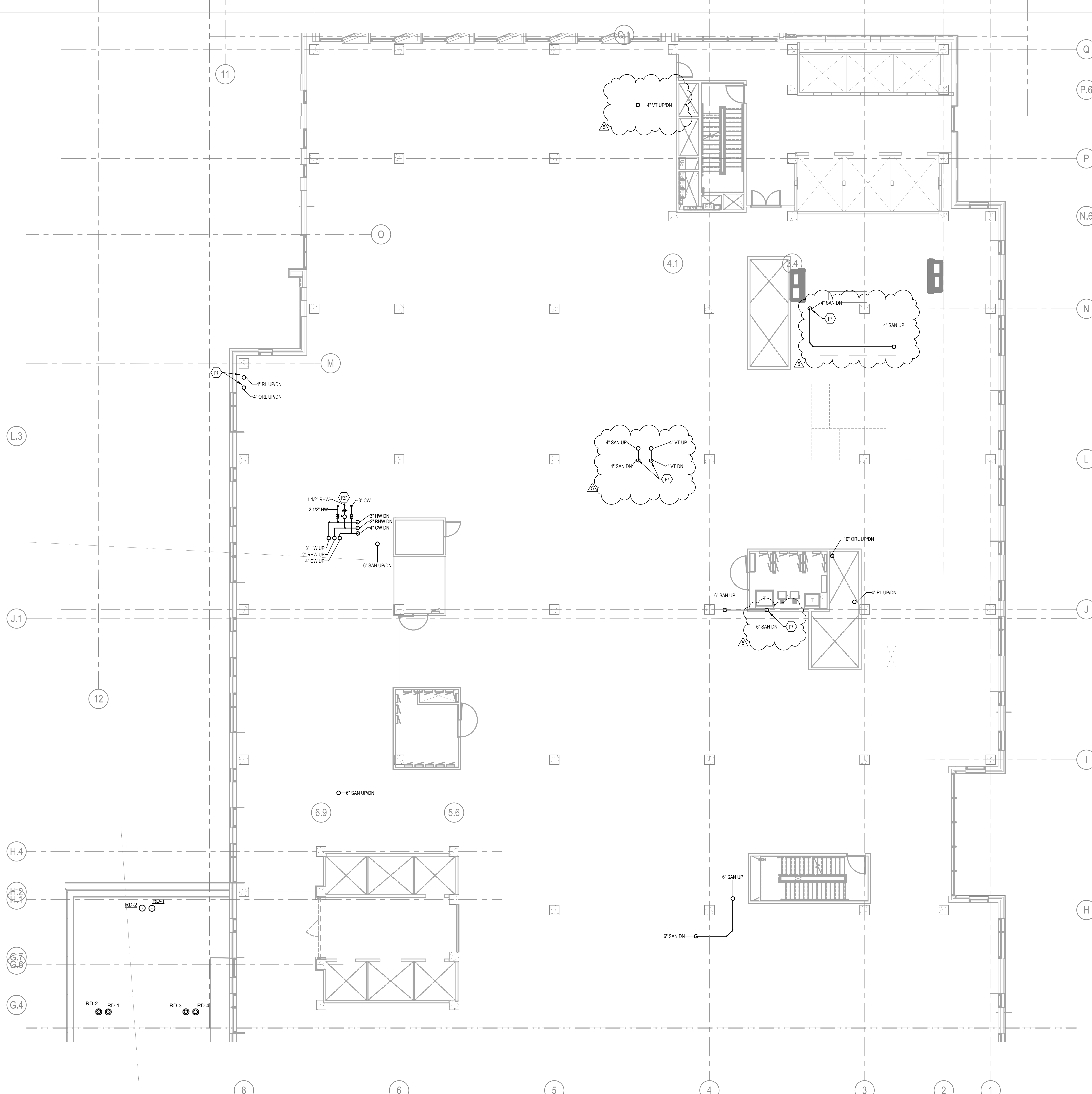


**1 SHELL & CORE - PLUMBING PLAN - LEVEL 05 - AREA A**  
 1/8" = 1'-0"

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5/28/2024 8:53:15 PM Autodesk Docs://1442929 - UKHC Cancer Treatment & Advanced Ambulatory Center/PP/023-UKC\_5146262.rvt



**TAGGED NOTES**

P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400, S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.

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**WALSH**  
 CONSULTING GROUP

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**PIVOTAL**  
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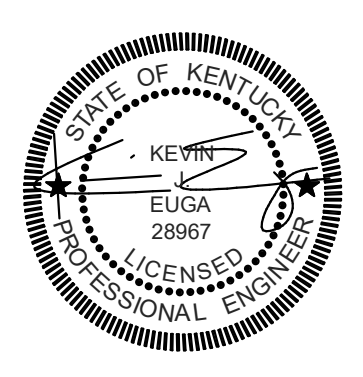
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**ISSUANCES**

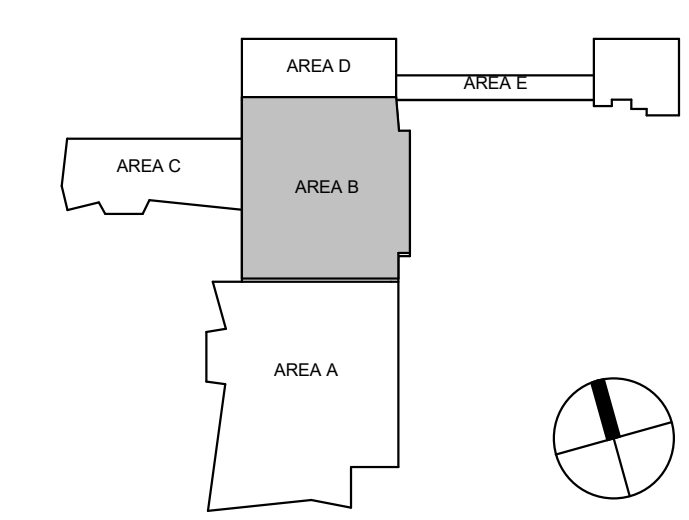
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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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 Client Number 514  
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DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 05 - AREA B**

SHEET NO.  
**P105.B**



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 05 - AREA B**  
 1/8" = 1'-0"

5/28/2024 8:53:15 PM

**TAGGED NOTES**  
 P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

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 2333 Alexandria Drive  
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 T 859.331.5995  
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**bell**  
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**CDM Smith**

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**ISSUANCES**

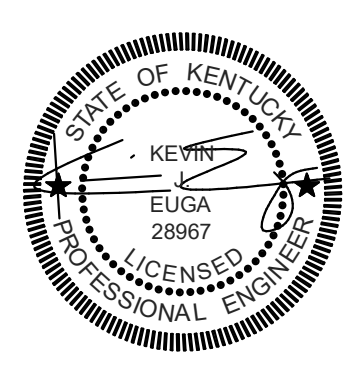
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3	C&S 100% CD REVIEW	04/09/24
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5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**RLB**

Checked By  
**KJE**

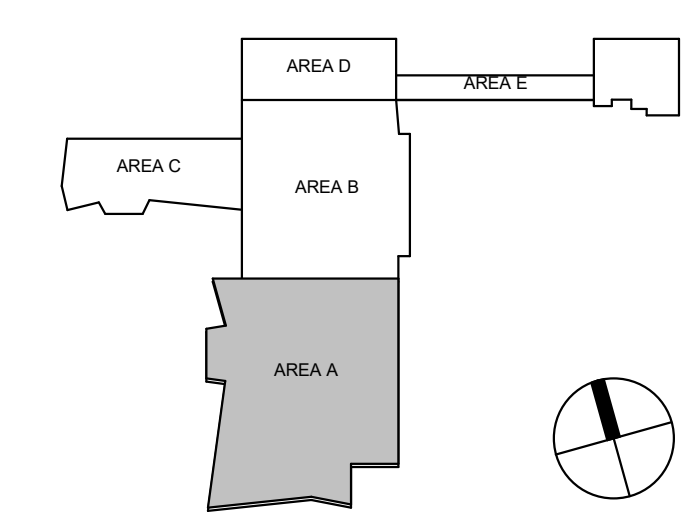
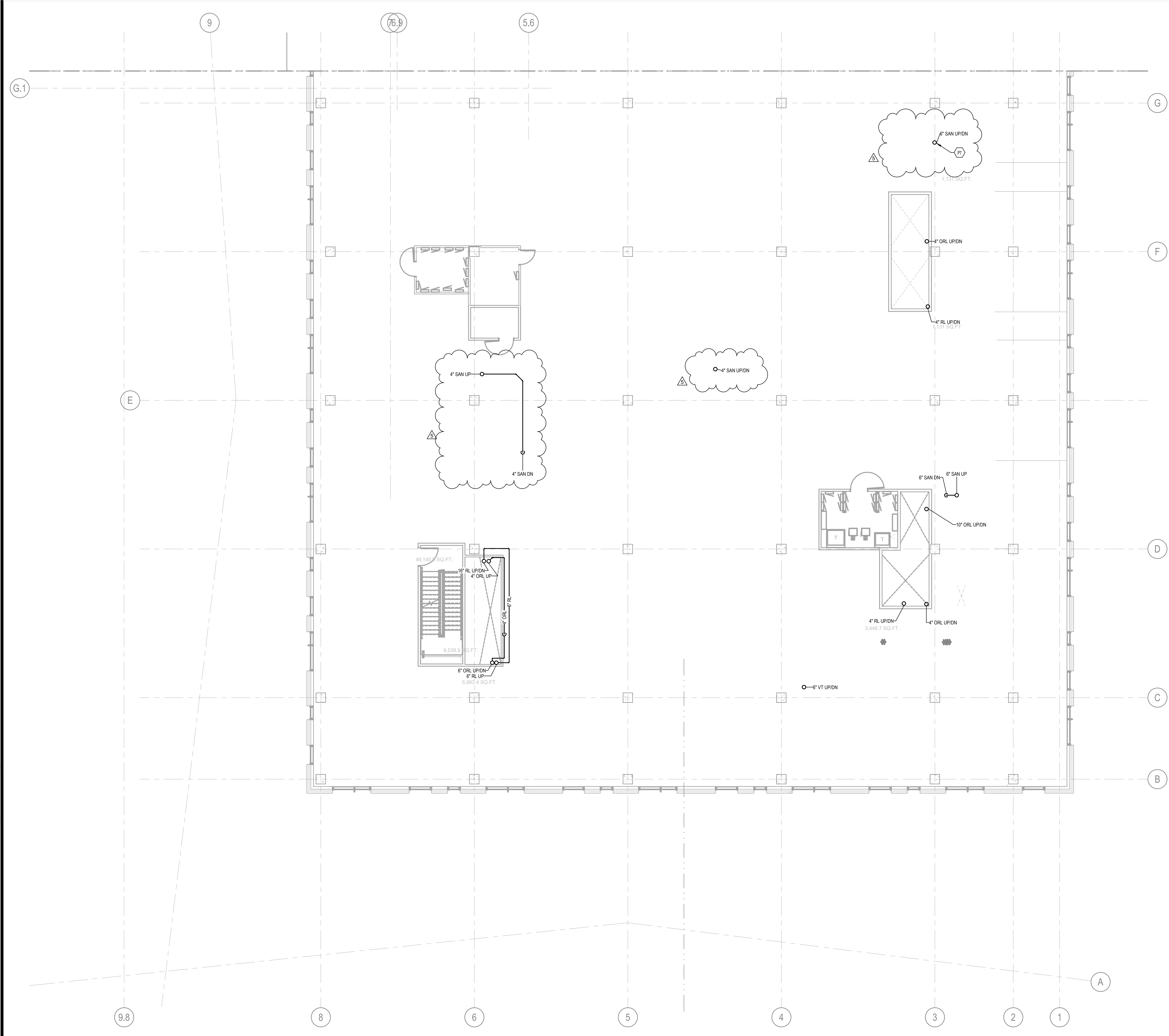
Client Number  
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Project Number  
 6926



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**SHELL & CORE - PLUMBING PLAN - LEVEL 06 - AREA A**

SHEET NO.  
**P106.A**

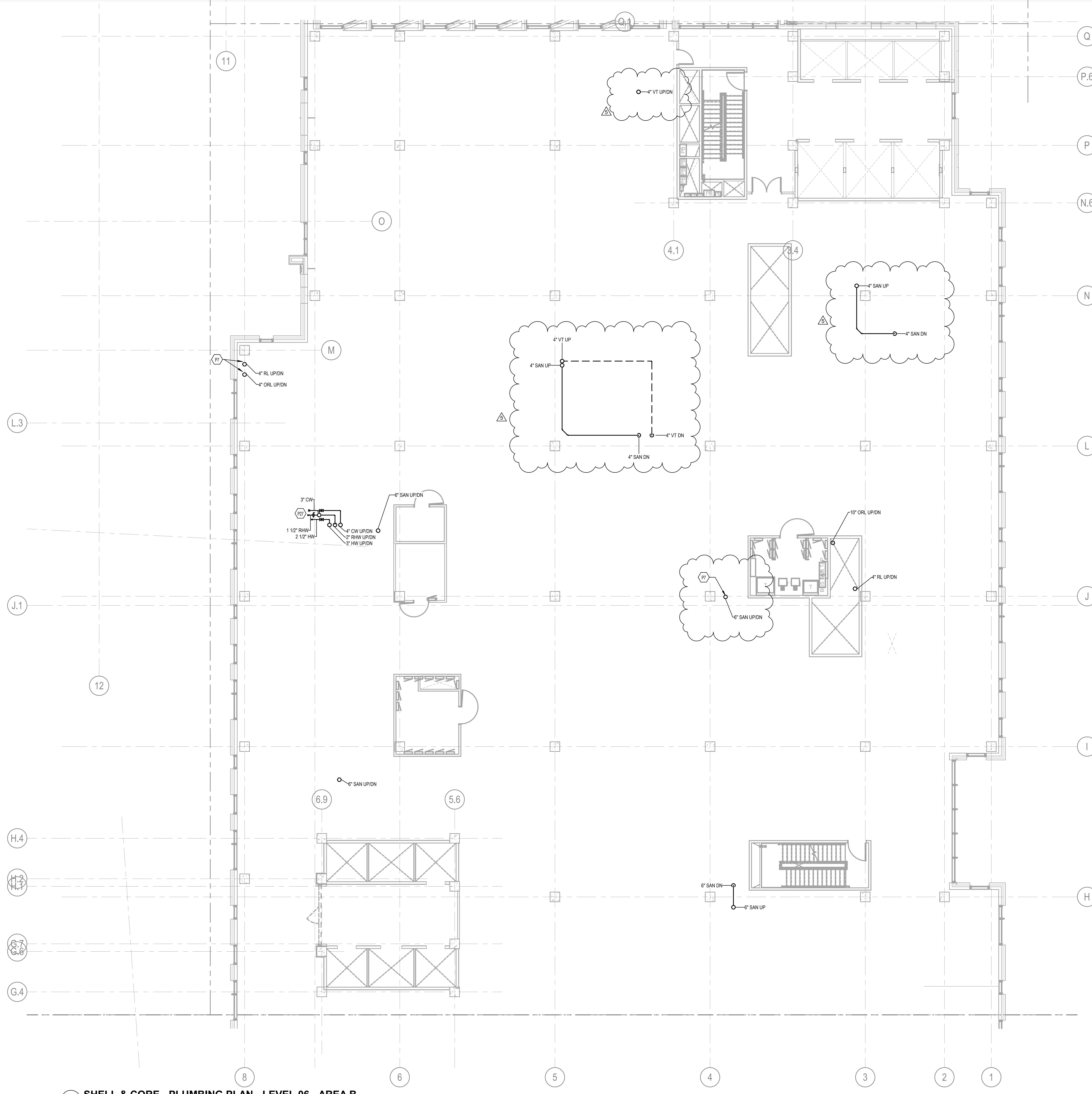


**1 SHELL & CORE - PLUMBING PLAN - LEVEL 06 - AREA A**  
 P106.A 1/8" = 1'-0"

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**TAGGED NOTES**  
#  
P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.  
P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400.5 FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.

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CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
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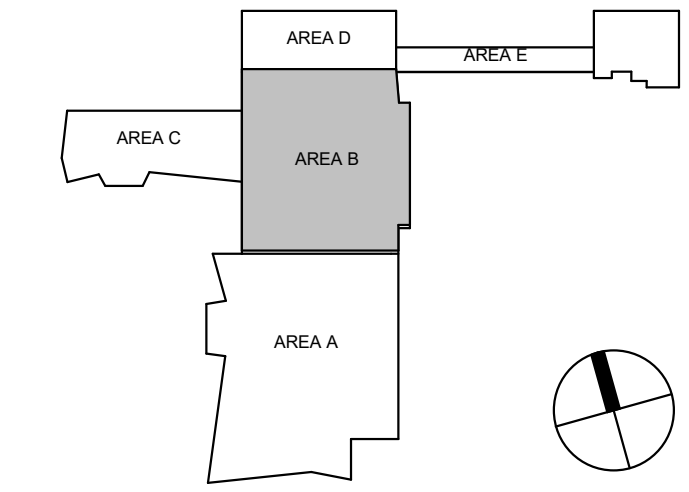
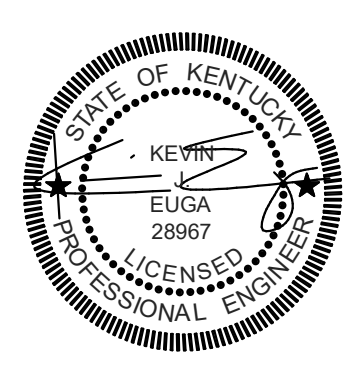
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UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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Checked By  
**KJE**  
Client Number  
514  
Project Number  
6926



**1** SHELL & CORE - PLUMBING PLAN - LEVEL 06 - AREA B  
P106.B 1/8" = 1'-0"

DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 06 - AREA B**  
SHEET NO.  
**P106.B**

5/28/2024 8:53:47 PM

**TAGGED NOTES**

P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S103 FOR REQUIREMENTS.

P47 TRAP PRIMER PIPES UP TO TRAP PRIMER MANIFOLD ABOVE.

P53 4" SANITARY PIPING TO SERVE FLOOR DRAIN ABOVE.

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ARCHITECTURE

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**ISSUANCES**

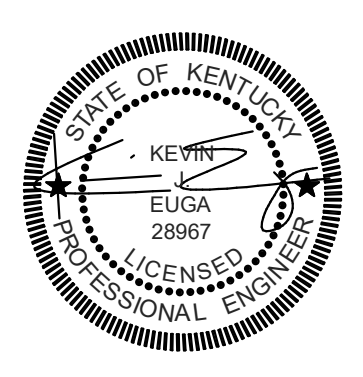
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Drawn By  
**RLB**

Checked By  
**KJE**

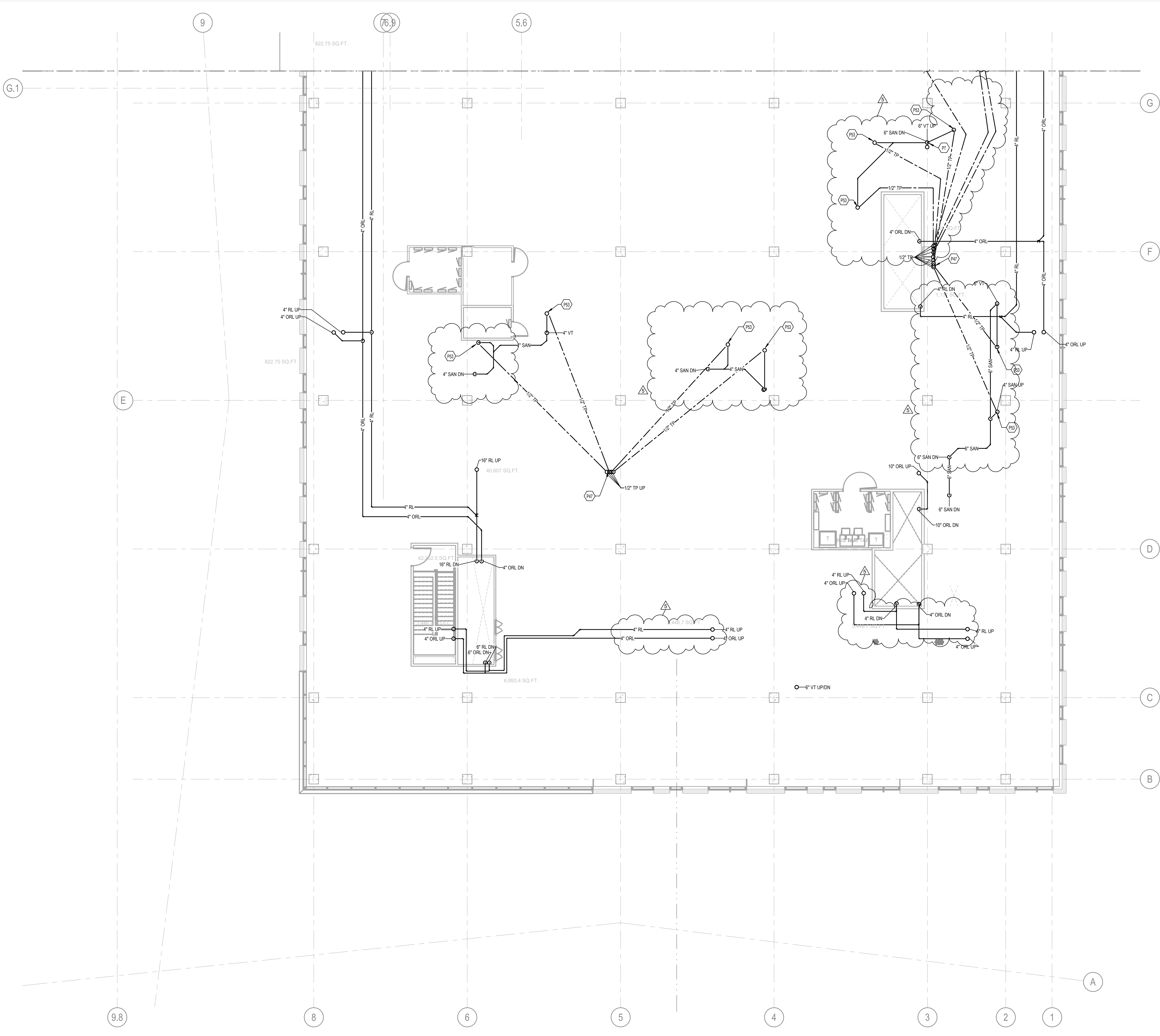
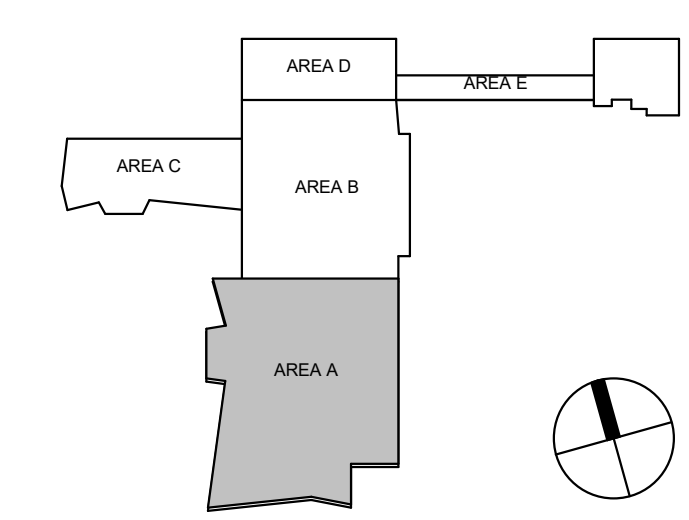
Client Number  
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Project Number  
6926



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 07 - AREA A**

SHEET NO.  
**P107.A**



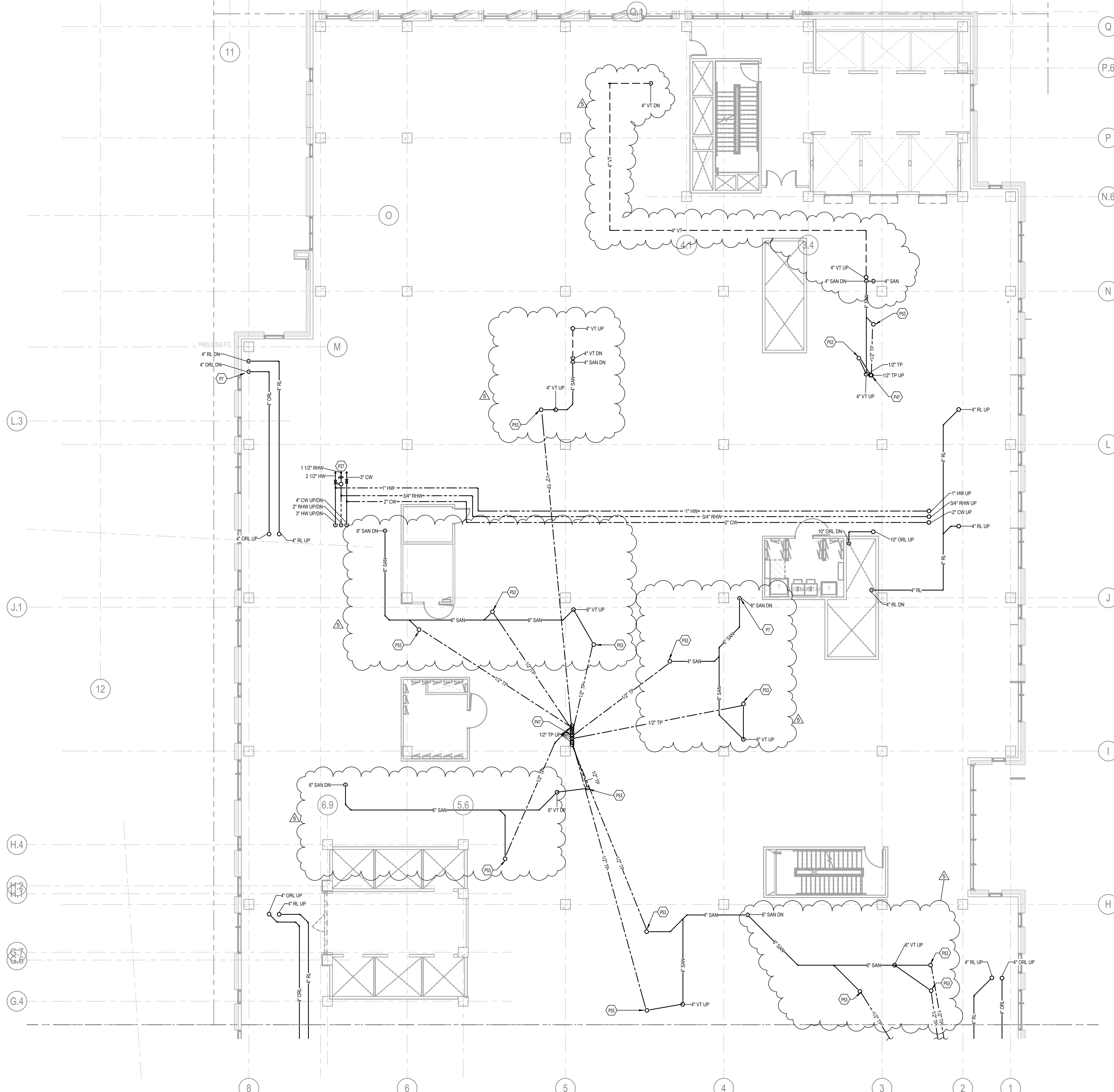
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1/8" = 1'-0"

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RLB 5/28/2024 8:54:21 PM Autodesk Docs://1446293 - UKHC Cancer Treatment & Advanced Ambulatory Center/PPM/23-UKC\_5146293.rvt



**1 SHELL & CORE - PLUMBING PLAN - LEVEL 07 - AREA B**  
 P107.B 1/8\"/>

- TAGGED NOTES**
- # P7 PROVIDE PIPE(S) SLEEVE THROUGH BEAM; REFER STRUCTURAL SLEEVE PLACEMENT DETAIL ON SHEET S 103 FOR REQUIREMENTS.
  - # P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400 S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.
  - # P47 TRAP PRIMER PIPES UP TO TRAP PRIMER MANIFOLD ABOVE.
  - # P53 4\"/>

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 Lexington, KY 40504  
 T 859.331.5995  
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**bell engineering**

**CDM Smith**

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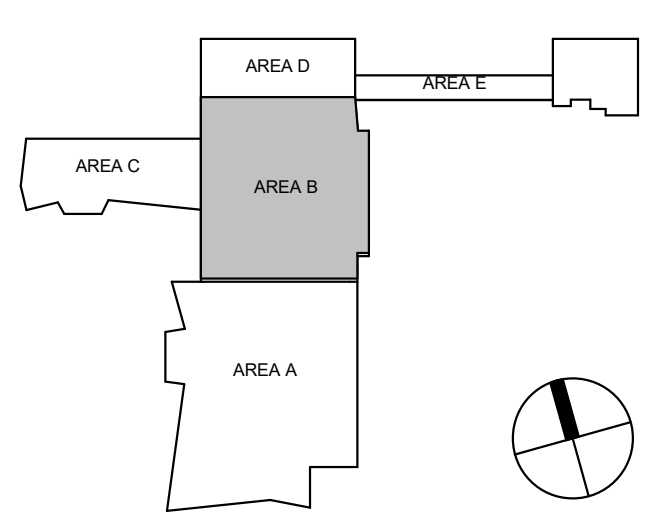
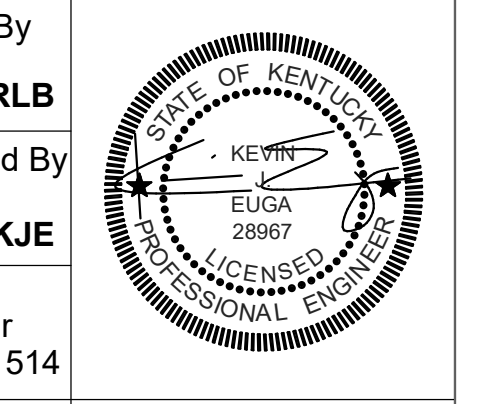
**Cancer Treatment Center + Advanced Ambulatory Center**

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 UK Project Number 2563.0

**ISSUANCES**

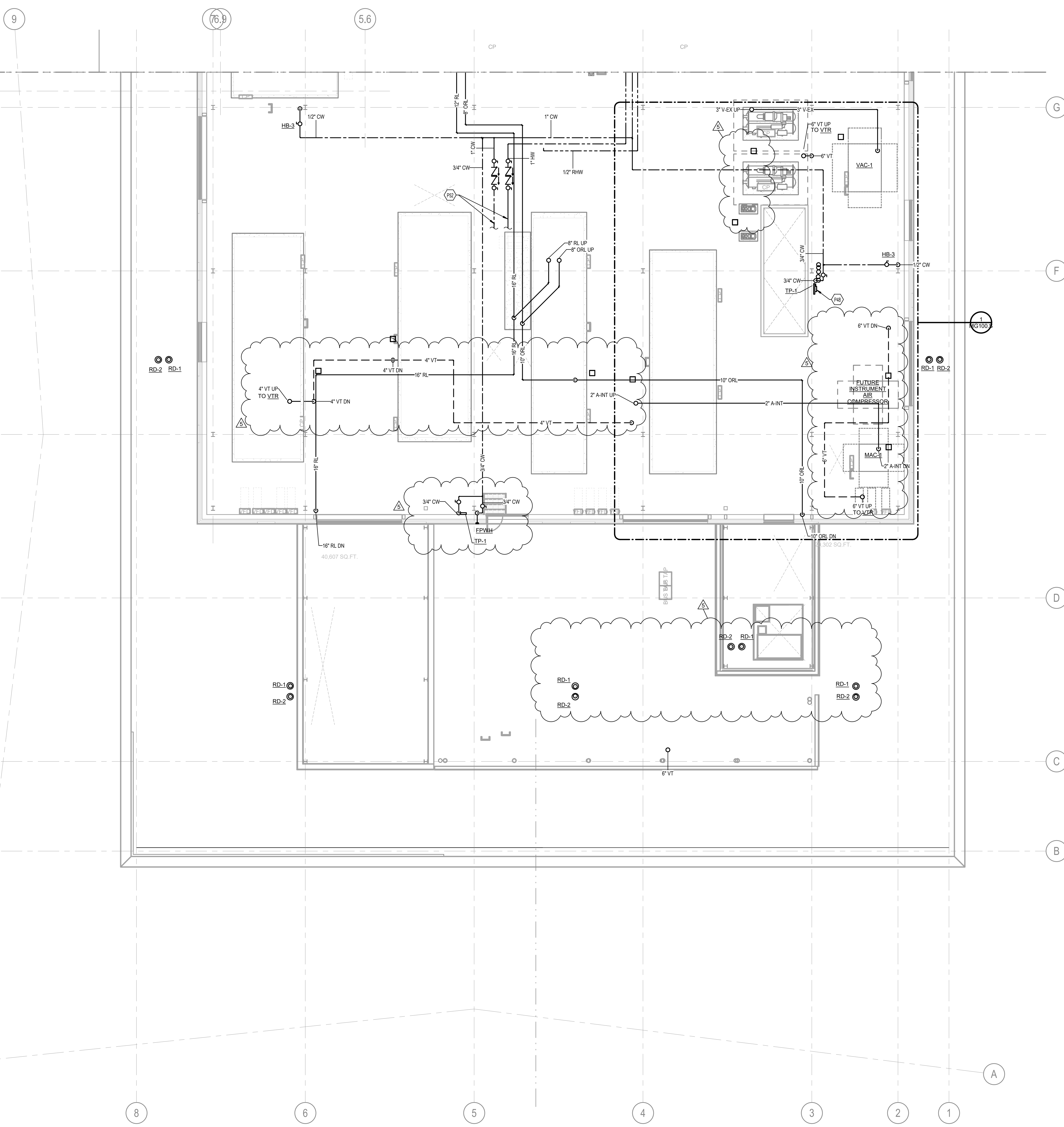
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5	BP-07 ADDENDUM #1	05/28/24

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 Checked By **KJE**  
 Client Number **514**  
 Project Number **6926**



DRAWING TITLE  
**SHELL & CORE - PLUMBING PLAN - LEVEL 07 - AREA B**  
 SHEET NO.  
**P107.B**

5/28/2024 8:54:21 PM



**TAGGED NOTES**

- # P48 MOUNT TRAP PRIMER MANIFOLD ON UNISTRUT SUPPORT, FOR WATER SUPPLIES TO MISS BEAM BELOW.
- # P52 PROVIDE COLD AND HOT WATER CONNECTION TO RO EQUIPMENT. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLIES.

**1 SHELL & CORE - PLUMBING PLAN - LEVEL 08 - AREA A**  
1/8" = 1'-0"

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No.	Description	Date
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Drawn By **RLB**

Checked By **KJE**

Client Number 514

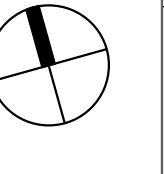
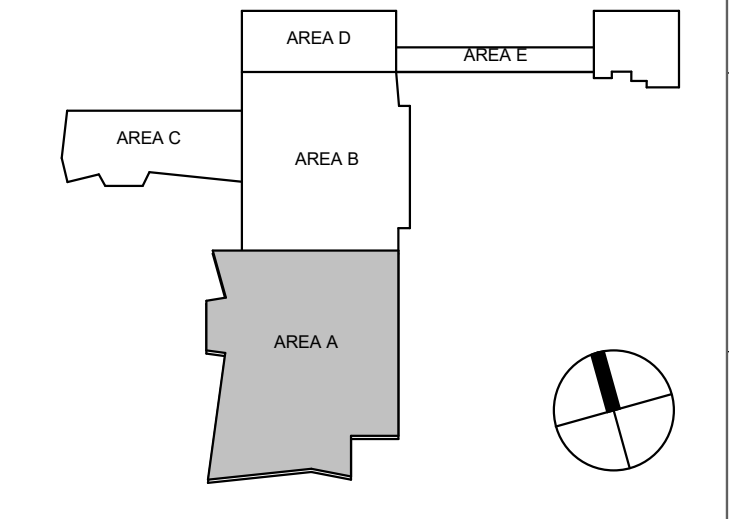
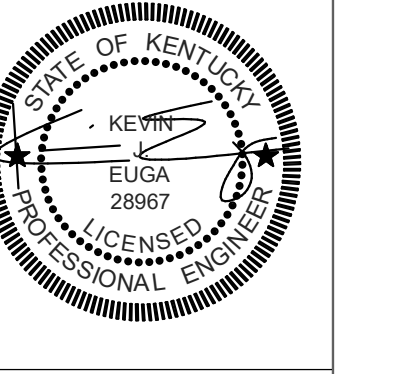
Project Number 6926

DRAWING TITLE

**SHELL & CORE - PLUMBING PLAN - LEVEL 08 - AREA A**

SHEET NO.

**P108.A**



5/28/2024 8:54:58 PM Autodesk Docs://1446203 - UKHC Cancer Treatment & Advanced Ambulatory Center/PP/023-UKC\_5146203.rvt

**TAGGED NOTES**

- P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400.S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.
- P48 MOUNT TRAP PRIMER MANIFOLD ON UNISTRUT SUPPORT, FOR WATER SUPPLIES TO MISS BEAM BELOW.
- P52 PROVIDE COLD AND HOT WATER CONNECTION TO RO EQUIPMENT. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLIES.
- P61 PROVIDE COLD WATER CONNECTION TO AIR SEPARATOR EQUIPMENT. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY.

  
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 ARCHITECTURE  
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 Lexington, KY 40504  
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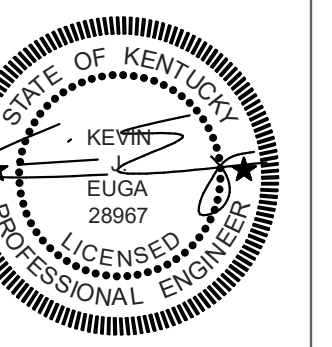
**Cancer Treatment Center + Advanced Ambulatory Center**

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 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
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2	C&S 80% CD	03/05/24
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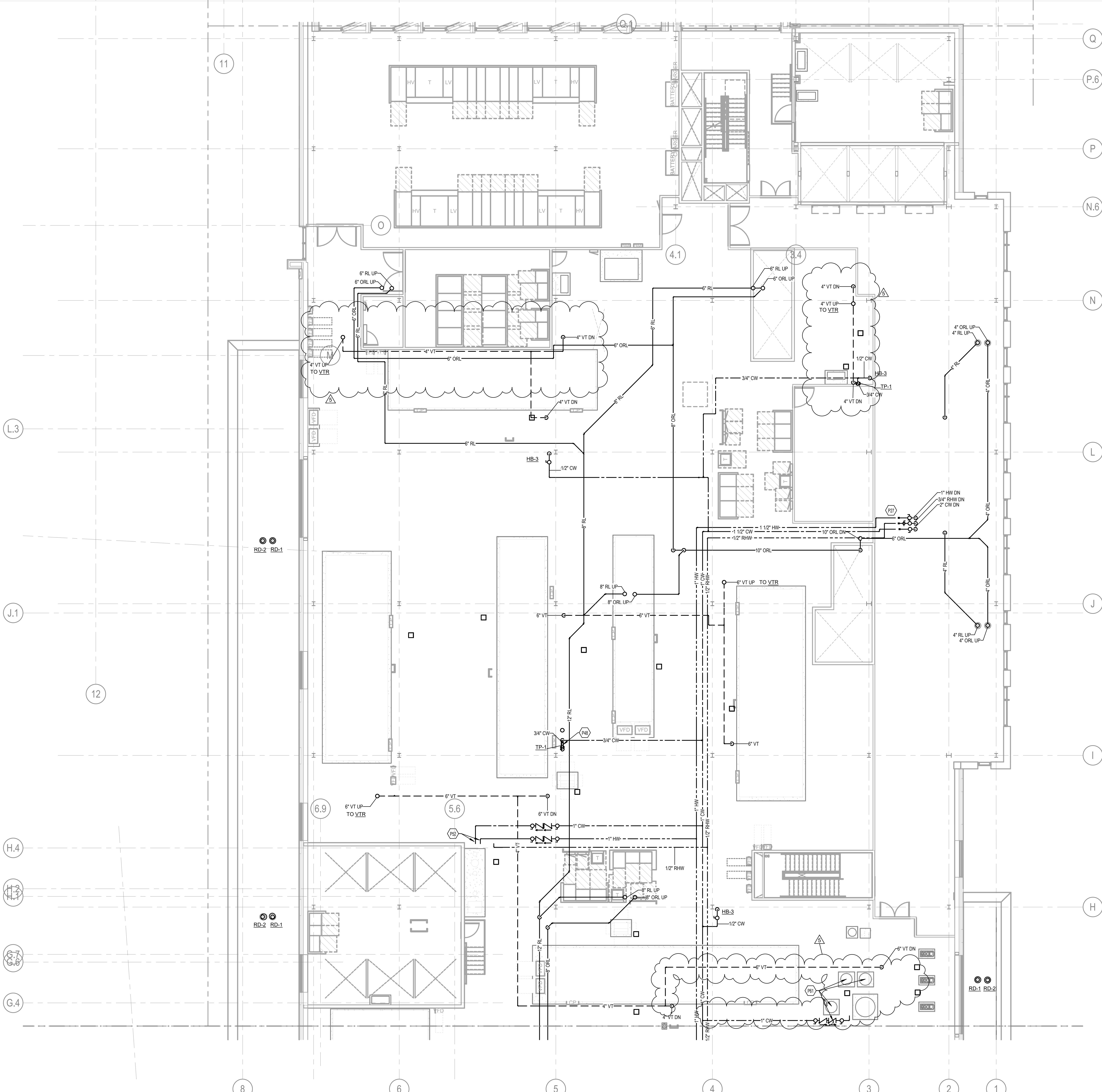
Drawn By **RLB**  
 Checked By **KJE**  
 Client Number **514**  
 Project Number **6926**



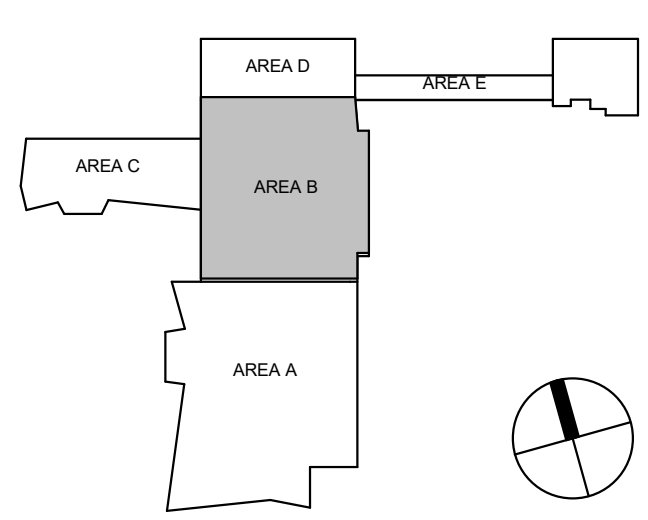
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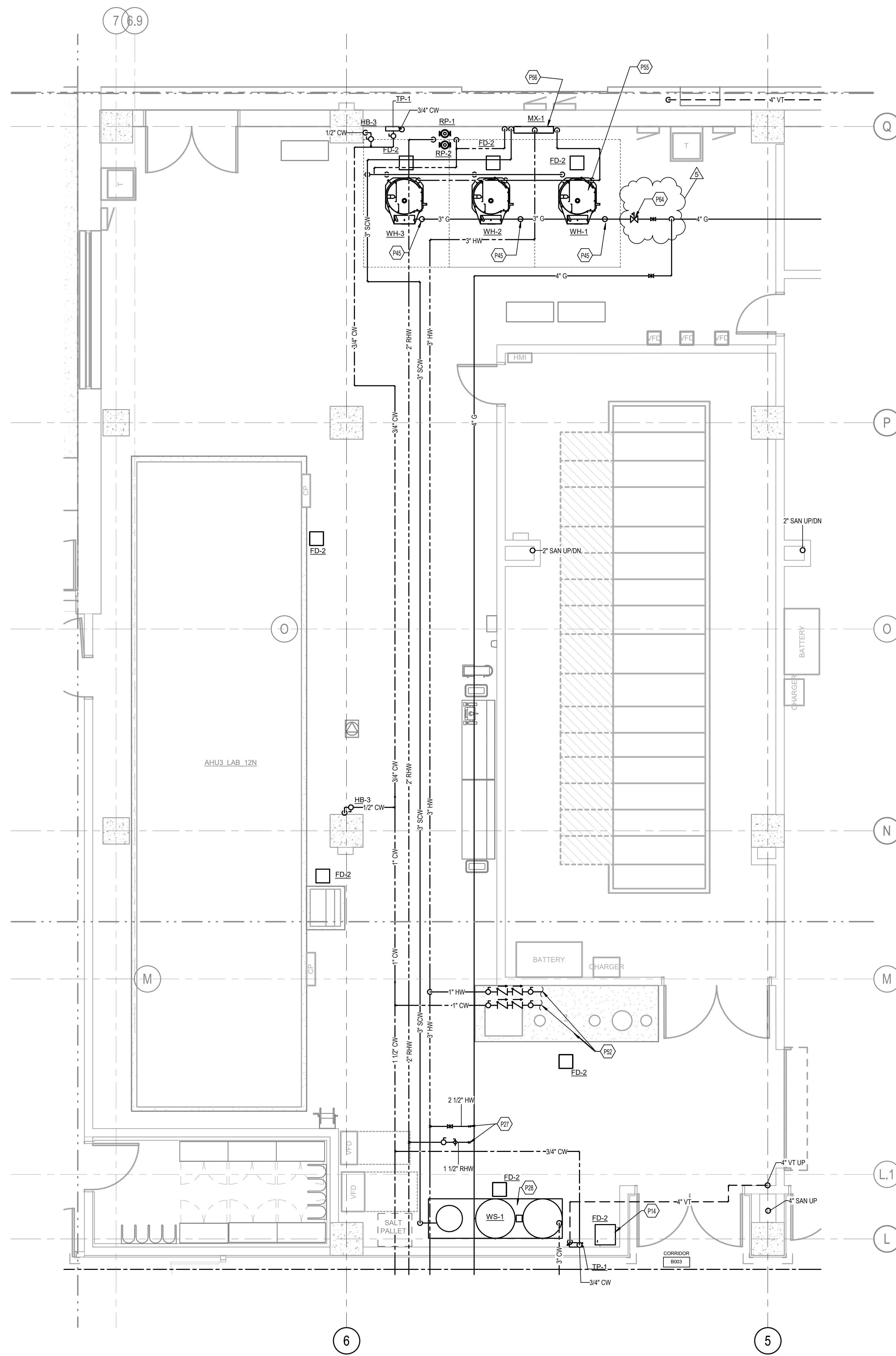
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**P108.B**

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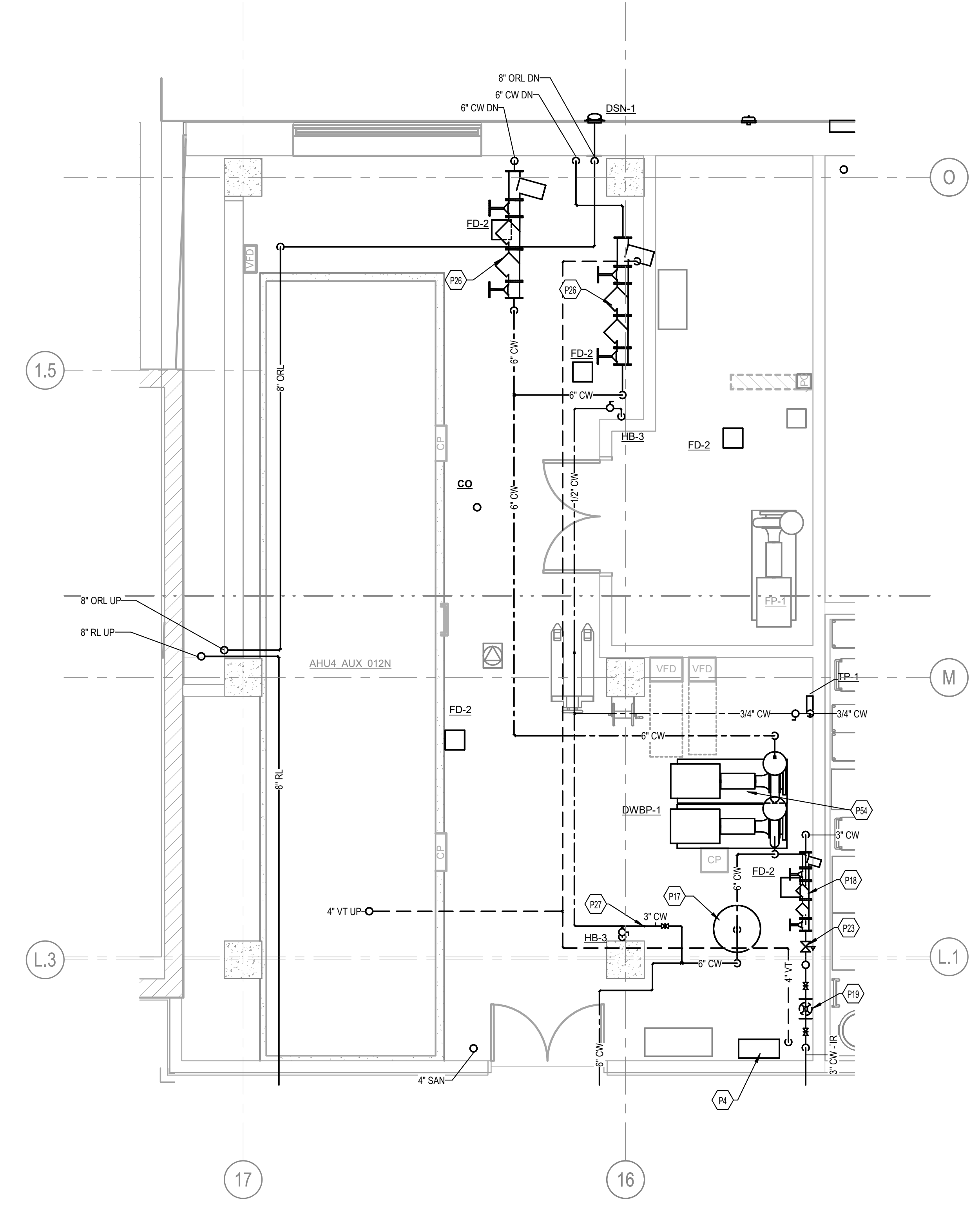



**SHELL & CORE - PLUMBING PLAN - LEVEL 08 - AREA B**  
 1/8" = 1'-0"

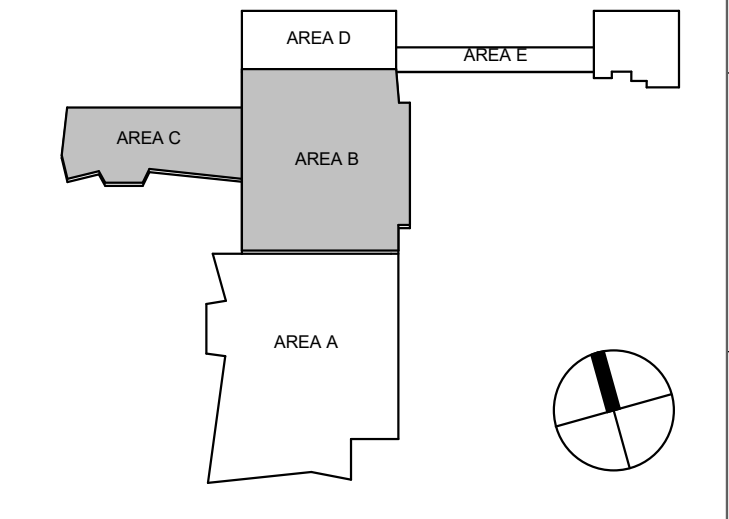




1  
1/P100.B  
SHELL & CORE - ENLARGED MECHANICAL ROOM (B003A) PLUMBING PLAN  
SCALE: 1/4" = 1'-0"  
0 1' 2' 4' 8' 12' 16'



2  
1/P100.C  
SHELL & CORE - ENLARGED MECHANICAL ROOM (C006) PLUMBING PLAN  
SCALE: 1/4" = 1'-0"  
0 1' 2' 4' 8' 12' 16'



**TAGGED NOTES**

- #
- P4 IRRIGATION CONTROLLER PANEL. PROVIDED BY IRRIGATION VENDOR. REFER TO LAND SCAPE DRAWINGS.
- P14 SUMP PIT FOR ELEVATOR SUMP PUMP DISCHARGE. INSTALL FLOOR DRAIN IN BOTTOM OF RECESSED SUMP PIT. PROVIDE METAL GRATE OVER SUMP PIT.
- P17 EXPANSION TANK. REFER TO BOOSTER PUMP DETAIL.
- P18 WATT'S LF909 BACKFLOW PREVENTER ASSEMBLY WITH STRAINER FOR IRRIGATION WATER SUPPLY.
- P19 PROVIDE DIGITAL WATER METER TO MONITOR WATER SUPPLY TO LAWN IRRIGATION SYSTEM. METER SHALL BE A 2" BADGER RECORDALL COMPOUND METER WITH ER420 DIGITAL INDICATOR WITH METER MOUNT AND BACNET COMPATIBLE FOR WIRE TO THE BUILDING MANAGEMENT SYSTEM.
- P23 PROVIDE PRESSURE REDUCING VALVE SET TO 65 PSI.
- P26 LINE SIZED WATT'S LF909 BACKFLOW PREVENTER ASSEMBLY WITH STRAINER. REFER TO DOMESTIC WATER ENTRANCE SCHEMATIC.
- P27 REFER TO DOMESTIC WATER MAIN RISER CONNECTION DETAIL, SHEET P400 S FOR ADDITIONAL REQUIRED VALVES, FITTINGS AND GAUGES REQUIRED.
- P28 WATER SOFTENER SYSTEM. REFER TO WATER SOFTENER SCHEDULE AND PIPING SCHEMATIC.
- P45 PROVIDE 1-1/2" NATURAL GAS DOWN TO WATER HEATER CONNECTION. REFER TO PLUMBING SCHEDULES FOR GAS INLET PRESSURE. REFER TO PLUMBING DETAILS FOR GAS CONNECTION.
- P52 PROVIDE COLD AND HOT WATER CONNECTION TO RO EQUIPMENT. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLIES.
- P54 DOMESTIC WATER BOOSTER PUMP. REFER TO BOOSTER PUMP SCHEDULE AND DETAIL.
- P55 REFER TO DOMESTIC HOT WATER HEATER SCHEDULE AND PIPING SCHEMATIC.
- P56 MIXING VALVE. REFER TO DOMESTIC HOT WATER HEATER PIPING SCHEMATIC.
- P64 PROVIDE PRESSURE REDUCING VALVE TO DECREASE GAS PRESSURE TO 14" W.C. PROVIDE FULL SIZE VENT FROM REGULATOR AND PIPE TO ABOVE ROOF.

**CHAMPLIN ARCHITECTURE**  
2333 Alexandria Drive  
Lexington, KY 40504  
T 859.331.5995  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
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**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

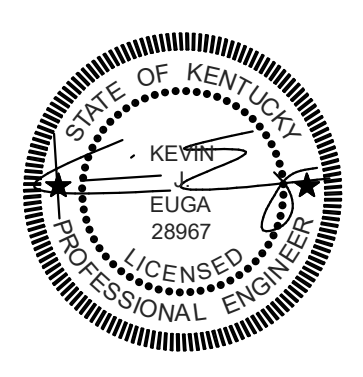
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HEALTHCARE

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**RLB**  
Checked By  
**KJE**  
Client Number  
514  
Project Number  
6926



DRAWING TITLE  
**SHELL & CORE ENLARGED PLUMBING PLANS**

SHEET NO.  
**P200.S**

**ISSUANCES**

No.	Description	Date
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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
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**KJE**

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Project  
Number

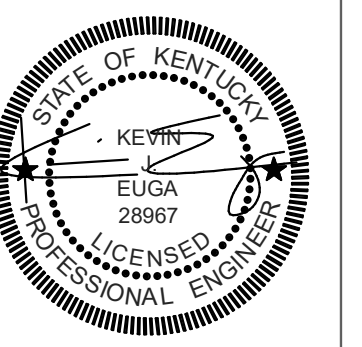
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TITLE

**SHELL & CORE  
ENLARGED PLUMBING  
PLANS**

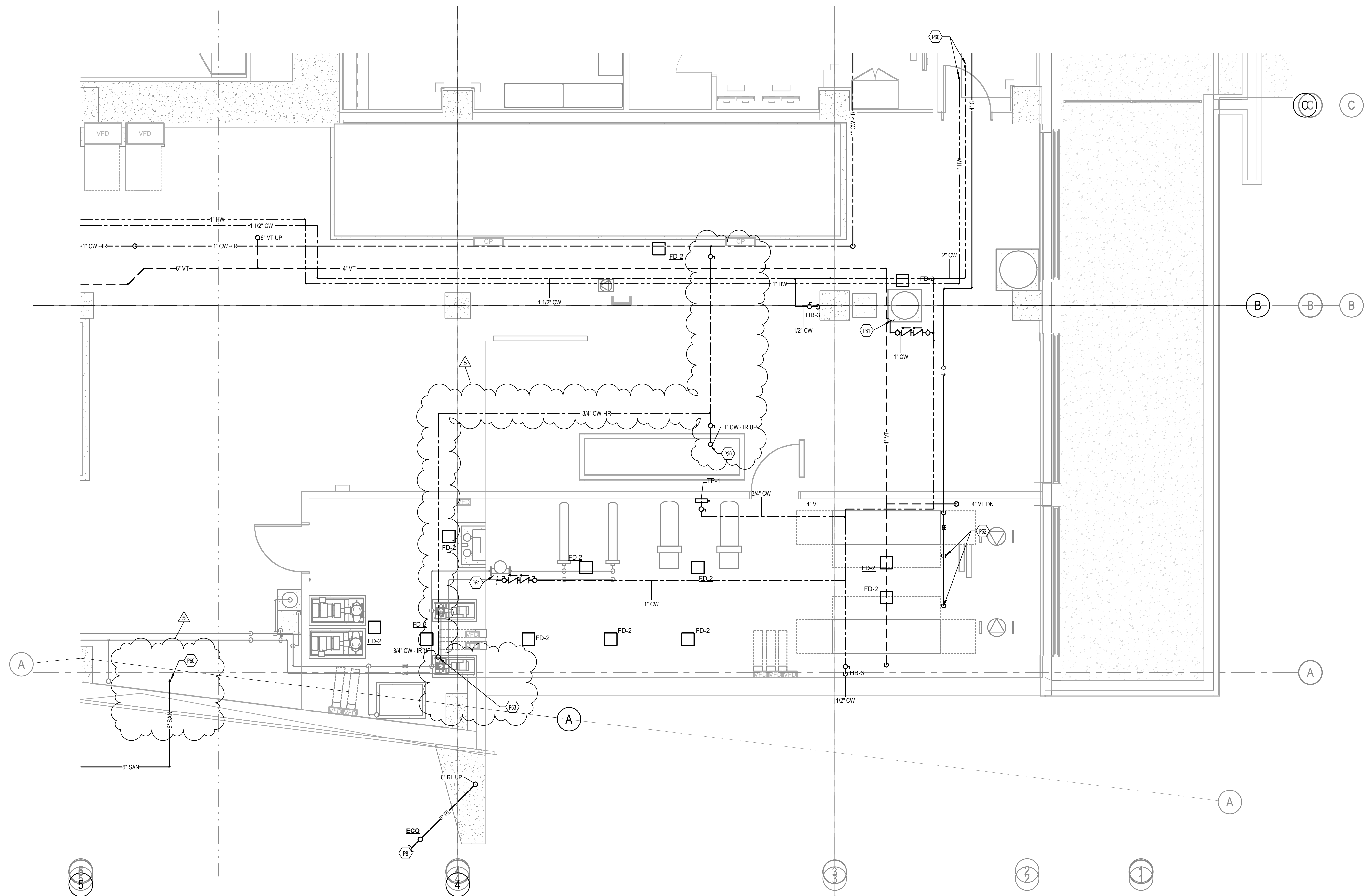
SHEET NO.

**P201.S**



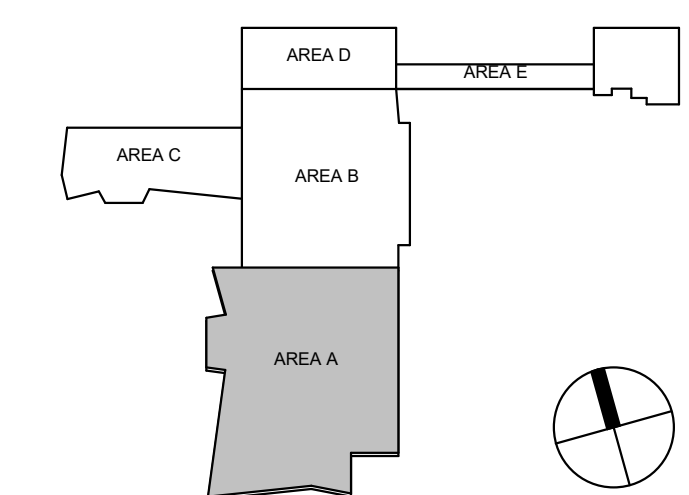
**TAGGED NOTES**

- P8 REFER TO CIVIL SITE DRAINAGE PLAN FOR CONTINUATION.
- P20 CAP WATER SUPPLY BELOW GRADE FOR CONNECTION TO IRRIGATION SYSTEM. REFER TO LANDSCAPING PLANS FOR CONNECTION REQUIREMENTS.
- P60 CAP PIPE FOR CONNECTION IN FIT-OUT BID PACKAGE.
- P61 PROVIDE COLD WATER CONNECTION TO AIR SEPARATOR EQUIPMENT. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY.
- P62 PROVIDE GAS CONNECTION TO BOILER. REFER TO GAS CONNECTION DETAIL AND GAS RISER.
- P63 PROVIDE WATER SUPPLY TO WALL HYDRANT ON LEVEL ABOVE.



**SHELL & CORE - ENLARGED MECHANICAL  
AND BOILER ROOM (CSA00F & CSA00G)  
PLUMBING PLAN**

1  
1 P100.A



**ISSUANCES**

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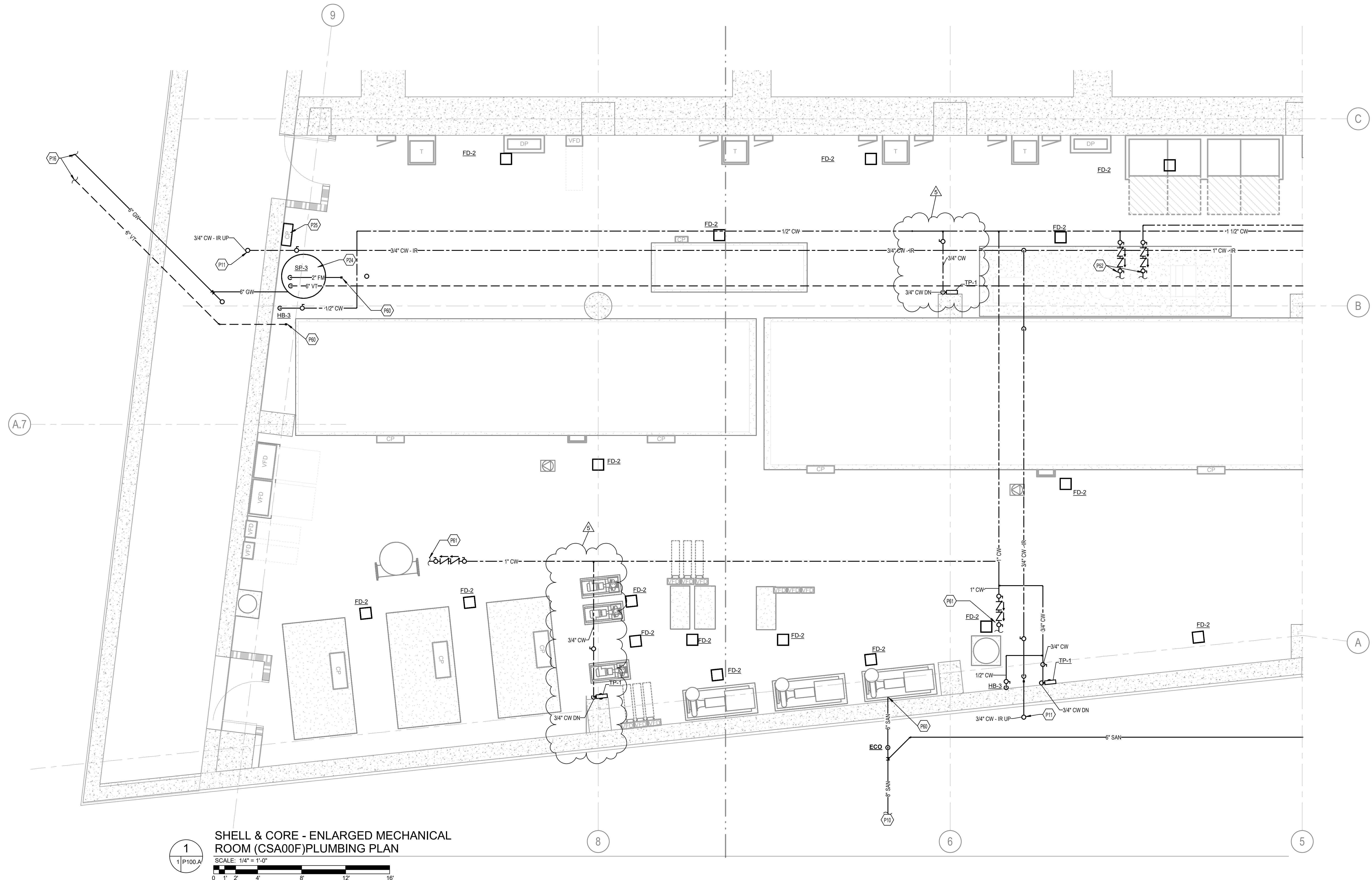
**SHELL & CORE  
ENLARGED PLUMBING  
PLANS**

SHEET NO.

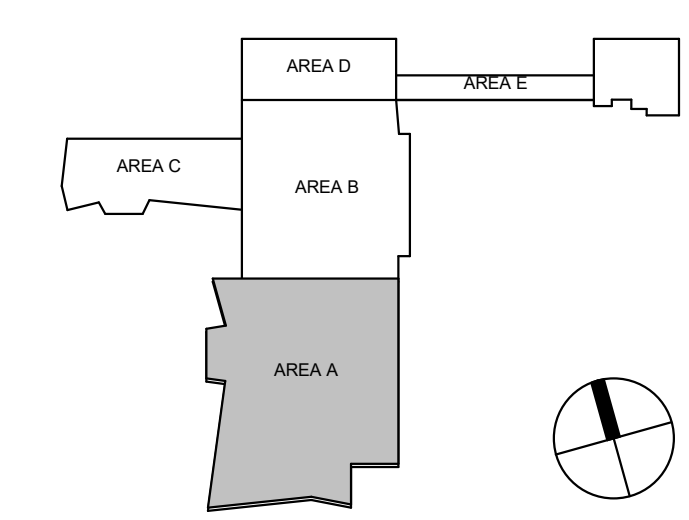
**P202.S**

**TAGGED NOTES**

- P10 REFER TO CIVIL SITE UTILITY PLAN FOR CONTINUATION.
- P11 COLD WATER SUPPLY UP TO YARD HYDRANT; REFER TO LEVEL 1 PLUMBING PLAN.
- P16 REFER TO PLUMBING SITE PLAN FOR CONTINUATION AND LOCATION OF GREASE TRAP.
- P24 DUPLEX DEWATERING SUMP PUMP; REFER TO SUMP SCHEDULE AND DUPLEX DEWATERING SUMP PUMP DETAIL.
- P25 DUPLEX DEWATERING SUMP PUMP CONTROL PANEL; REFER TO DUPLEX DEWATERING SUMP PUMP SPECIFICATION, SECTION 220300.
- P52 PROVIDE COLD AND HOT WATER CONNECTION TO RO EQUIPMENT. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLIES.
- P60 CAP PIPE FOR CONNECTION IN FIT-OUT BID PACKAGE.
- P61 PROVIDE COLD WATER CONNECTION TO AIR SEPARATOR EQUIPMENT. PROVIDE REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY.



**1**  
SHELL & CORE - ENLARGED MECHANICAL ROOM (CSA00F) PLUMBING PLAN  
SCALE: 1/4\"/>



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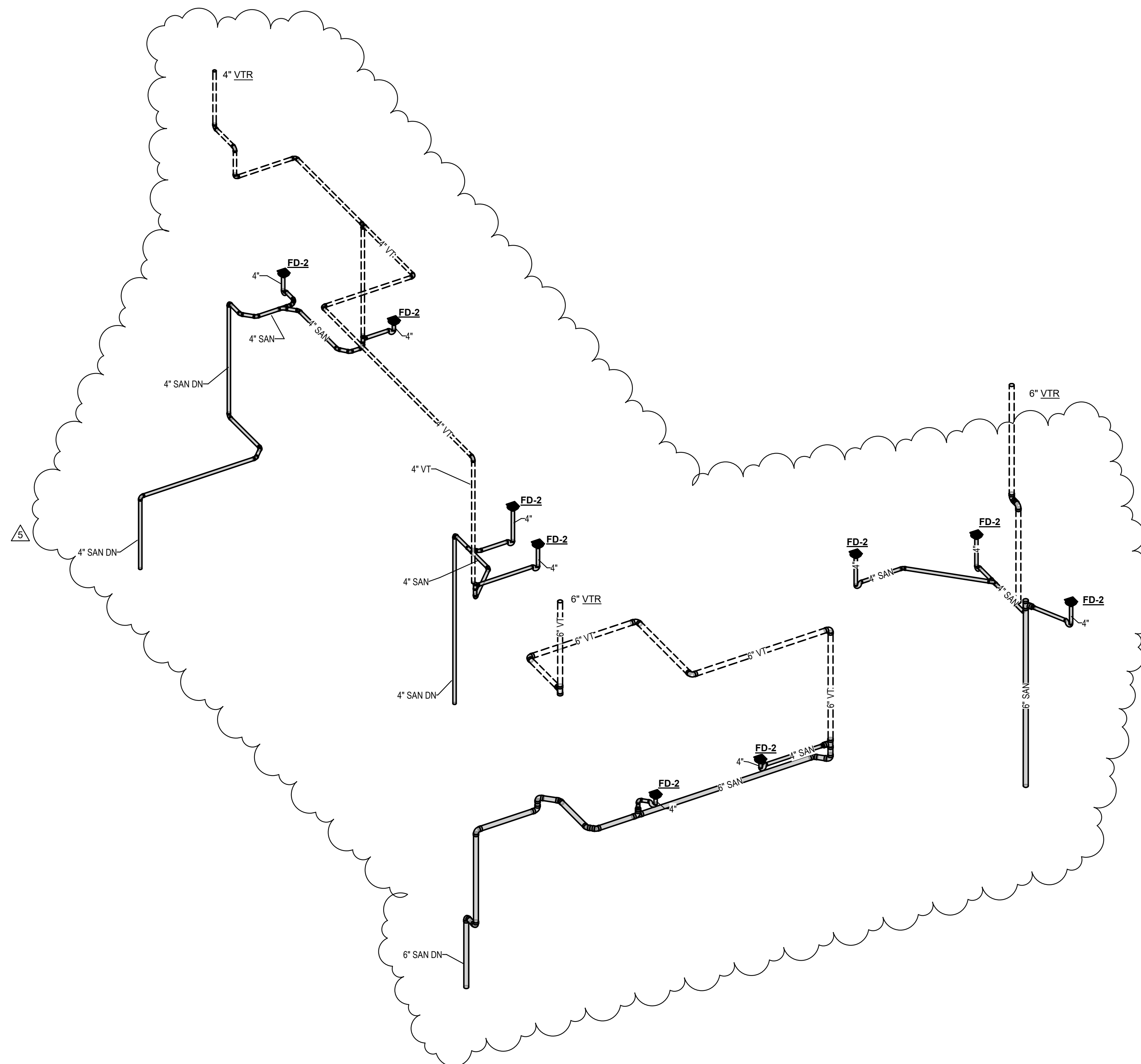
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TITLE

SHELL & CORE -  
PLUMBING RISERS

SHEET NO.

**P503.S**



SHELL & CORE - SANITARY WASTE & VENT RISER - LEVEL 08 -  
AREA A  
① SCALE: NONE

**ISSUANCES**

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Client Number

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Project Number

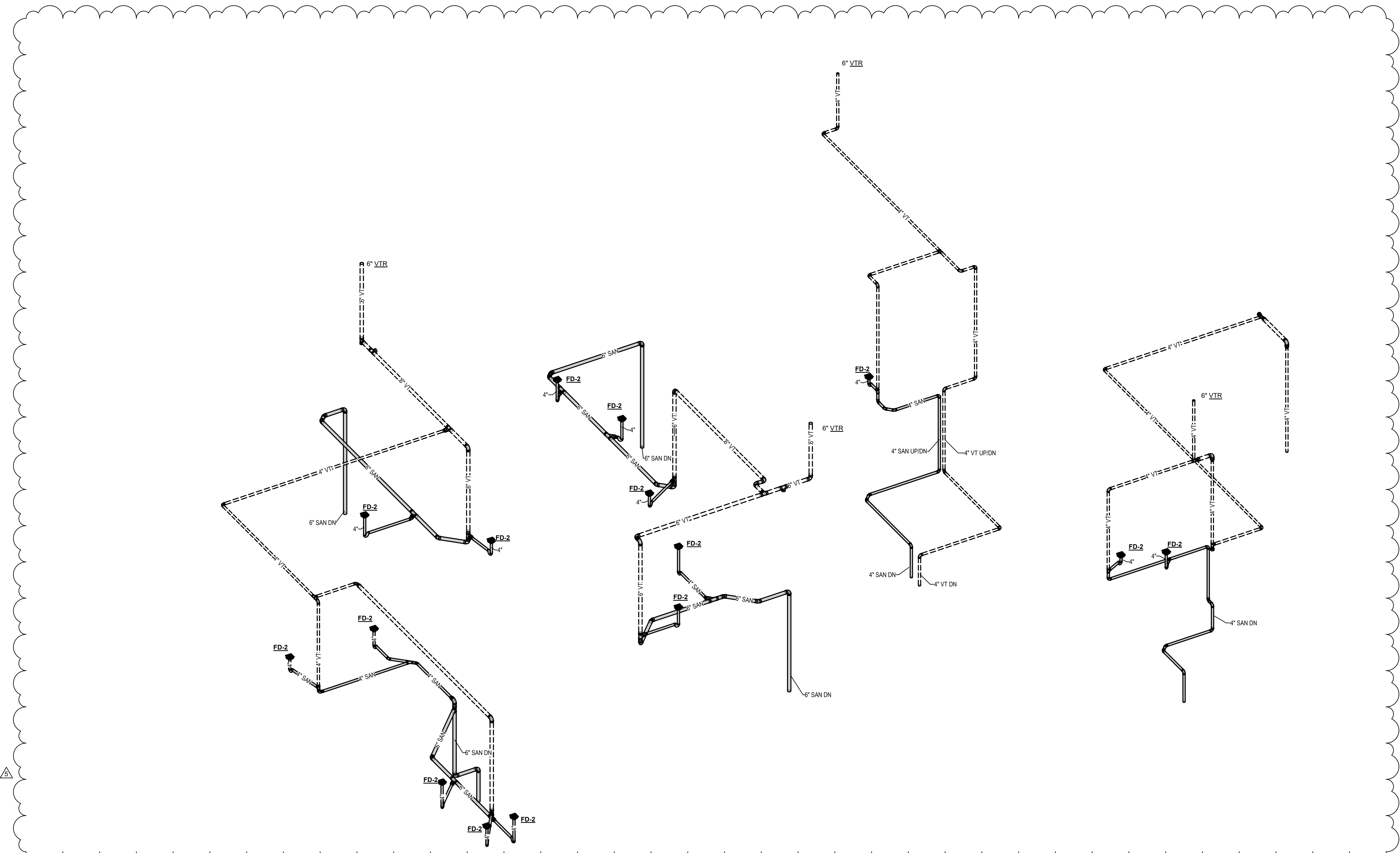
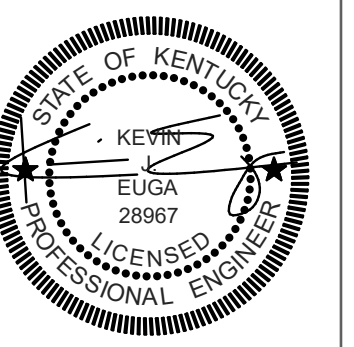
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**SHELL & CORE -  
PLUMBING RISERS**

SHEET NO.

**P504.S**



SHELL & CORE - SANITARY WASTE & VENT RISER - LEVEL 08 -

AREA B

SCALE: NONE



**TAGGED NOTES**

- MG1 REFER TO VACUUM PUMP DETAIL AND SCHEDULE ON SHEET MG200.
- MG2 REFER TO MEDICAL AIR COMPRESSOR DETAIL AND SCHEDULE ON SHEET MG200.
- MG3 PROVIDE EMERGENCY OXYGEN SUPPLY CONNECTION BOX; PIPING TO BE INSTALLED IN FIT-OUT CONSTRUCTION PACKAGE.
- MG4 PROVIDE EMERGENCY LIQUID NITROGEN SUPPLY CONNECTION BOX; PIPING TO BE INSTALLED IN FIT-OUT CONSTRUCTION PACKAGE.
- MG5 PROVIDE SLEEVE IN SLAB AND FOUNDATION WALL FOR INSTALLATION OF MEDICAL GAS PIPING TO BE INSTALLED AS PART OF THE FIT-OUT CONSTRUCTION PACKAGE.
- MG6 INSTRUMENT AIR COMPRESSOR WILL BE SPECIFIED AND DESIGN AS PART FIT-OUT BID PACKAGE.
- MG17 3" VACUUM EXHAUST UP THROUGH ROOF; PROVIDE GOOSENECK WITH BIRDSCREEN ABOVE PENETRATION. REFER TO DETAILS FOR MORE INFORMATION.
- MG18 2" MEDICAL AIR INTAKE UP THROUGH ROOF; PROVIDE GOOSENECK WITH BIRDSCREEN ABOVE PENETRATION. REFER TO DETAILS FOR MORE INFORMATION.



**CHAMPLIN**  
ARCHITECTURE

2333 Alexandria Drive  
Lexington, KY 40504  
T 859.331.5995  
thinkchamplin.com  
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420 North 5th Street, Suite 100  
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UK Project Number 2563.0

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**KJE**

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Project Number

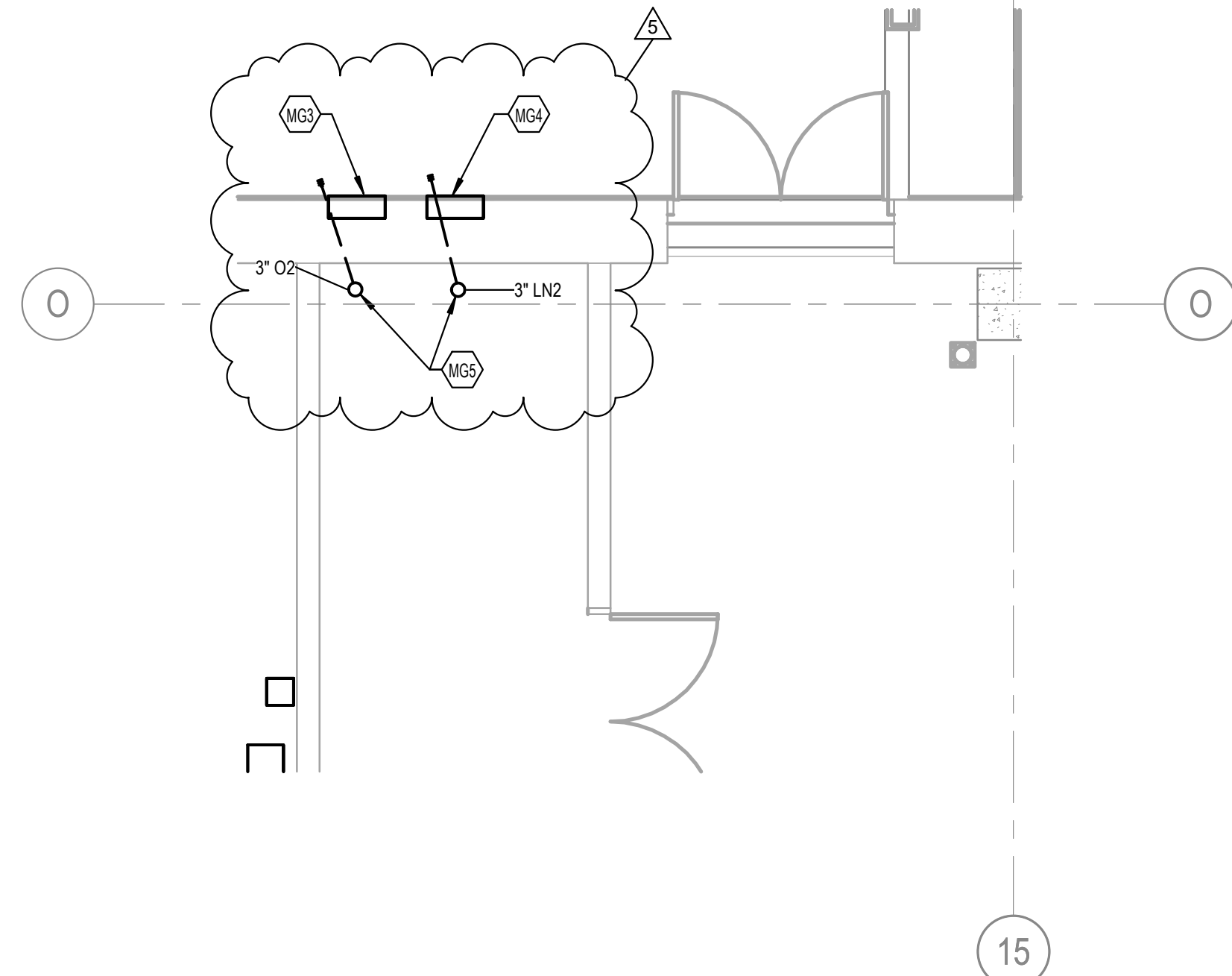
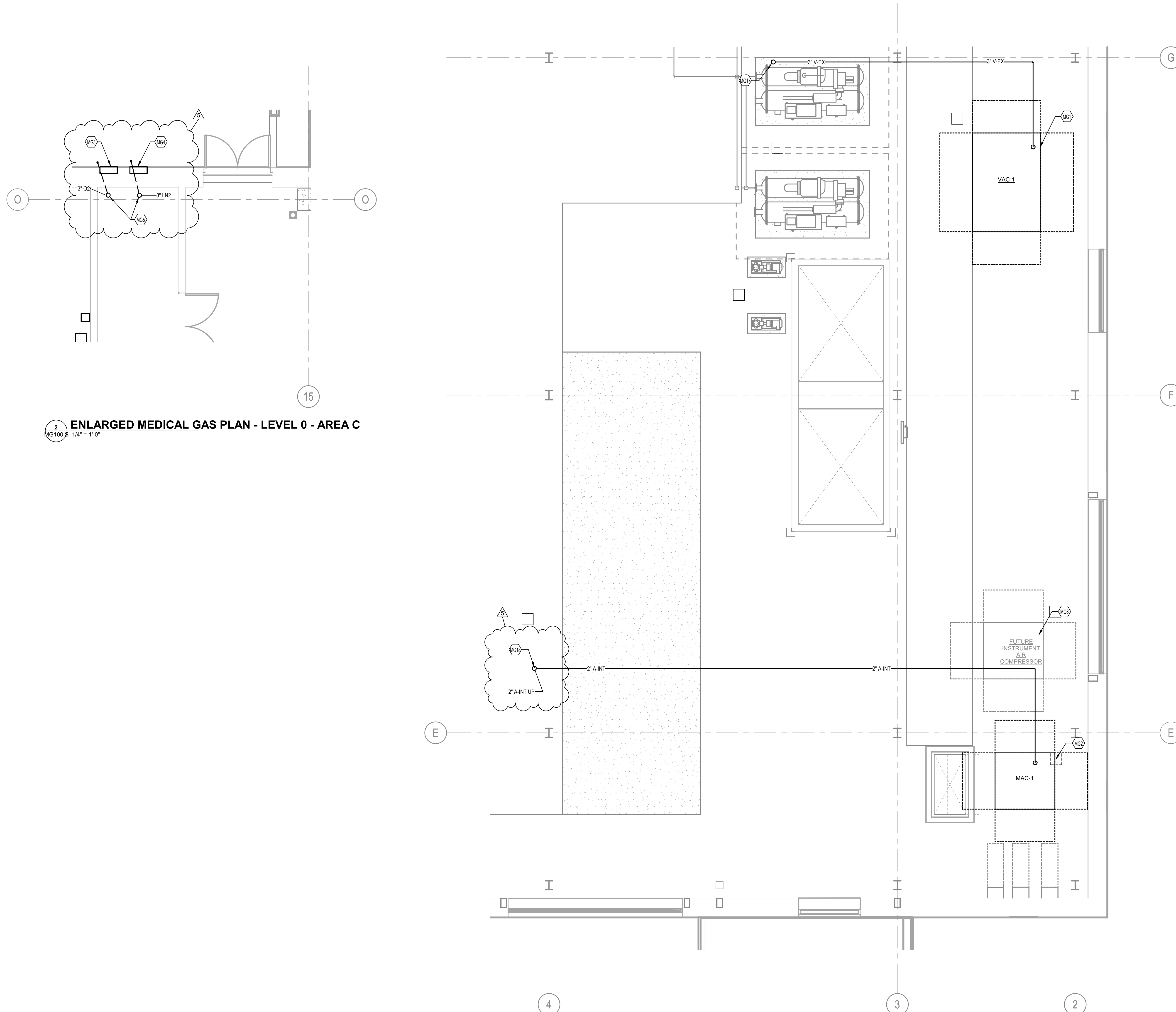
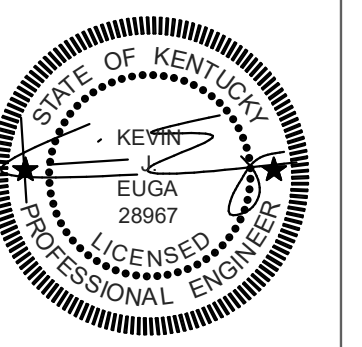
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**SHELL & CORE  
MEDICAL GAS PLAN**

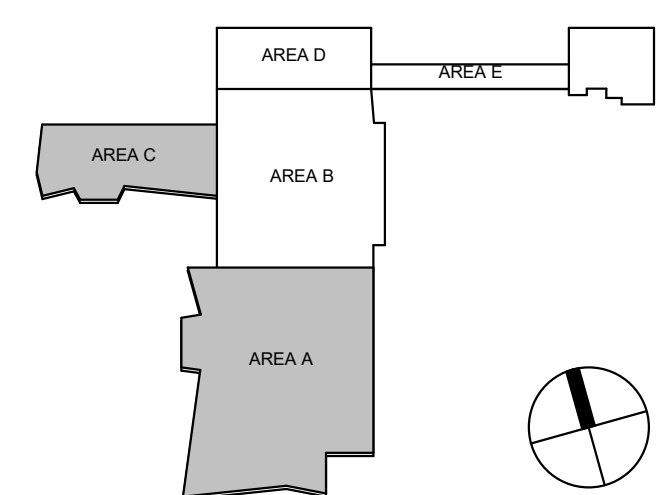
SHEET NO.

**MG100.S**



**2 ENLARGED MEDICAL GAS PLAN - LEVEL 0 - AREA C**  
MG100.S 1/4" = 1'-0"

**1 ENLARGED MEDICAL GAS PLAN - LEVEL 8 - AREA A**  
MG100.S 1/4" = 1'-0"



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Drawn By  
**KAS**

Checked By  
**SAC**

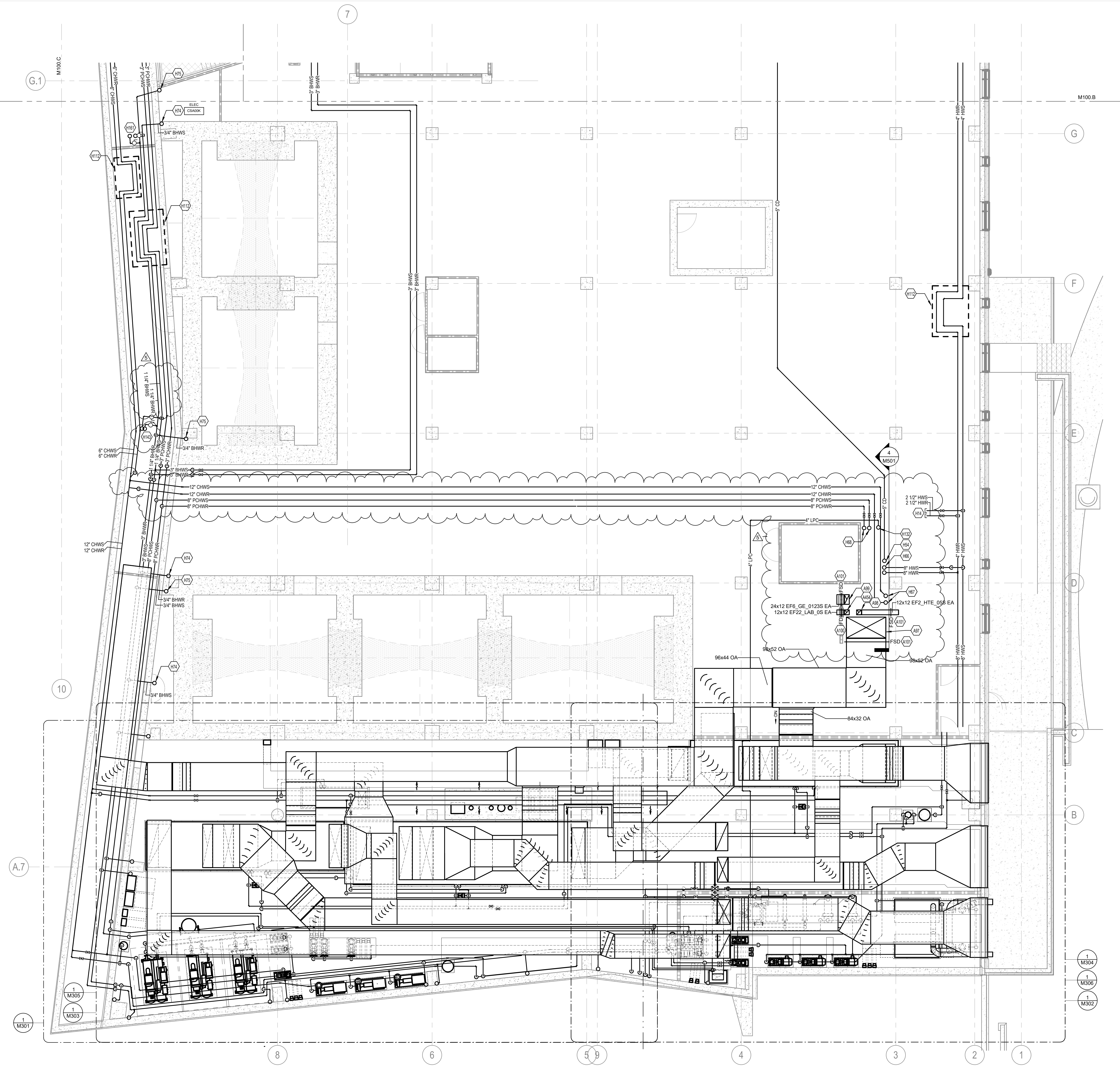
Client Number  
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Project Number  
6926

DRAWING TITLE  
**SHELL & CORE - MECHANICAL PLAN - LEVEL 00 - AREA A**

SHEET NO.  
**M100.A**

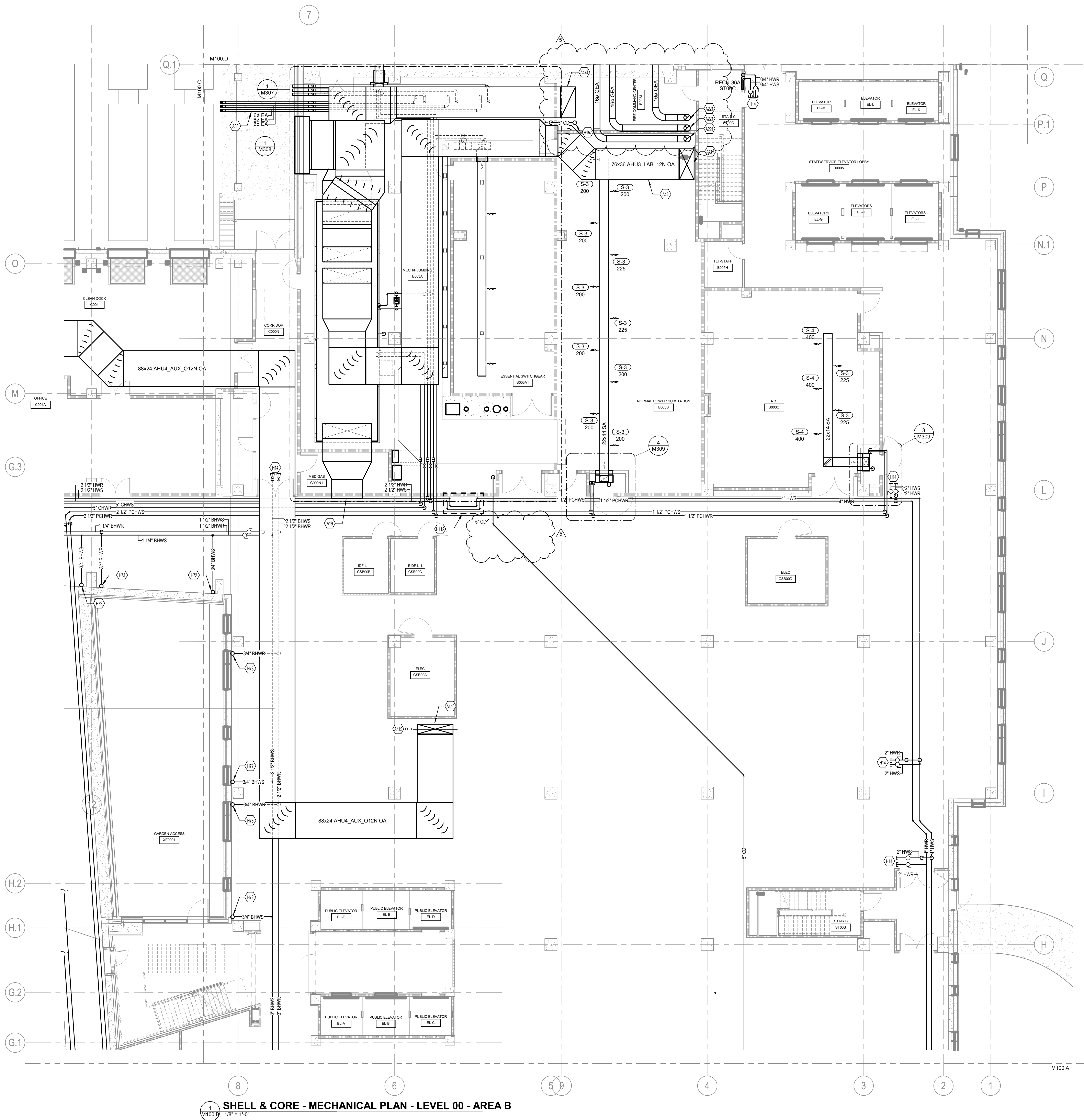
- TAGGED NOTES**
- A97 96"x52" OUTSIDE AIR DUCT UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.
  - A98 12"x12" EF2\_HTE\_05S EXHAUST AIR DUCT UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.
  - A99 24"x12" EF6\_GE\_0123S EXHAUST AIR DUCT UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.
  - A100 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE LOWER LEVEL CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A101 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE LOWER LEVEL CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A454 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.
  - H14 CAR PIPE ALREADY PREPARED FOR FUTURE CONNECTION IN MEAT OUT PHASE.
  - H54 5" CONDENSATE DOWN FROM THE 1ST FLOOR REFER TO SHEET M101.A FOR CONTINUATION.
  - H66 6" HWS/HWR UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING EXPANSION BELLOWS AS NECESSARY TO ACCOMMODATE THE VERTICAL EXPANSION OF THE PIPING ROUTED THROUGH THE SHAFT.
  - H67 12" CHWS/SCHWR UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING EXPANSION BELLOWS AS NECESSARY TO ACCOMMODATE THE VERTICAL EXPANSION OF THE PIPING ROUTED THROUGH THE SHAFT.
  - H68 8" PCHWS/SCHWR UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING EXPANSION BELLOWS AS NECESSARY TO ACCOMMODATE THE VERTICAL EXPANSION OF THE PIPING ROUTED THROUGH THE SHAFT.
  - H74 3/4" BASEBOARD HEATER SUPPLY UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.
  - H75 3/4" BASEBOARD HEATER RETURN UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.
  - H112 PROVIDE AND INSTALL THERMAL EXPANSION LOOP AS NECESSARY TO ACCOMMODATE EXPANSION IN LONG RUN OF HORIZONTAL PIPING.
  - H132 4" LOW PRESSURE CONDENSATE DOWN FROM LEVEL ONE REFER TO M101.A FOR CONTINUATION.
  - H143 1" BASEBOARD HEATER SUPPLY/RETURN UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.
  - H161 1.25" BASEBOARD HEATER SUPPLY/RETURN UP TO THE FIRST FLOOR. REFER TO SHEET M101.A FOR CONTINUATION.



**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 00 - AREA A**  
M100.A 1/8" = 1'-0"

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- TAGGED NOTES**
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - A38 ROUTE DOMESTIC WATER HEATER EXHAUST VENT ABOVE OVERHANGS CEILING.
  - A42 ROUTE DUCT THROUGH 2HR RATED LID ASSEMBLY. REFER TO ARCH DRAWINGS FOR DETAILS.
  - A221 ROUTE 16" GENERATOR EXHAUST UP IN CHASE TO ROOF. TERMINATE WITH RAIN CAP APPROVED BY GENERATOR MANUFACTURER. REFER TO "GENERATOR EXHAUST VENT DETAIL" ON SHEET M100. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING EXPANSION BELLOW AS NECESSARY TO ACCOMMODATE THE VERTICAL EXPANSION OF THE DUCT ROUTED THROUGH THE SHAFT. EXPANSION BELLOW TO BE METRAFLEX EX10 OR EQUAL EQUIVALENT. INSTALL AND ANCHOR EXHAUST PER MANUFACTURER'S RECOMMENDATIONS.
  - A415 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE HORIZONTAL BOTTOM OF THE SHAFT AT THE LEVEL ONE FLOOR. ABOVE THE LOWER LEVEL CEILING. SUCH THAT THE DAMPER CAN BE ACCESSED IN THE LOWER LEVEL CEILING SPACE. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A416 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN FROM LEVEL ONE. REFER TO M101.B FOR CONTINUATION.
  - A417 76"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN FROM LEVEL ONE. REFER TO M101.B FOR CONTINUATION.
  - A474 76"x36" AHU3\_LAB\_12N RETURN AIR DUCT UP TO THE FIRST FLOOR. REFER TO SHEET M101.B FOR CONTINUATION.
  - H14 CAP PIPES AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - H72 3/4" BASEBOARD HEATER SUPPLY UP TO THE FIRST FLOOR. REFER TO SHEET M101.B FOR CONTINUATION.
  - H73 3/4" BASEBOARD HEATER RETURN UP TO THE FIRST FLOOR. REFER TO SHEET M101.B FOR CONTINUATION.
  - H112 PROVIDE AND INSTALL THERMAL EXPANSION LOOP AS NECESSARY TO ACCOMMODATE EXPANSION IN LONG RUN OF HORIZONTAL PIPING.
  - H157 5" CONDENSATE DOWN FROM THE FIRST FLOOR. REFER TO SHEET M101.B FOR CONTINUATION.

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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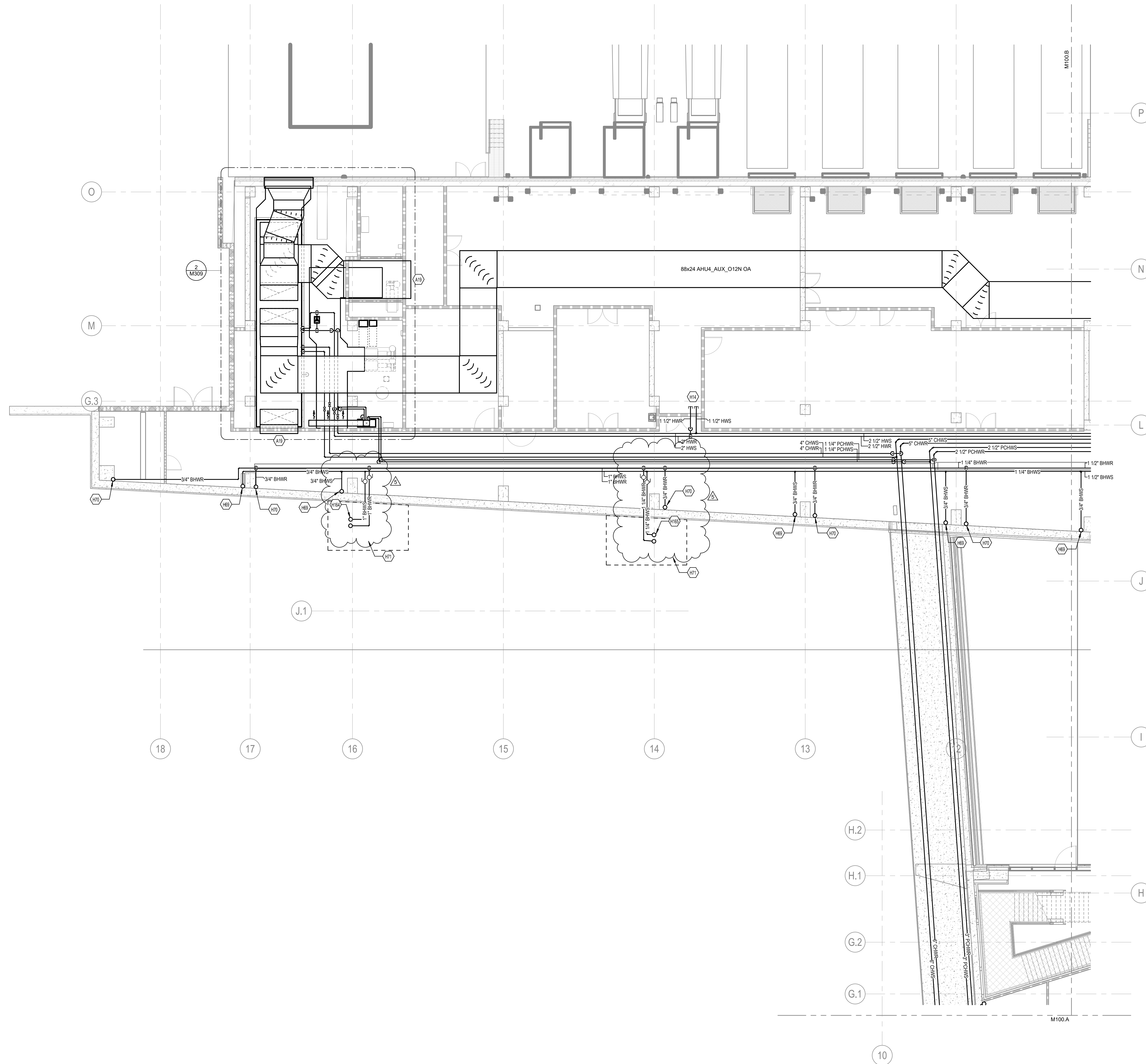
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Drawn By **KAS**  
 Checked By **SAC**  
 Client Number **514**  
 Project Number **6926**  
 DRAWING TITLE **SHELL & CORE - MECHANICAL PLAN - LEVEL 00 - AREA B**  
 SHEET NO. **M100.B**

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**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- H14 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- H69 3/4" BASEBOARD HEATER SUPPLY UP TO THE FIRST FLOOR. REFER TO SHEET M101.C FOR CONTINUATION.
- H70 3/4" BASEBOARD HEATER RETURN UP TO THE FIRST FLOOR. REFER TO SHEET M101.C FOR CONTINUATION.
- H71 HYDRONIC PIPING TO BE BURIED BELOW GRADE. REFER TO MECHANICAL SPECIFICATIONS FOR UNDERGROUND HYDRONIC PIPING REQUIREMENTS.
- H164 1" BASEBOARD HEATER SUPPLY/RETURN UP TO THE FIRST FLOOR. REFER TO SHEET M101.C FOR CONTINUATION.
- H165 1.25" BASEBOARD HEATER SUPPLY/RETURN UP TO THE FIRST FLOOR. REFER TO SHEET M101.C FOR CONTINUATION.

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
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Minneapolis, Minnesota 55401  
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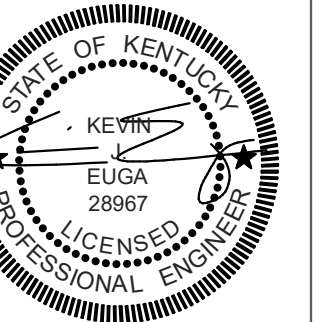
No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

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**SAC**

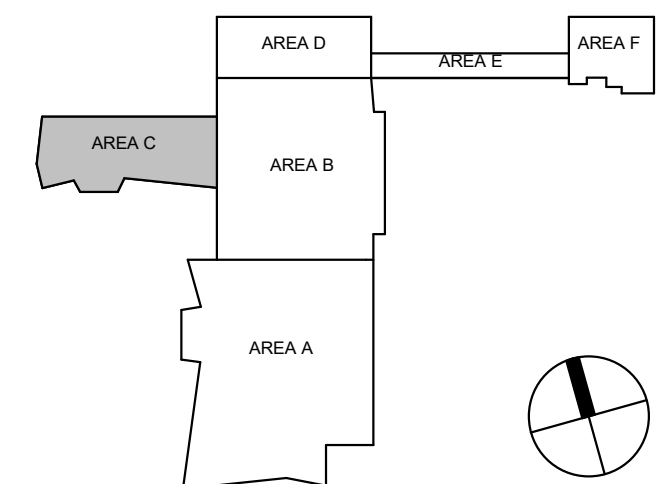
Client Number  
514

Project Number  
6926



DRAWING TITLE  
**SHELL & CORE - MECHANICAL PLAN - LEVEL 00 - AREA C**

SHEET NO.  
**M100.C**



**1** SHELL & CORE - MECHANICAL PLAN - LEVEL 00 - AREA C  
M100.C 1/8" = 1'-0"

ISSUANCES

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

Checked By  
**SAC**

Client Number  
514

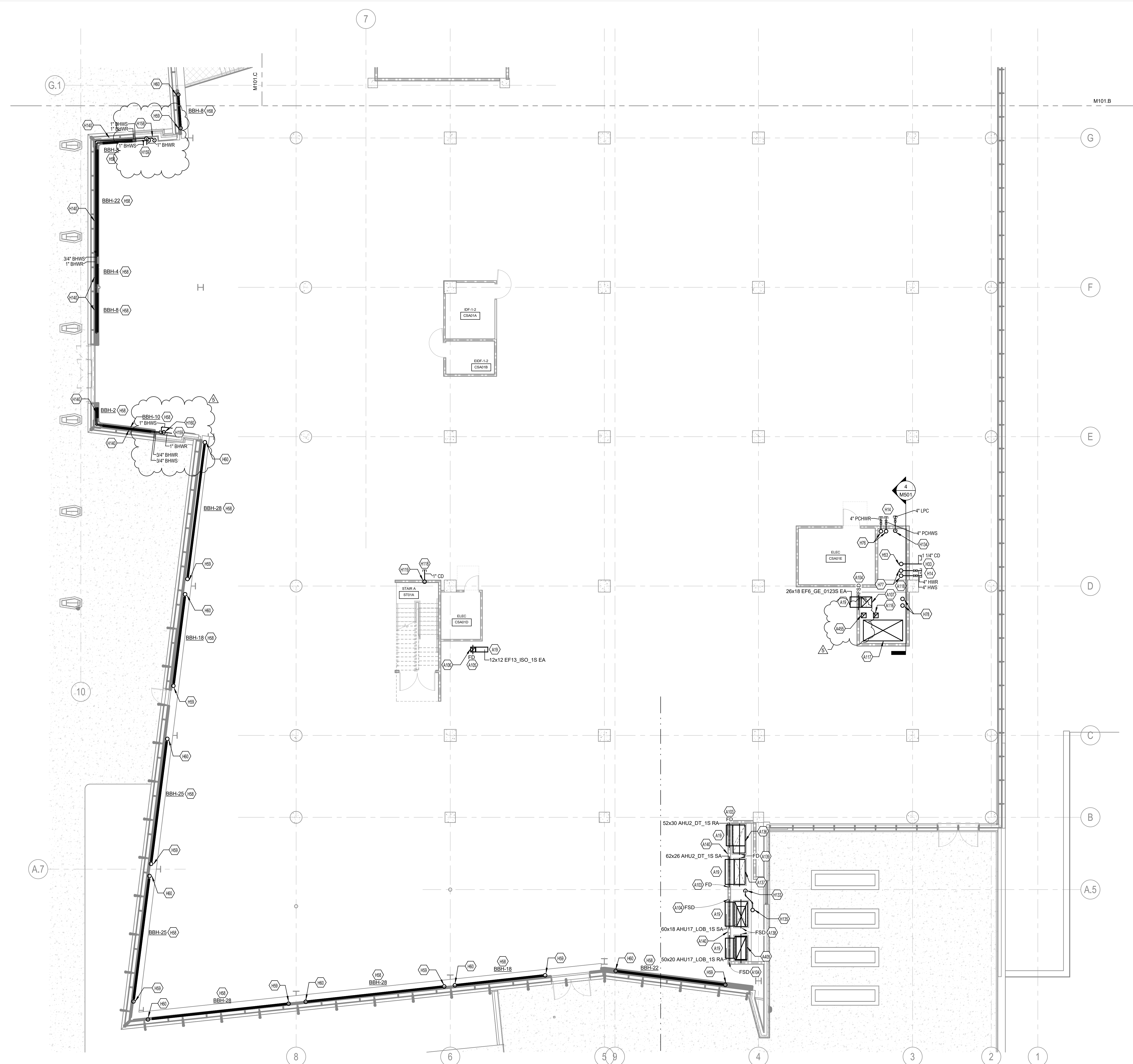
Project Number  
6926

DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL PLAN -  
LEVEL 01 - AREA A**

SHEET NO.  
**M101.A**

5/28/2024 7:37:03 PM

- TAGGED NOTES**
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - A103 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FIRST FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A104 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FIRST FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A105 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE HORIZONTAL BOTTOM OF THE SHAFT AT THE LEVEL TWO FLOOR. ABOVE THE LEVEL ONE CEILING. SUCH THAT THE DAMPER CAN BE ACCESSIBLE IN THE LEVEL ONE CEILING SPACE. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A106 12"x12" EF19\_ISO\_1S EXHAUST AIR DUCT UP TO LEVEL TWO. REFER TO SHEET M102.A FOR CONTINUATION.
  - A107 26"x26" EF6\_GE\_0123S DOWN FROM LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION. 24"x12" EF6\_GE\_0123S DOWN TO THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION.
  - A116 12"x12" EF2\_HTE\_05S EXHAUST AIR DUCT DOWN FROM LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION. 12"x12" EF2\_HTE\_05S EXHAUST AIR DUCT DOWN TO THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION.
  - A117 98"x52" OUTSIDE AIR DUCT DOWN FROM LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION. 98"x52" OUTSIDE AIR DUCT DOWN TO THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION.
  - A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
  - A136 70"x30" AHJ2\_DT\_1S RETURN AIR DUCT UP FROM THE LOWER LEVEL REFER TO SHEET M306 FOR CONTINUATION. CONTRACTOR SHALL TRANSITION DUCT TO 52"x30" AHJ2\_DT\_1S RETURN AIR DUCT IN SHAFT AFTER PENETRATION OF THE LEVEL ONE FLOOR.
  - A137 82"x30" AHJ2\_DT\_1S SUPPLY AIR DUCT UP FROM THE LOWER LEVEL REFER TO SHEET M306 FOR CONTINUATION.
  - A138 CONTRACTOR TO PROVIDE AND INSTALL FIRE SMOKE DAMPER AT THE LEVEL ONE FLOOR PENETRATION SUCH THAT IT IS ACCESSIBLE FROM LEVEL ONE.
  - A139 CONTRACTOR TO PROVIDE AND INSTALL FIRE DAMPER AT THE LEVEL ONE FLOOR PENETRATION SUCH THAT IT IS ACCESSIBLE FROM LEVEL ONE.
  - A140 CONTRACTOR TO PROVIDE AND INSTALL ACCESS PANEL FOR FIRE AND/OR FIRE SMOKE DAMPER PER ARCHITECTURAL SPECIFICATIONS. REFER TO ARCH DRAWINGS FOR ACCESS PANEL SPECIFICATIONS.
  - A409 60"x30" AHJ17\_LOB\_1S RETURN AIR DUCT UP FROM THE LOWER LEVEL REFER TO SHEET M306 FOR CONTINUATION. 50"x24" AHJ17\_LOB\_1S RETURN AIR DUCT UP TO LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION.
  - A455 12"x12" EF22\_LAB\_05S EXHAUST AIR DUCT UP FROM THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION. 12"x12" EF22\_LAB\_05S EXHAUST AIR DUCT UP TO THE SECOND LEVEL REFER TO SHEET M102.A FOR CONTINUATION.
  - H114 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
  - H53 5" CONDENSATE DOWN FROM THE 2ND FLOOR REFER TO SHEET M102.A FOR CONTINUATION. 5" CONDENSATE DOWN TO THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION.
  - H58 BASEBOARD HEATER BARE ELEMENTS TO BE INSTALLED IN FIN-TUBE ENCLOSURE PROVIDED AND SPECIFIED BY THE ARCHITECT. REFER TO ARCHITECTURAL DRAWINGS FOR ENCLOSURE DETAILS AND SPECIFICATIONS.
  - H59 3/4" BASEBOARD HEATER SUPPLY UP FROM THE LOWER LEVEL. REFER TO SHEET M100.A FOR CONTINUATION.
  - H60 3/4" BASEBOARD HEATER RETURN UP FROM THE LOWER LEVEL. REFER TO SHEET M100.A FOR CONTINUATION.
  - H76 6" PCHWSR UP FROM THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION. 6" PCHWSR UP TO THE SECOND LEVEL REFER TO SHEET M102.A FOR CONTINUATION.
  - H77 8" HWSR UP FROM THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION. 8" HWSR UP TO THE SECOND LEVEL REFER TO SHEET M102.A FOR CONTINUATION.
  - H78 12" CHWSR UP FROM THE LOWER LEVEL REFER TO SHEET M100.A FOR CONTINUATION. 12" CHWSR UP TO THE SECOND LEVEL REFER TO SHEET M102.A FOR CONTINUATION.
  - H116 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
  - H119 1" CONDENSATE DOWN FROM LEVEL TWO. REFER TO M102.B FOR CONTINUATION.
  - H133 4" MEDIUM PRESSURE STEAM UP FROM THE LOWER LEVEL REFER TO M302 FOR CONTINUATION.
  - H134 4" LOW PRESSURE CONDENSATE DOWN TO THE LOWER LEVEL REFER TO M302 FOR CONTINUATION.
  - H135 4" MEDIUM PRESSURE STEAM UP TO THE SECOND FLOOR. REFER TO M102.A FOR CONTINUATION.
  - H140 INSTALL 3/4" BASEBOARD HEATER SUPPLY/RETURN BRANCH PIPING. BASEBOARD HEATER ELEMENTS TO BE INSTALLED IN FIN-TUBE ENCLOSURE.
  - H158 1.25" BASEBOARD HEATER SUPPLY/RETURN UP FROM THE LOWER LEVEL. REFER TO SHEET M100.A FOR CONTINUATION. FUTURE SHAFT ENCLOSURE TO BE INSTALLED IN THE FIT-OUT. CONTRACTOR SHALL COORDINATE PIPE INSTALLATION WITH SHAFT ENCLOSURE SPECIFIED IN THE FIT-OUT. HORIZONTAL BASEBOARD HEATER SUPPLY/RETURN PIPING TO BE INSTALLED LOW IN FIT-TUBE ENCLOSURE SPECIFIED BY THE ARCHITECT.
  - H159 PROVIDE BALL VALVE AND CAP PIPING FOR FUTURE CONNECTION IN THE FIT-OUT.
  - H160 1" BASEBOARD HEATER SUPPLY/RETURN UP FROM THE LOWER LEVEL. REFER TO SHEET M100.A FOR CONTINUATION. FUTURE SHAFT ENCLOSURE TO BE INSTALLED IN THE FIT-OUT. CONTRACTOR SHALL COORDINATE PIPE INSTALLATION WITH SHAFT ENCLOSURE SPECIFIED IN THE FIT-OUT. HORIZONTAL BASEBOARD HEATER SUPPLY/RETURN PIPING TO BE INSTALLED LOW IN FIT-TUBE ENCLOSURE SPECIFIED BY THE ARCHITECT.



**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 01 - AREA A**  
M101.A 1/8" = 1'-0"

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**ISSUANCES**

No.	Description	Date
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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

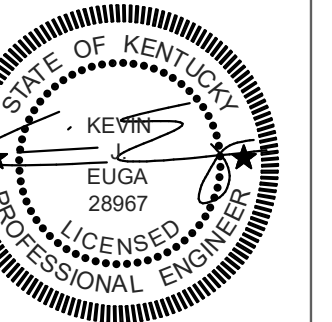
Checked By  
**SAC**

Client Number  
514

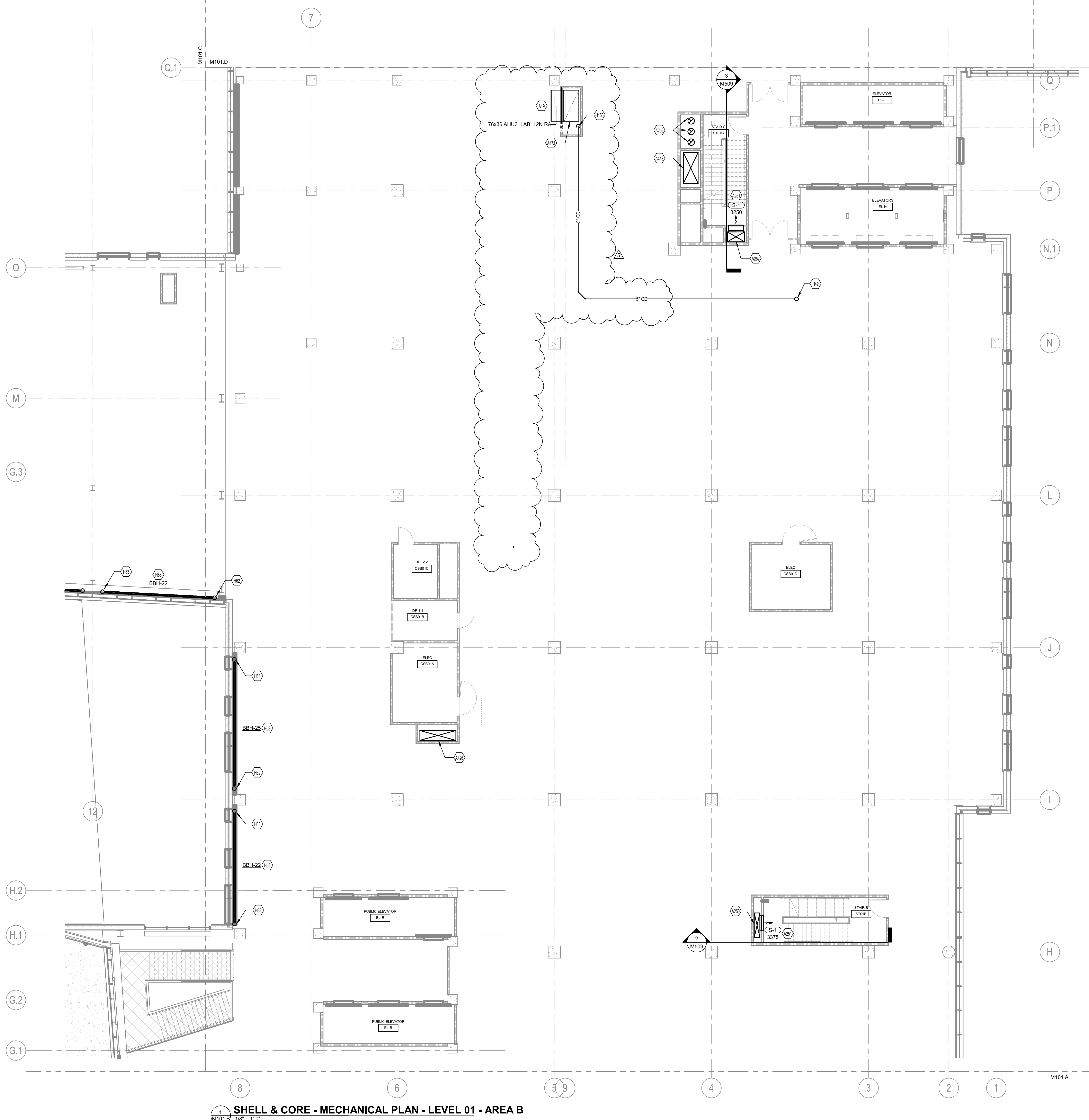
Project Number  
6926

DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL PLAN -  
LEVEL 01 - AREA B**

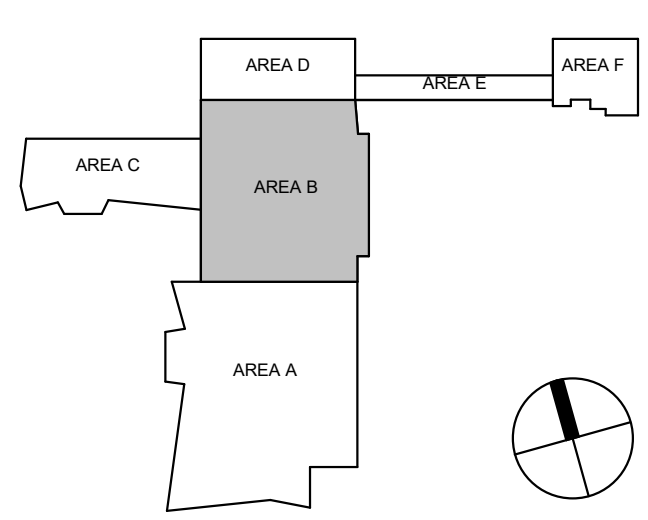
SHEET NO.  
**M101.B**



- TAGGED NOTES**
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - A250 87X14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL TWO REFER TO M102.B FOR CONTINUATION.
  - A251 MOUNT 120" AFF.
  - A252 24"X24" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL TWO REFER TO M102.B FOR CONTINUATION.
  - A256 18" GENERATOR EXHAUST UP FROM THE LOWER LEVEL REFER TO M100.B FOR CONTINUATION. 18" GENERATOR EXHAUST UP TO THE SECOND LEVEL REFER TO M102.B FOR CONTINUATION.
  - A418 76"X36" AHUS LAB 12N OUTSIDE AIR DUCT DOWN FROM LEVEL TWO REFER TO M102.B FOR CONTINUATION. 76"X36" AHUS LAB 12N OUTSIDE AIR DUCT DOWN TO LOWER LEVEL REFER TO M100.B FOR CONTINUATION.
  - A426 88"X24" AHU4 AUX 012N OUTSIDE AIR DUCT DOWN FROM LEVEL TWO REFER TO M102.B FOR CONTINUATION. 88"X24" AHU4 AUX 012N OUTSIDE AIR DUCT DOWN TO LOWER LEVEL REFER TO M100.B FOR CONTINUATION.
  - A473 76"X36" AHUS LAB 12N RETURN AIR DUCT UP FROM THE LOWER LEVEL REFER TO SHEET M100.B FOR CONTINUATION.
  - H42 5" CONDENSATE DRAIN TO THE LOWER LEVEL REFER TO SHEET M100.B FOR CONTINUATION.
  - H58 BASEBOARD HEATER BARE ELEMENTS TO BE INSTALLED IN FIN TUBE ENCLOSURE PROVIDED AND SPECIFIED BY THE ARCHITECT REFER TO ARCHITECTURAL DRAWINGS FOR ENCLOSURE DETAILS AND SPECIFICATIONS.
  - H62 3/4" BASEBOARD HEATER SUPPLY UP FROM THE LOWER LEVEL REFER TO SHEET M100.B FOR CONTINUATION.
  - H63 3/4" BASEBOARD HEATER RETURN UP FROM THE LOWER LEVEL REFER TO SHEET M100.B FOR CONTINUATION.
  - H156 5" CONDENSATE DRAIN TO THE LOWER LEVEL REFER TO SHEET M100.B FOR CONTINUATION.



**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 01 - AREA B**  
M101.B 1/8" = 1'-0"



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**ISSUANCES**

No.	Description	Date
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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

Checked By  
**SAC**

Client Number  
514

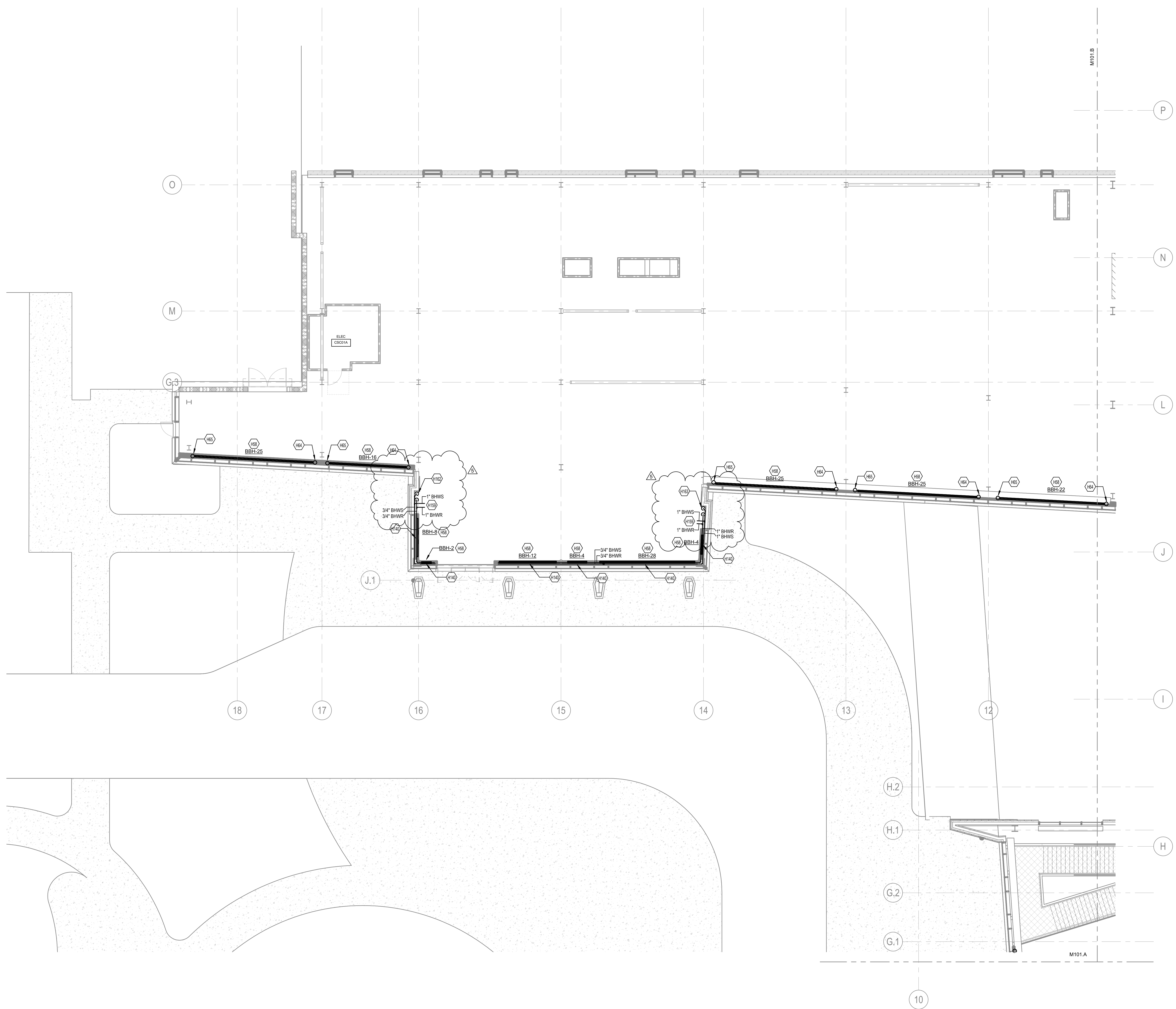
Project Number  
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DRAWING TITLE  
**SHELL & CORE - MECHANICAL PLAN - LEVEL 01 - AREA C**

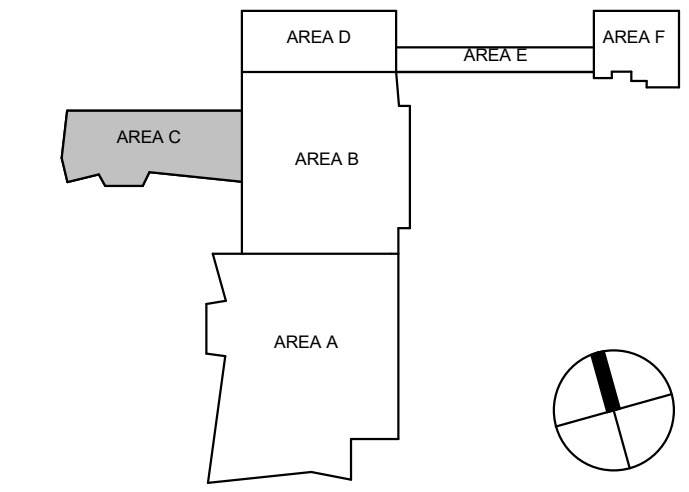
SHEET NO.  
**M101.C**

**TAGGED NOTES**

- H58 BASEBOARD HEATER BARE ELEMENTS TO BE INSTALLED IN FIT-TUBE ENCLOSURE PROVIDED AND SPECIFIED BY THE ARCHITECT. REFER TO ARCHITECTURAL DRAWINGS FOR ENCLOSURE DETAILS AND SPECIFICATIONS.
- H64 3/4" BASEBOARD HEATER SUPPLY UP FROM THE LOWER LEVEL. REFER TO SHEET M100.C FOR CONTINUATION
- H65 3/4" BASEBOARD HEATER RETURN UP FROM THE LOWER LEVEL. REFER TO SHEET M100.C FOR CONTINUATION
- H140 INSTALL 3/4" BASEBOARD HEATER SUPPLY/RETURN BRANCH PIPING TO BASEBOARD HEATER FROM MAIN W/SHALL IN FIT-TUBE ENCLOSURE. PROVIDE BALL VALVE AND CAP PIPING FOR FUTURE CONNECTION IN THE FIT-OUT.
- H159 1" BASEBOARD HEATER SUPPLY/RETURN UP FROM THE LOWER LEVEL. REFER TO SHEET M100.C FOR CONTINUATION. FUTURE SHAFT ENCLOSURE TO BE INSTALLED IN THE FIT-OUT CONTRACTOR SHALL COORDINATE PIPE INSTALLATION WITH SHAFT ENCLOSURE SPECIFIED IN THE FIT-OUT. HORIZONTAL BASEBOARD HEATER SUPPLY/RETURN PIPING TO BE INSTALLED LOW IN FIT-TUBE ENCLOSURE SPECIFIED BY THE ARCHITECT.
- H162 1" BASEBOARD HEATER SUPPLY/RETURN UP FROM THE LOWER LEVEL. REFER TO SHEET M100.C FOR CONTINUATION. FUTURE SHAFT ENCLOSURE TO BE INSTALLED IN THE FIT-OUT CONTRACTOR SHALL COORDINATE PIPE INSTALLATION WITH SHAFT ENCLOSURE SPECIFIED IN THE FIT-OUT. HORIZONTAL BASEBOARD HEATER SUPPLY/RETURN PIPING TO BE INSTALLED LOW IN FIT-TUBE ENCLOSURE SPECIFIED BY THE ARCHITECT.
- H163 1.25" BASEBOARD HEATER SUPPLY/RETURN UP FROM THE LOWER LEVEL. REFER TO SHEET M100.C FOR CONTINUATION. FUTURE SHAFT ENCLOSURE TO BE INSTALLED IN THE FIT-OUT CONTRACTOR SHALL COORDINATE PIPE INSTALLATION WITH SHAFT ENCLOSURE SPECIFIED IN THE FIT-OUT. HORIZONTAL BASEBOARD HEATER SUPPLY/RETURN PIPING TO BE INSTALLED LOW IN FIT-TUBE ENCLOSURE SPECIFIED BY THE ARCHITECT.



**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 01 - AREA C**  
M101.C  
1/8" = 1'-0"



**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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**SAC**

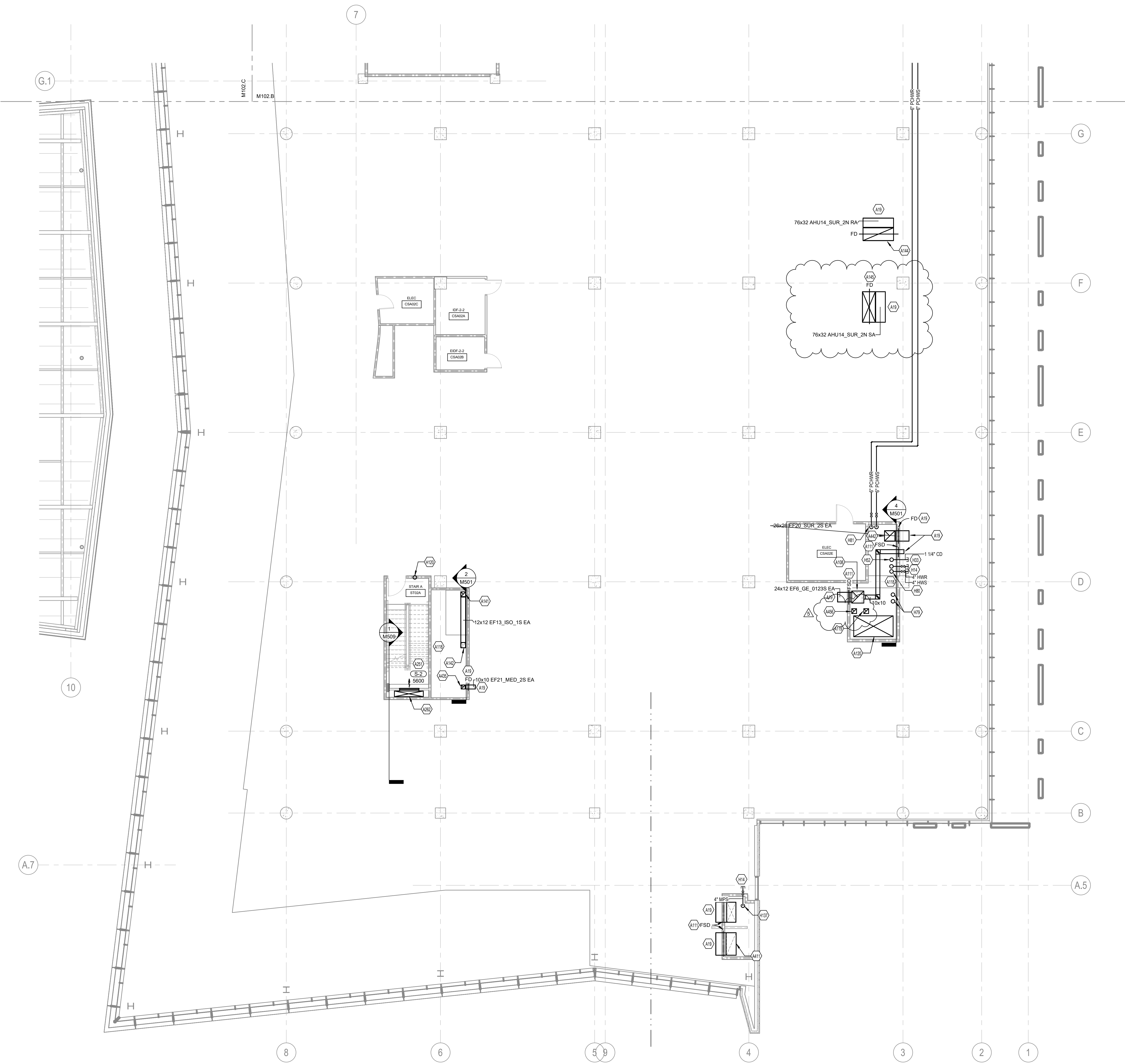
Client Number  
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Project Number  
6926

DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL PLAN -  
LEVEL 02 - AREA A**

SHEET NO.  
**M102.A**

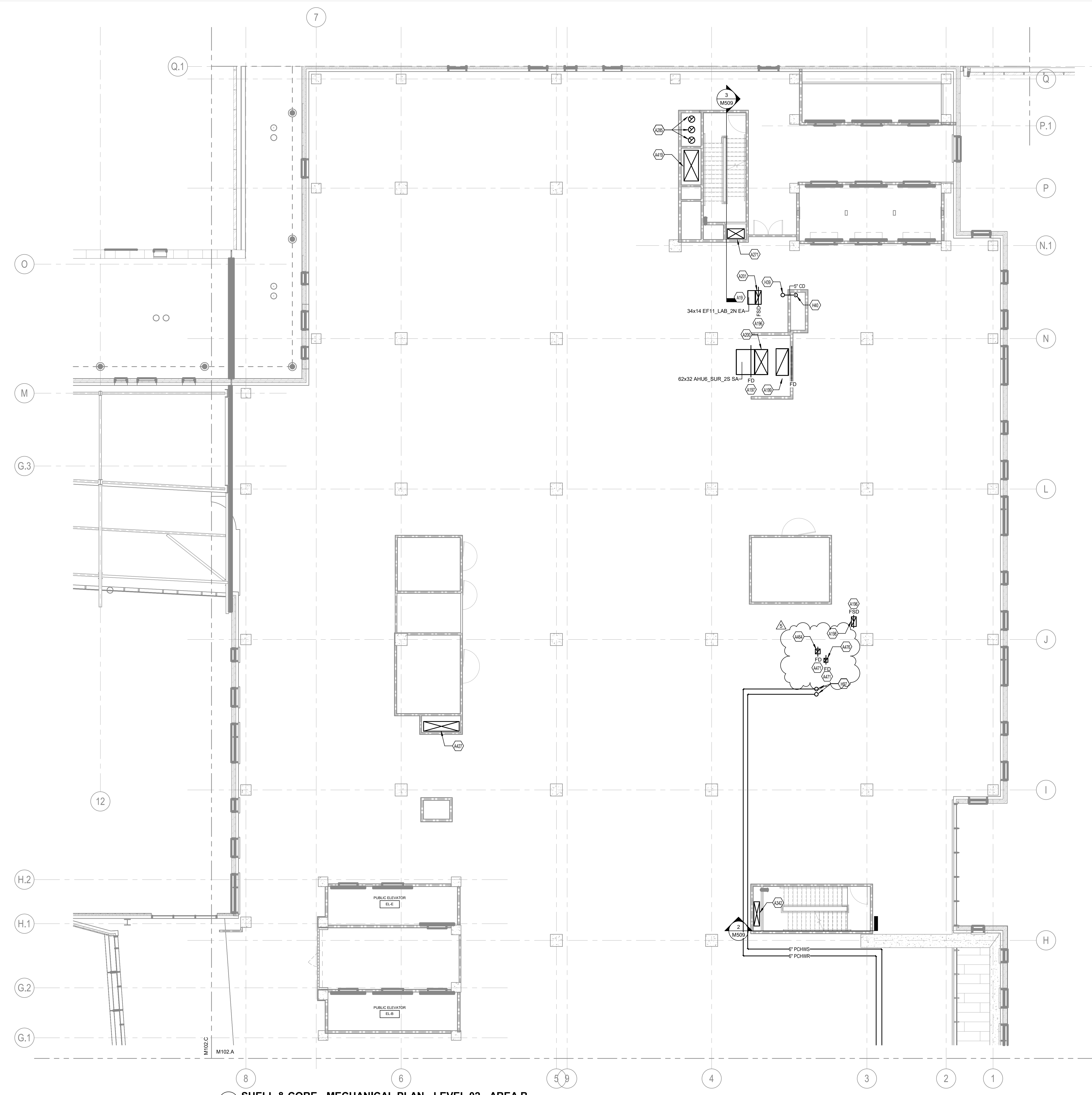
- TAGGED NOTES**
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - A108 30"x30" EF6, GE\_0123S DOWN FROM LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION. 26"x26" EF6, GE\_0123S DOWN TO LEVEL ONE REFER TO SHEET M101.A FOR CONTINUATION.
  - A111 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE SECOND FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
  - A119 12"x12" EF2, HTE\_05S EXHAUST AIR DUCT DOWN FROM LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION. 12"x12" EF2, HTE\_05S EXHAUST AIR DUCT DOWN TO LEVEL ONE REFER TO SHEET M101.A FOR CONTINUATION.
  - A120 88"x32" OUTSIDE AIR DUCT DOWN FROM LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION. 98"x32" OUTSIDE AIR DUCT DOWN TO LEVEL ONE REFER TO SHEET M101.A FOR CONTINUATION.
  - A141 12"x12" EF13, ISO\_1S EXHAUST AIR DUCT UP TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A142 12"x12" EF13, ISO\_1S EXHAUST AIR DUCT DOWN TO LEVEL ONE REFER TO SHEET M101.A FOR CONTINUATION.
  - A144 78"x32" AH14\_SUR\_2N RETURN AIR DUCT DOWN FROM LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A145 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE HORIZONTAL BOTTOM OF THE SHAFT AT THE LEVEL THREE FLOOR. ABOVE THE LEVEL TWO CEILING. SUCH THAT THE DAMPER CAN BE ACCESSED IN THE LEVEL TWO CEILING SPACE. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A251 MOUNT 12" AFF.
  - A262 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL TWO REFER TO M102.B FOR CONTINUATION.
  - A411 58"x24" AH11T\_L08\_1S RETURN AIR DUCT UP FROM LEVEL ONE REFER TO M101.A FOR CONTINUATION.
  - A435 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN FROM LEVEL THREE REFER TO M103.A FOR CONTINUATION.
  - A442 30"x24" EF10\_SUR\_2S EXHAUST AIR DUCT DOWN FROM LEVEL THREE REFER TO M106.A FOR CONTINUATION.
  - A456 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP FROM THE FIRST FLOOR REFER TO SHEET M101.A FOR CONTINUATION. 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP TO THE THIRD LEVEL REFER TO M103.A FOR CONTINUATION.
  - H14 APP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
  - H52 5" CONDENSATE DOWN FROM THE 3RD FLOOR REFER TO SHEET M103.A FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 4TH FLOOR REFER TO SHEET M101.A FOR CONTINUATION.
  - H79 12" CHWS/R UP FROM LEVEL ONE REFER TO SHEET M101.A FOR CONTINUATION. 12" CHWS/R UP TO THE THIRD LEVEL REFER TO SHEET M103.A FOR CONTINUATION.
  - H80 4" HW/S/R FROM LEVEL ONE REFER TO SHEET M103.A FOR CONTINUATION. 4" HW/S/R UP TO THE THIRD LEVEL REFER TO SHEET M103.A FOR CONTINUATION.
  - H81 6" PCHWS/R UP FROM LEVEL ONE REFER TO SHEET M101.A FOR CONTINUATION.
  - H120 1" CONDENSATE DOWN FROM LEVEL THREE. REFER TO M103.B FOR CONTINUATION. 1" CONDENSATE DOWN TO LEVEL ONE. REFER TO M101.B FOR CONTINUATION.
  - H137 4" MEDIUM PRESSURE STEAM UP FROM LEVEL ONE. REFER TO M101.A FOR CONTINUATION.



**1** SHELL & CORE - MECHANICAL PLAN - LEVEL 02 - AREA A  
M102.A 1/8" = 1'-0"



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**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 02 - AREA B**  
 M102.B 1/8" = 1'-0"

**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A196 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE HORIZONTAL BOTTOM OF THE SHAFT AT THE LEVEL THREE FLOOR, ABOVE THE LEVEL TWO CEILING. SUCH THAT THE DAMPER CAN BE ACCESSED IN THE LEVEL TWO CEILING SPACE. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A197 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE SECOND FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A198 24"x12" EF8\_GE\_2345N EXHAUST AIR DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION.
- A199 60"x30" AHU6\_SUR\_2N RETURN AIR DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION.
- A200 62"x32" AHU6\_SUR\_2N SUPPLY AIR DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION.
- A201 34"x14" EF11\_LAB\_2N EXHAUST AIR DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION.
- A271 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION. 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL ONE REFER TO M101.B FOR CONTINUATION.
- A285 16" GENERATOR EXHAUST UP FROM LEVEL ONE REFER TO M101.B FOR CONTINUATION. 16" GENERATOR EXHAUST UP TO THE THIRD LEVEL REFER TO M103.B FOR CONTINUATION.
- A342 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION. 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL ONE TO M101.B FOR CONTINUATION.
- A419 78"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION. 78"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN TO LEVEL ONE REFER TO M101.B FOR CONTINUATION.
- A427 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION. 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN TO LEVEL ONE REFER TO M101.B FOR CONTINUATION.
- A464 12"x12" EF24\_ISO\_2N EXHAUST AIR DUCT UP TO LEVEL THREE REFER TO SHEET M103.B FOR CONTINUATION.
- A471 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE HORIZONTAL BOTTOM OF THE SHAFT AT THE LEVEL THREE FLOOR, ABOVE THE LEVEL TWO CEILING. SUCH THAT THE DAMPER CAN BE ACCESSED IN THE LEVEL TWO CEILING SPACE. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A476 10"x10" EF25\_MED\_2N EXHAUST AIR DUCT UP TO LEVEL THREE REFER TO SHEET M103.B FOR CONTINUATION.
- H39 5" CONDENSATE DOWN FROM THIRD FLOOR REFER TO SHEET M103.B FOR CONTINUATION.
- H40 5" CONDENSATE DOWN TO THE 1ST FLOOR REFER TO SHEET M101.B FOR CONTINUATION.
- H97 6" PCHWSR UP TO LEVEL THREE REFER TO SHEET M103.B FOR CONTINUATION.

A471 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE HORIZONTAL BOTTOM OF THE SHAFT AT THE LEVEL THREE FLOOR, ABOVE THE LEVEL TWO CEILING. SUCH THAT THE DAMPER CAN BE ACCESSED IN THE LEVEL TWO CEILING SPACE. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI** Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE / CIVIL ENGINEERING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

**UK HEALTHCARE**

**Cancer Treatment Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

No.	Description	Date

Drawn By

**KAS**

Checked By

**SAC**

Client Number

514

Project Number

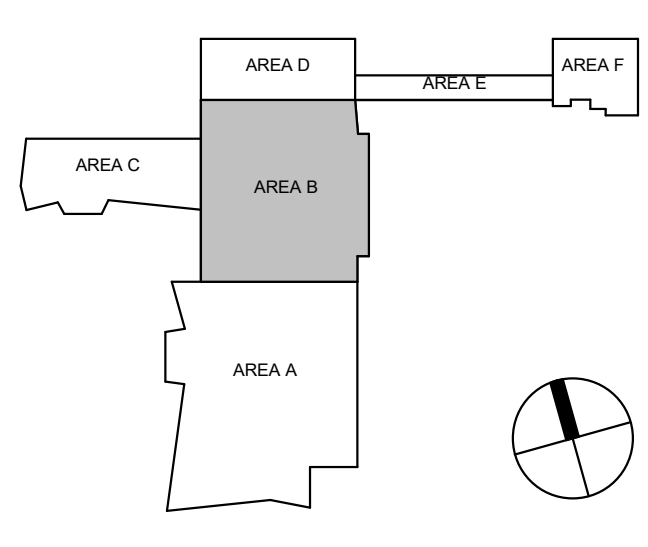
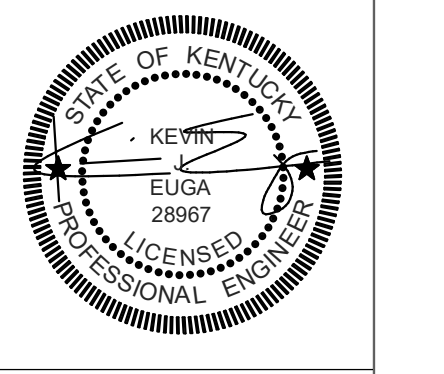
6926

DRAWING TITLE

**SHELL & CORE - MECHANICAL PLAN - LEVEL 02 - AREA B**

SHEET NO.

**M102.B**



5/28/2024 7:37:54 PM

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

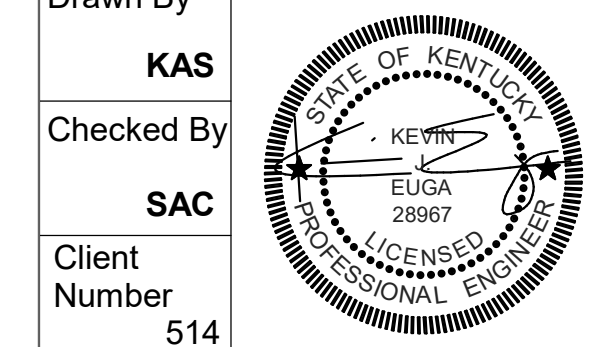
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Client Number  
514

Project Number  
6926

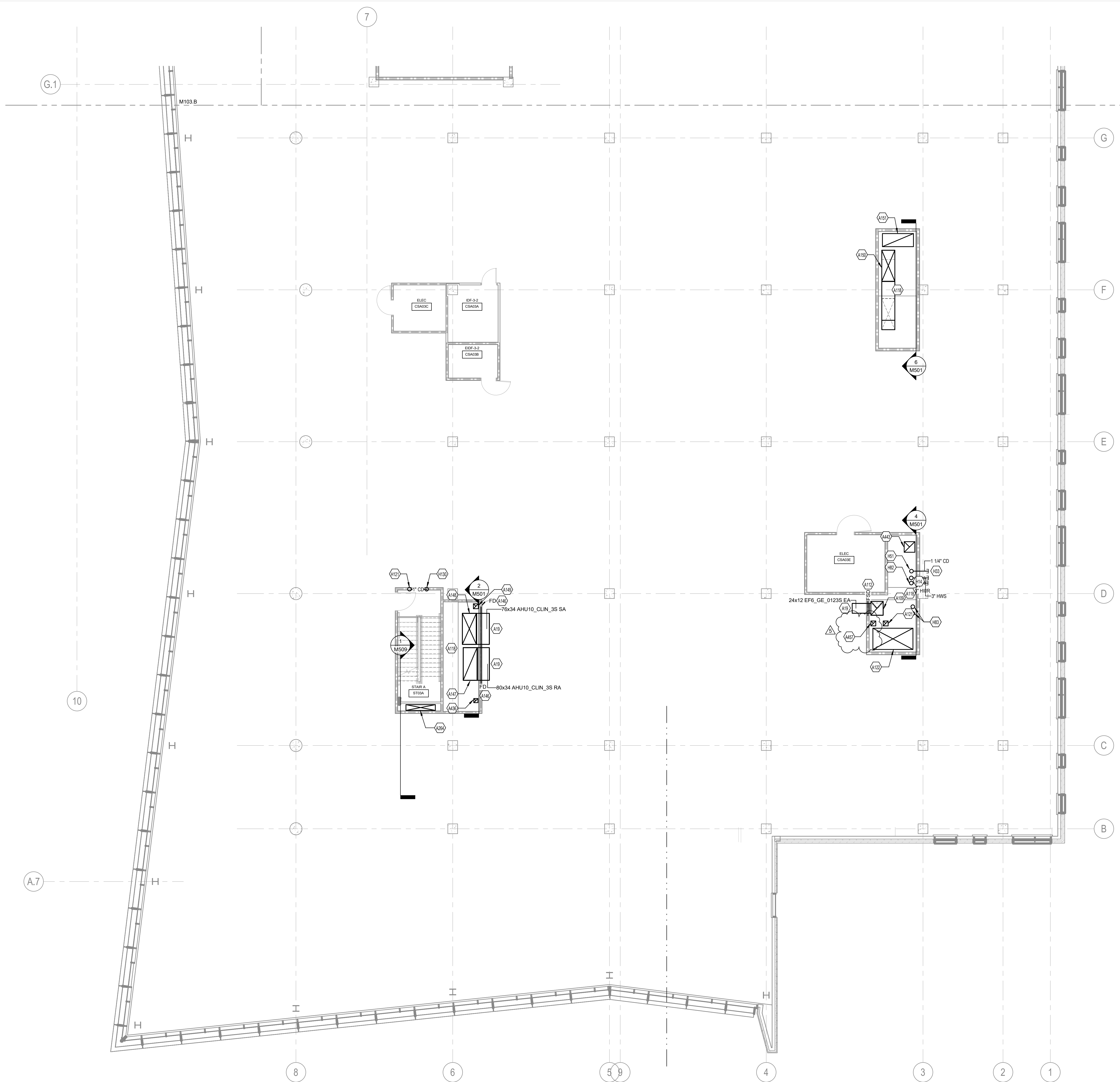
DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL PLAN -  
LEVEL 03 - AREA A**

SHEET NO.  
**M103.A**



**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A109 34"x34" EF6\_GE\_0123S DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 30"x30" EF6\_GE\_0123S DOWN TO LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION.
- A112 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE THIRD FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
- A121 12"x12" EF2\_HTE\_05S EXHAUST AIR DUCT DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 12"x12" EF2\_HTE\_05S EXHAUST AIR DUCT DOWN TO LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION.
- A122 98"x52" OUTSIDE AIR DUCT DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 98"x52" OUTSIDE AIR DUCT DOWN TO LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION.
- A146 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE THIRD FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A147 80"x34" AHU10\_CLIN\_3S RETURN AIR DUCT DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A148 76"x34" AHU10\_CLIN\_3S SUPPLY AIR DUCT DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A149 12"x12" EF13\_ISO\_1S EXHAUST AIR DUCT DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 12"x12" EF13\_ISO\_1S EXHAUST AIR DUCT DOWN TO LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION.
- A150 76"x32" AHU14\_SUR\_2N SUPPLY AIR DUCT DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 76"x32" AHU14\_SUR\_2N SUPPLY AIR DUCT DOWN TO LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION.
- A151 76"x32" AHU14\_SUR\_2N RETURN AIR DUCT DOWN FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 76"x32" AHU14\_SUR\_2N RETURN AIR DUCT DOWN TO LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION.
- A264 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A436 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.A FOR CONTINUATION. 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN TO LEVEL TWO REFER TO M102.A FOR CONTINUATION.
- A443 26"x26" EF20\_SUR\_2S EXHAUST AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.A FOR CONTINUATION. 26"x26" EF20\_SUR\_2S EXHAUST AIR DUCT DOWN TO LEVEL TWO REFER TO M102.A FOR CONTINUATION.
- A457 12"x12" EF22\_LAB\_05S EXHAUST AIR DUCT UP FROM THE SECOND FLOOR REFER TO SHEET M102.A FOR CONTINUATION. 12"x12" EF22\_LAB\_05S EXHAUST AIR DUCT UP TO THE FOURTH LEVEL REFER TO M104.A FOR CONTINUATION.
- H16 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
- H51 5" CONDENSATE DOWN FROM THE 4TH FLOOR REFER TO SHEET M104.A FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 2ND FLOOR REFER TO SHEET M102.A FOR CONTINUATION.
- H82 8" HWSR UP FROM LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION. 8" HWSR UP TO THE FOURTH LEVEL REFER TO SHEET M104.A FOR CONTINUATION.
- H83 12" CHWSR UP FROM LEVEL TWO REFER TO SHEET M102.A FOR CONTINUATION. 12" CHWSR UP TO THE FOURTH LEVEL REFER TO SHEET M104.A FOR CONTINUATION.
- H121 2" CONDENSATE DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- H130 1" CONDENSATE DOWN TO LEVEL TWO. REFER TO M102.B FOR CONTINUATION.

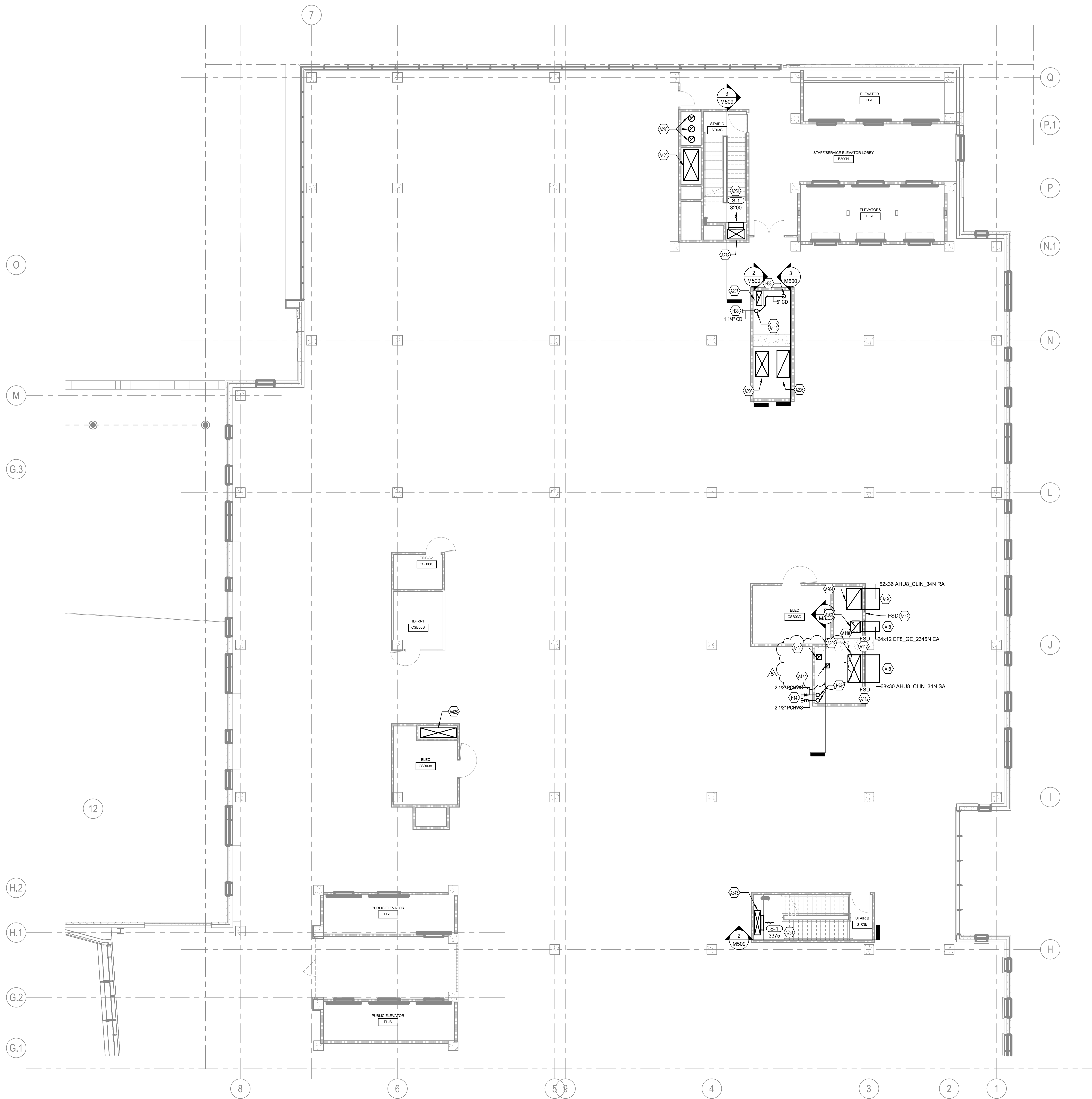


**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 03 - AREA A**  
1/8" = 1'-0"

KAS 5/28/2024 7:38:07 PM Autodesk Docs://14426293 - UKHC Cancer Treatment & Advanced Ambulatory Center M23-UKHC\_51462625.rvt

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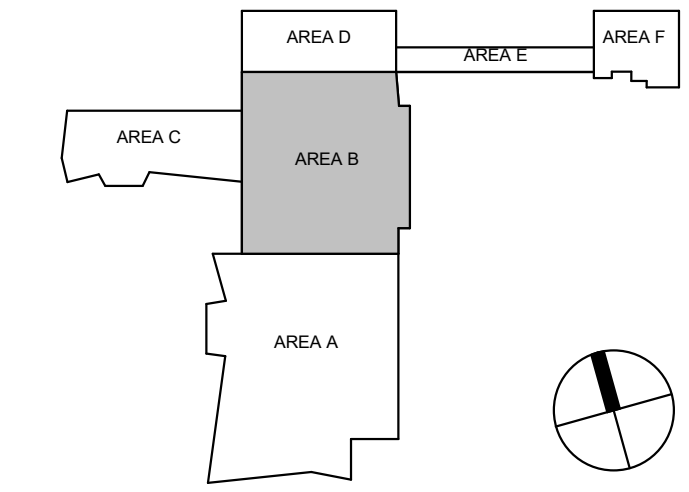
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**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 03 - AREA B**  
 M103.B 1/8" = 1'-0"

**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A112 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE THIRD FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
- A202 68"x30" AHU8\_CLIN\_34N SUPPLY AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A203 28"x24" EF8\_GE\_2345N EXHAUST AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 24"x12" EF8\_GE\_2345N EXHAUST AIR DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A204 52"x36" AHU8\_CLIN\_34N RETURN AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A205 62"x32" AHU8\_SUR\_2N SUPPLY AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 62"x32" AHU8\_SUR\_2N SUPPLY AIR DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A206 66"x30" AHU8\_SUR\_2N RETURN AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 66"x30" AHU8\_SUR\_2N RETURN AIR DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A207 34"x14" EF11\_LAB\_2N EXHAUST AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 34"x14" EF11\_LAB\_2N EXHAUST AIR DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A251 MOUNT 120" AFF.
- A272 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A286 16" GENERATOR EXHAUST UP FROM LEVEL TWO REFER TO M102.B FOR CONTINUATION. 16" GENERATOR EXHAUST UP TO THE LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A343 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL TWO ONE TO M102.B FOR CONTINUATION.
- A420 76"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 76"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A428 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN TO LEVEL TWO REFER TO M102.B FOR CONTINUATION.
- A465 12"x12" EF24\_ISO\_2N EXHAUST AIR DUCT UP FROM THE SECOND FLOOR REFER TO SHEET M102.B FOR CONTINUATION. 12"x12" EF24\_ISO\_2N EXHAUST AIR DUCT UP TO THE FOURTH LEVEL REFER TO M104.B FOR CONTINUATION.
- A477 10"x10" EF25\_MED\_2N EXHAUST AIR DUCT UP FROM THE SECOND FLOOR REFER TO SHEET M102.B FOR CONTINUATION. 10"x10" EF25\_MED\_2N EXHAUST AIR DUCT UP TO THE FOURTH LEVEL REFER TO M104.B FOR CONTINUATION.
- H14 CAP PIPES AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
- H37 5" CONDENSATE DOWN FROM THE 4TH FLOOR REFER TO SHEET M105.B FOR CONTINUATION.
- H38 5" CONDENSATE DOWN TO THE 2ND FLOOR REFER TO SHEET M102.B FOR CONTINUATION.
- H96 6" PCHWSR UP FROM LEVEL TWO REFER TO SHEET M102.B FOR CONTINUATION. 6" PCHWSR UP TO LEVEL FOUR TO SHEET M104.B FOR CONTINUATION.



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI** Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 CIVIL ENGINEERING

**WALSH**  
 CONSULTING GROUP

**bell**  
 engineering

**CDM Smith**

**PIVOTAL**  
 lighting design

**UK HEALTHCARE**

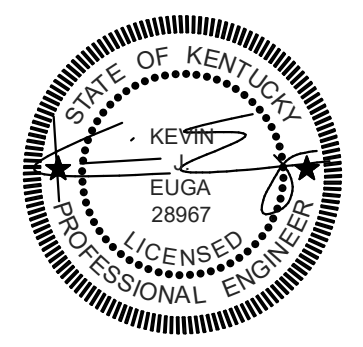
**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **KAS**  
 Checked By **SAC**  
 Client Number **514**  
 Project Number **6926**



DRAWING TITLE  
**SHELL & CORE - MECHANICAL PLAN - LEVEL 03 - AREA B**  
 SHEET NO.  
**M103.B**

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**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

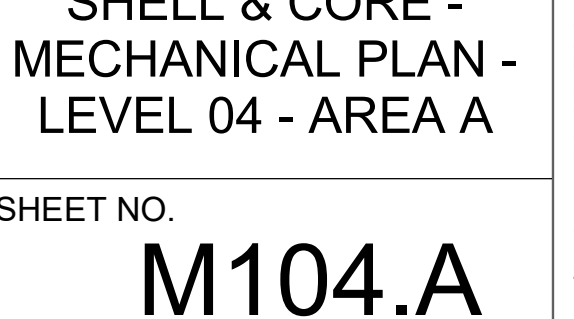
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Client Number  
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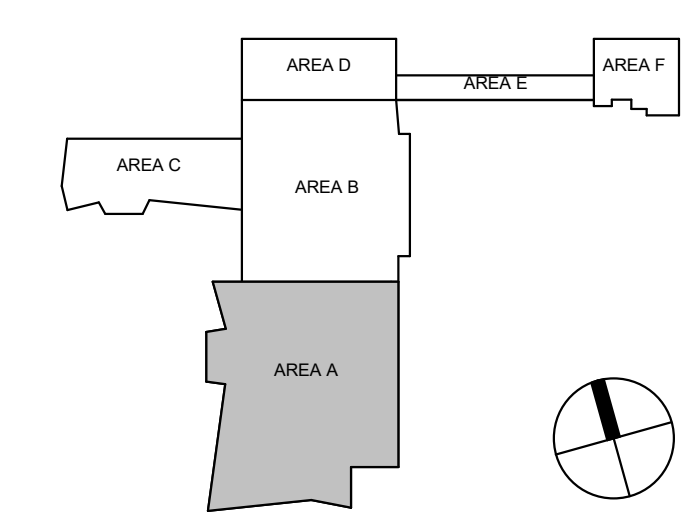
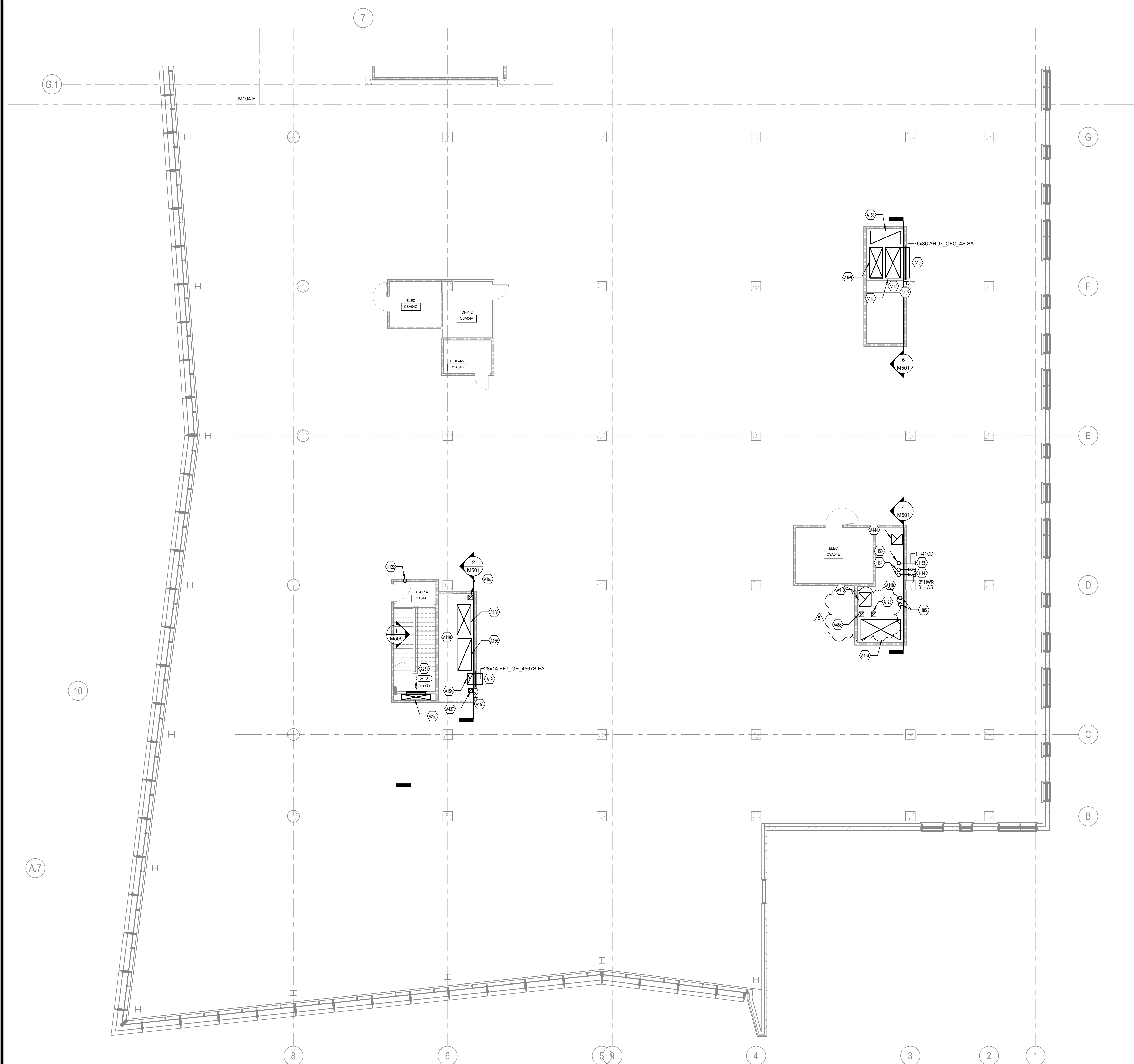
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MECHANICAL PLAN -  
LEVEL 04 - AREA A**

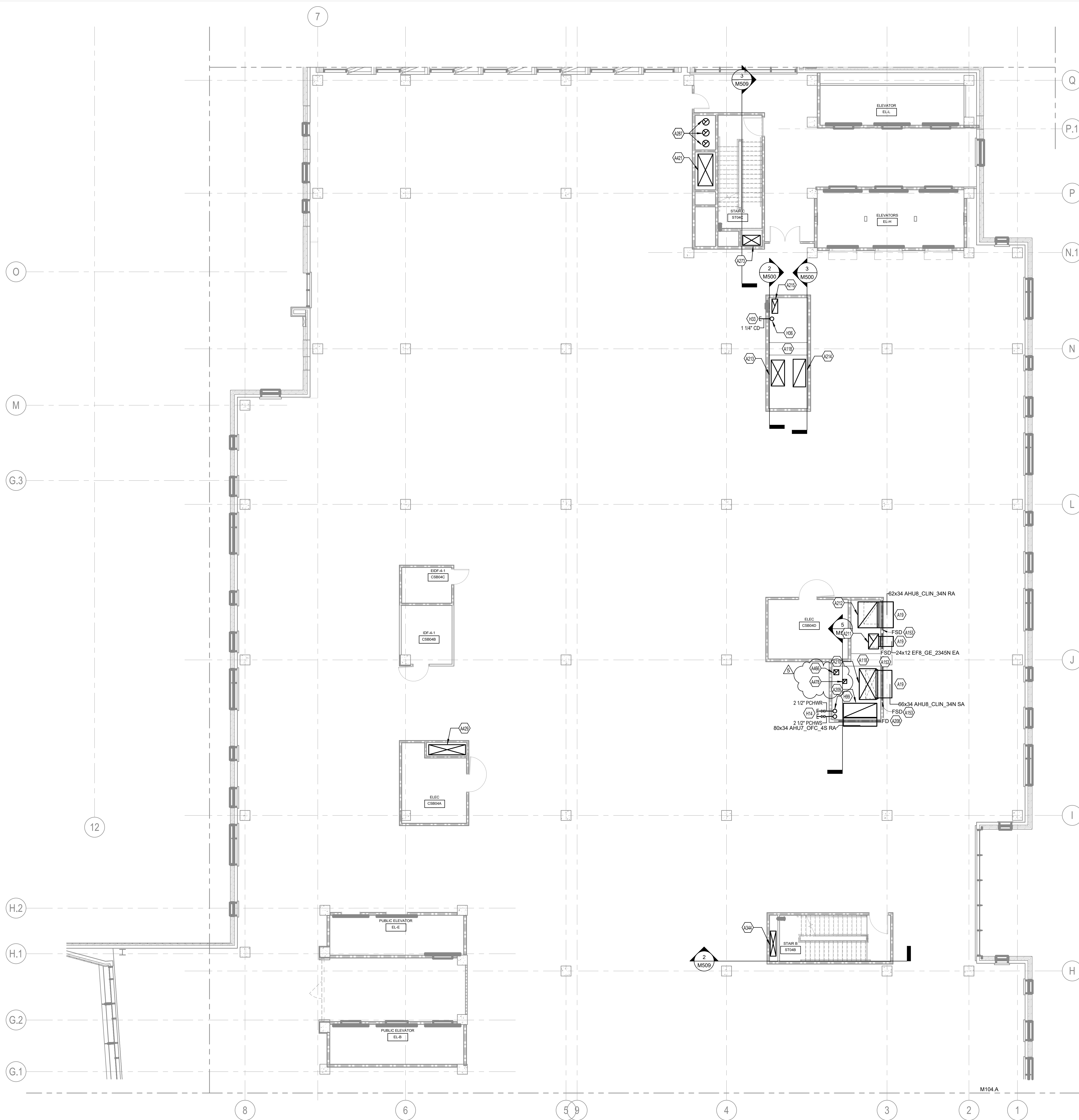
SHEET NO.  
**M104.A**



- TAGGED NOTES**
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - A110 34"x34" EF6\_GE\_0123S DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 34"x34" EF6\_GE\_0123S DOWN TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
  - A123 12"x12" EF2\_HTE\_05S EXHAUST AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 12"x12" EF2\_HTE\_05S EXHAUST AIR DUCT DOWN TO LEVEL THREE REFER TO SHEET M102.A FOR CONTINUATION.
  - A124 98"x52" OUTSIDE AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 98"x52" OUTSIDE AIR DUCT DOWN TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A152 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FOURTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A153 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FOURTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A154 28"x14" EF7\_GE\_4567S EXHAUST AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
  - A155 76"x34" AHU10\_CLIN\_3S SUPPLY AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 76"x34" AHU10\_CLIN\_3S SUPPLY AIR DUCT DOWN TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A156 80"x26" AHU10\_CLIN\_3S RETURN AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 80"x26" AHU10\_CLIN\_3S RETURN AIR DUCT DOWN TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A157 12"x12" EF13\_ISO\_1S EXHAUST AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 12"x12" EF13\_ISO\_1S EXHAUST AIR DUCT DOWN TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A158 76"x32" AHU14\_SUR\_2N RETURN AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 76"x32" AHU14\_SUR\_2N RETURN AIR DUCT DOWN TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A159 76"x32" AHU14\_SUR\_2N SUPPLY AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 76"x32" AHU14\_SUR\_2N SUPPLY AIR DUCT DOWN TO LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION.
  - A160 76"x36" AHU7\_OFC\_4S SUPPLY AIR DUCT DOWN FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
  - A251 MOUNT 120" AFF.
  - A265 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A437 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.A FOR CONTINUATION. 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN TO LEVEL THREE REFER TO M103.A FOR CONTINUATION.
  - A444 26"x26" EF20\_SUR\_2S EXHAUST AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.A FOR CONTINUATION. 26"x26" EF20\_SUR\_2S EXHAUST AIR DUCT DOWN TO LEVEL THREE REFER TO M103.A FOR CONTINUATION.
  - A458 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP FROM THE THIRD FLOOR REFER TO SHEET M103.A FOR CONTINUATION. 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP TO THE FIFTH LEVEL REFER TO M105.A FOR CONTINUATION.
  - H14 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
  - H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
  - H50 5" CONDENSATE DOWN FROM THE 5TH FLOOR REFER TO SHEET M105.A FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 3RD FLOOR REFER TO SHEET M103.A FOR CONTINUATION.
  - H84 8" HWSR UP FROM LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION. 8" HWSR UP TO THE FIFTH LEVEL REFER TO SHEET M105.A FOR CONTINUATION.
  - H85 12" CHWSR UP FROM LEVEL THREE REFER TO SHEET M103.A FOR CONTINUATION. 12" CHWSR UP TO THE FIFTH LEVEL REFER TO SHEET M105.A FOR CONTINUATION.
  - H122 4" CONDENSATE DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 4" CONDENSATE DOWN TO LEVEL THREE. REFER TO M104.B FOR CONTINUATION.



**1** SHELL & CORE - MECHANICAL PLAN - LEVEL 04 - AREA A  
M104.A 1/8" = 1'-0"



- TAGGED NOTES**
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
  - A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
  - A153 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FOURTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A208 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FOURTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A209 80"x34" AHU7\_OFC\_4S RETURN AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION
  - A210 74"x40" AHU8\_CLIN\_34N SUPPLY AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 68"x30" AHU8\_CLIN\_34N SUPPLY AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A211 36"x24" EF8\_GE\_2345N EXHAUST AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 28"x24" EF8\_GE\_2345N EXHAUST AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A212 62"x46" AHU8\_CLIN\_34N RETURN AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 52"x36" AHU8\_CLIN\_34N RETURN AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A213 62"x32" AHU6\_SUR\_2S SUPPLY AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 62"x32" AHU6\_SUR\_2S SUPPLY AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A214 66"x30" AHU6\_SUR\_2S RETURN AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 66"x30" AHU6\_SUR\_2S RETURN AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A215 34"x14" EF11\_LAB\_2N EXHAUST AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 34"x14" EF11\_LAB\_2N EXHAUST AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A273 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A287 16" GENERATOR EXHAUST UP FROM LEVEL THREE REFER TO M103.B FOR CONTINUATION. 16" GENERATOR EXHAUST UP TO THE LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
  - A344 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A421 76"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 76"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A429 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN TO LEVEL THREE REFER TO M103.B FOR CONTINUATION.
  - A466 12"x12" EF24\_ISO\_2N EXHAUST AIR DUCT UP FROM THE THIRD FLOOR REFER TO SHEET M103.B FOR CONTINUATION. 12"x12" EF24\_ISO\_2N EXHAUST AIR DUCT UP TO THE FIFTH LEVEL REFER TO M105.B FOR CONTINUATION.
  - A478 10"x10" EF25\_MED\_2N EXHAUST AIR DUCT UP FROM THE THIRD FLOOR REFER TO SHEET M103.B FOR CONTINUATION. 10"x10" EF25\_MED\_2N EXHAUST AIR DUCT UP TO THE FIFTH LEVEL REFER TO M105.B FOR CONTINUATION.
  - H14 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
  - H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
  - H36 5" CONDENSATE DOWN FROM THE 5TH FLOOR REFER TO SHEET M105.B FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 3RD FLOOR REFER TO SHEET M103.B FOR CONTINUATION.
  - H99 6" PCHWS/R UP FROM LEVEL THREE REFER TO SHEET M103.B FOR CONTINUATION. 6" PCHWS/R UP TO LEVEL FIVE TO SHEET M105.B FOR CONTINUATION.

1 SHELL & CORE - MECHANICAL PLAN - LEVEL 04 - AREA B  
M104.B 1/8" = 1'-0"

**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
AEI Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
DESIGN/PLANNING  
CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **KAS**  
Checked By **SAC**  
Client Number 514  
Project Number 6926

DRAWING TITLE  
**SHELL & CORE - MECHANICAL PLAN - LEVEL 04 - AREA B**

SHEET NO.  
**M104.B**

5/28/2024 7:38:45 PM Autodesk Docs://1446203 - UKHC Cancer Treatment & Advanced Ambulatory Center/M25-UKHC\_2/146203.rvt KAS

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**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
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Drawn By

KAS

Checked By

SAC

Client Number

514

Project Number

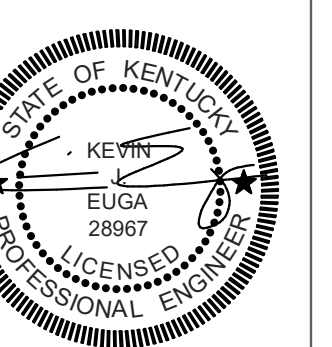
6926

DRAWING TITLE

SHELL & CORE -  
MECHANICAL PLAN -  
LEVEL 05 - AREA A

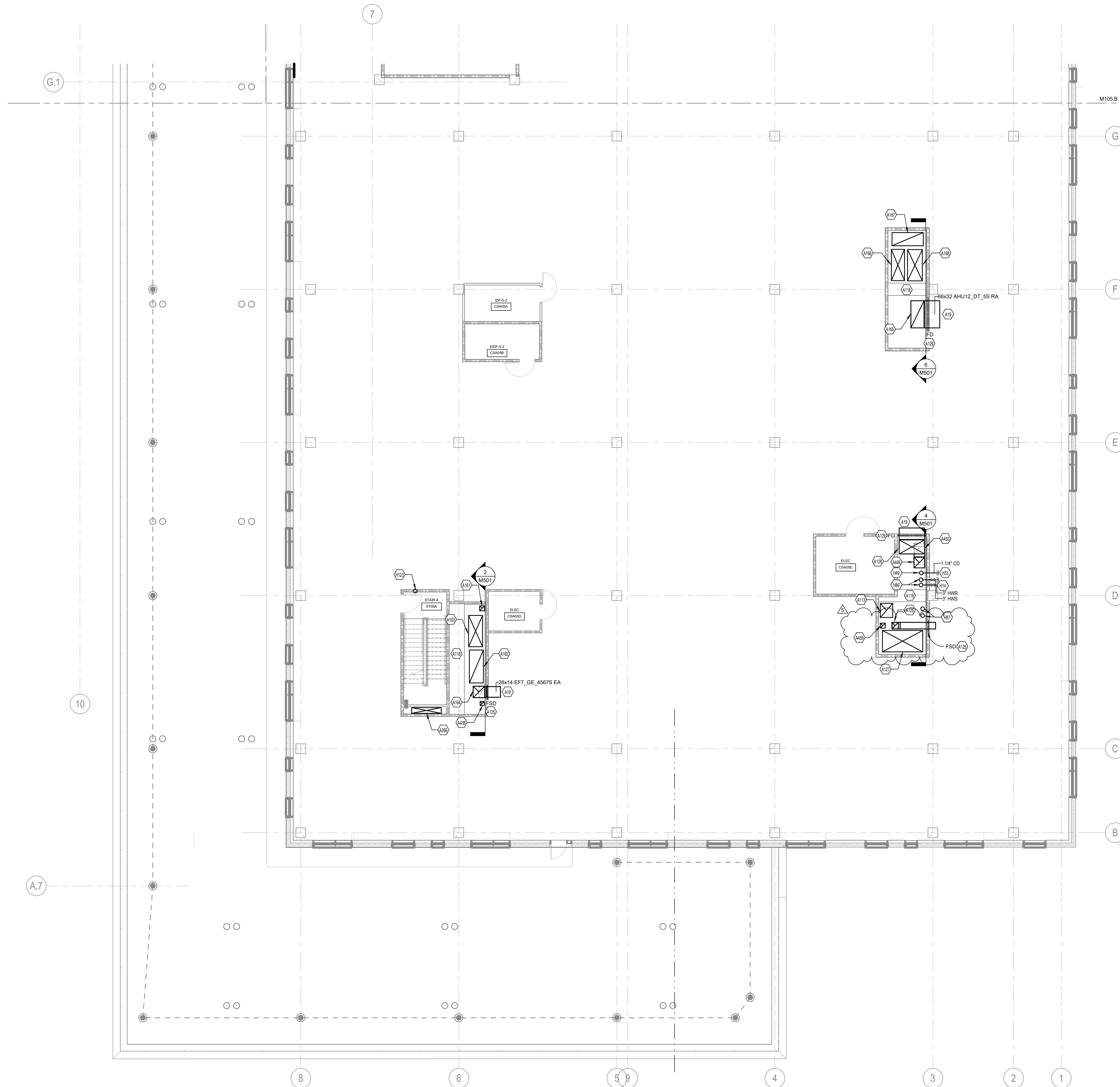
SHEET NO.

M105.A



**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A113 34"x34" EF6 GE 0123S DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 34"x34" EF6 GE 0123S DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
- A125 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FIFTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A126 16"x16" EF2 HTE 05S EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 12"x12" EF2 HTE 05S EXHAUST AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A127 98"x52" OUTSIDE AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 98"x52" OUTSIDE AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A128 62"x34" AHU12\_DT\_SS SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A129 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FIFTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A161 12"x12" EF13 ISO\_1S EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 12"x12" EF13 ISO\_1S EXHAUST AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A162 80"x34" AHU10\_CLIN\_SS RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 80"x34" AHU10\_CLIN\_SS RETURN AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A163 76"x34" AHU10\_CLIN\_SS SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 76"x34" AHU10\_CLIN\_SS SUPPLY AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A164 28"x28" EF7 GE 4567S EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 28"x28" EF7 GE 4567S EXHAUST AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A165 66"x32" AHU12\_DT\_SS RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A166 76"x32" AHU14\_SUR\_2N SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 76"x32" AHU14\_SUR\_2N SUPPLY AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A167 76"x32" AHU14\_SUR\_2N RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 76"x32" AHU14\_SUR\_2N RETURN AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A168 76"x36" AHU7\_OFC\_4S SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION. 76"x36" AHU7\_OFC\_4S SUPPLY AIR DUCT DOWN TO LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION.
- A266 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A438 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.A FOR CONTINUATION. 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.A FOR CONTINUATION.
- A449 26"x26" EF20\_SUR\_2S EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.A FOR CONTINUATION.
- A459 20"x20" EF20\_SUR\_2S EXHAUST AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.A FOR CONTINUATION.
- A459 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP FROM THE FOURTH FLOOR REFER TO SHEET M104.A FOR CONTINUATION. 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP TO THE SIXTH LEVEL REFER TO M106.A FOR CONTINUATION.
- H14 CAP PIPES AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
- H49 5" CONDENSATE DOWN FROM THE 6TH FLOOR REFER TO SHEET M106.A FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 4TH FLOOR REFER TO SHEET M104.A FOR CONTINUATION.
- H86 8" HWS/R UP FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 8" HWS/R UP TO THE SIXTH LEVEL REFER TO SHEET M106.A FOR CONTINUATION.
- H87 12" HWS/R UP FROM LEVEL FOUR REFER TO SHEET M104.A FOR CONTINUATION. 12" HWS/R UP TO THE SIXTH LEVEL REFER TO SHEET M106.A FOR CONTINUATION.
- H123 1" CONDENSATE DOWN FROM LEVEL SIX REFER TO SHEET M106.B FOR CONTINUATION. 1" CONDENSATE DOWN TO LEVEL FOUR. REFER TO M104.B FOR CONTINUATION.



**SHELL & CORE - MECHANICAL PLAN - LEVEL 05 - AREA A**  
1/8" = 1'-0"

KAS 5/28/2024 7:38:55 PM Autodesk Docs://1446203 - UKHC Cancer Treatment & Advanced Ambulatory Center-M23-UKC-2146203.rvt

5/28/2024 7:38:55 PM

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

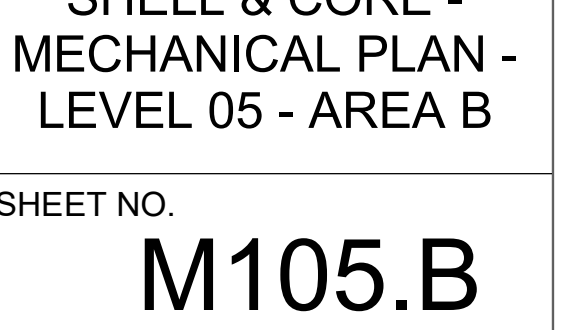
Checked By  
**SAC**

Client Number  
514

Project Number  
6926

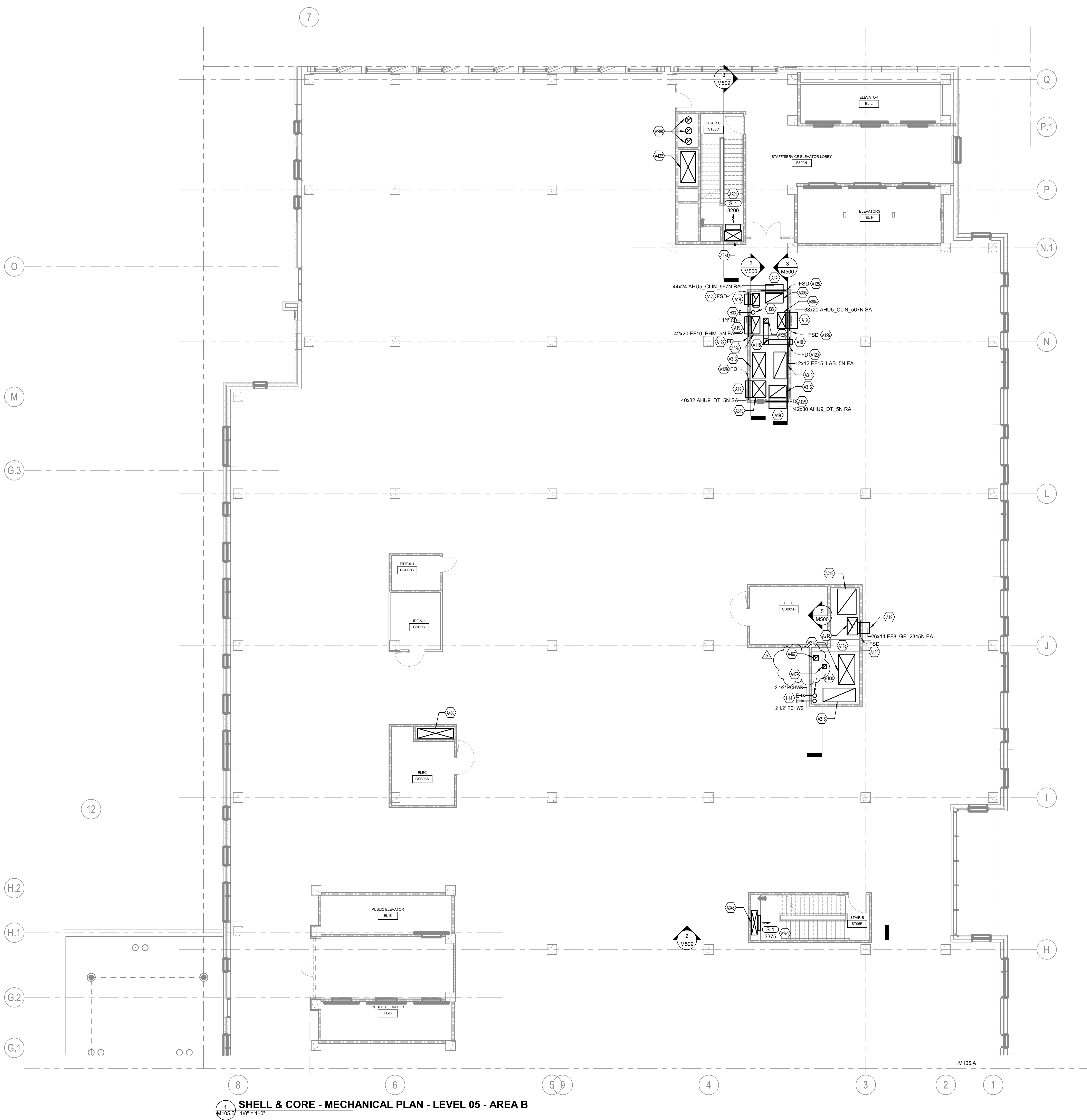
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**SHELL & CORE - MECHANICAL PLAN - LEVEL 05 - AREA B**

SHEET NO.  
**M105.B**

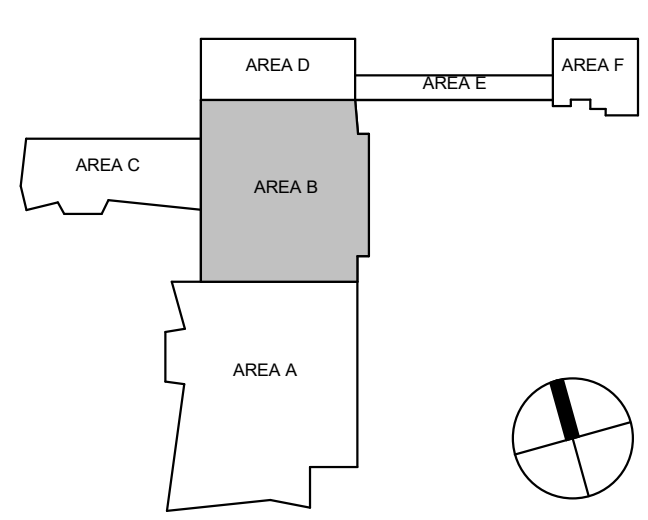


**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
- A125 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FIFTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A129 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE FIFTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A216 80"x24" AHU7, OFC, 4S RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 80"x24" AHU7, OFC, 4S RETURN AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A217 74"x40" AHU8, CLIN, 3AN SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 74"x40" AHU8, CLIN, 3AN SUPPLY AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A218 42"x20" EF8, GE, 2345N EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 36"x24" EF8, GE, 2345N EXHAUST AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A219 62"x46" AHU8, CLIN, 3AN RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 62"x46" AHU8, CLIN, 3AN RETURN AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A251 MOUNT 120" AFF.
- A274 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A288 16" GENERATOR EXHAUST UP FROM LEVEL FOUR REFER TO M104.B FOR CONTINUATION. 16" GENERATOR EXHAUST UP TO THE LEVEL SIX REFER TO M106.B FOR CONTINUATION.
- A304 38"x20" AHU5, CLIN, 567N SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION.
- A305 44"x24" AHU5, CLIN, 567N RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION.
- A310 86"x30" AHU8, SUR, 2S RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 86"x30" AHU8, SUR, 2S RETURN AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A313 62"x32" AHU8, SUR, 2S SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 62"x32" AHU8, SUR, 2S SUPPLY AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A316 42"x32" AHU8, DT, 5N RETURN AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION.
- A319 40"x32" AHU9, DT, 5N SUPPLY AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION.
- A325 42"x18" EF10, PHM, 6N EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION.
- A328 12"x12" EF15, LAB, 5N EXHAUST AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION.
- A345 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL FOUR ONE TO M104.B FOR CONTINUATION.
- A422 76"x36" AHU3, LAB, 12N OUTSIDE AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 76"x36" AHU3, LAB, 12N OUTSIDE AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A430 88"x24" AHU4, ALX, 012N OUTSIDE AIR DUCT DOWN FROM LEVEL SIX REFER TO M106.B FOR CONTINUATION. 88"x24" AHU4, ALX, 012N OUTSIDE AIR DUCT DOWN TO LEVEL FOUR REFER TO M104.B FOR CONTINUATION.
- A467 12"x12" EF24, ISO, 2N EXHAUST AIR DUCT UP FROM THE FOURTH FLOOR REFER TO SHEET M104.B FOR CONTINUATION. 12"x12" EF24, ISO, 2N EXHAUST AIR DUCT UP TO THE SIXTH LEVEL REFER TO M106.B FOR CONTINUATION.
- A479 10"x10" EF25, MED, 2N EXHAUST AIR DUCT UP FROM THE FOURTH FLOOR REFER TO SHEET M104.B FOR CONTINUATION. 10"x10" EF25, MED, 2N EXHAUST AIR DUCT UP TO THE SIXTH LEVEL REFER TO M106.B FOR CONTINUATION.
- H14 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
- H35 5" CONDENSATE DOWN FROM THE 6TH FLOOR REFER TO SHEET M106.B FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 4TH FLOOR REFER TO SHEET M104.B FOR CONTINUATION.
- H100 6" PCHWS/R UP FROM LEVEL FOUR REFER TO SHEET M104.B FOR CONTINUATION. 6" PCHWS/R UP TO LEVEL SIX TO SHEET M106.B FOR CONTINUATION.



**SHELL & CORE - MECHANICAL PLAN - LEVEL 05 - AREA B**



**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

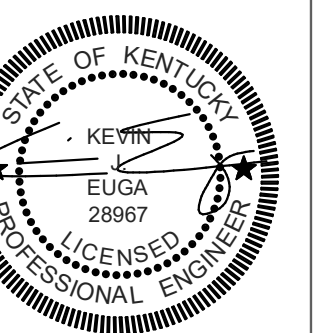
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**SAC**

Client Number  
514

Project Number  
6926

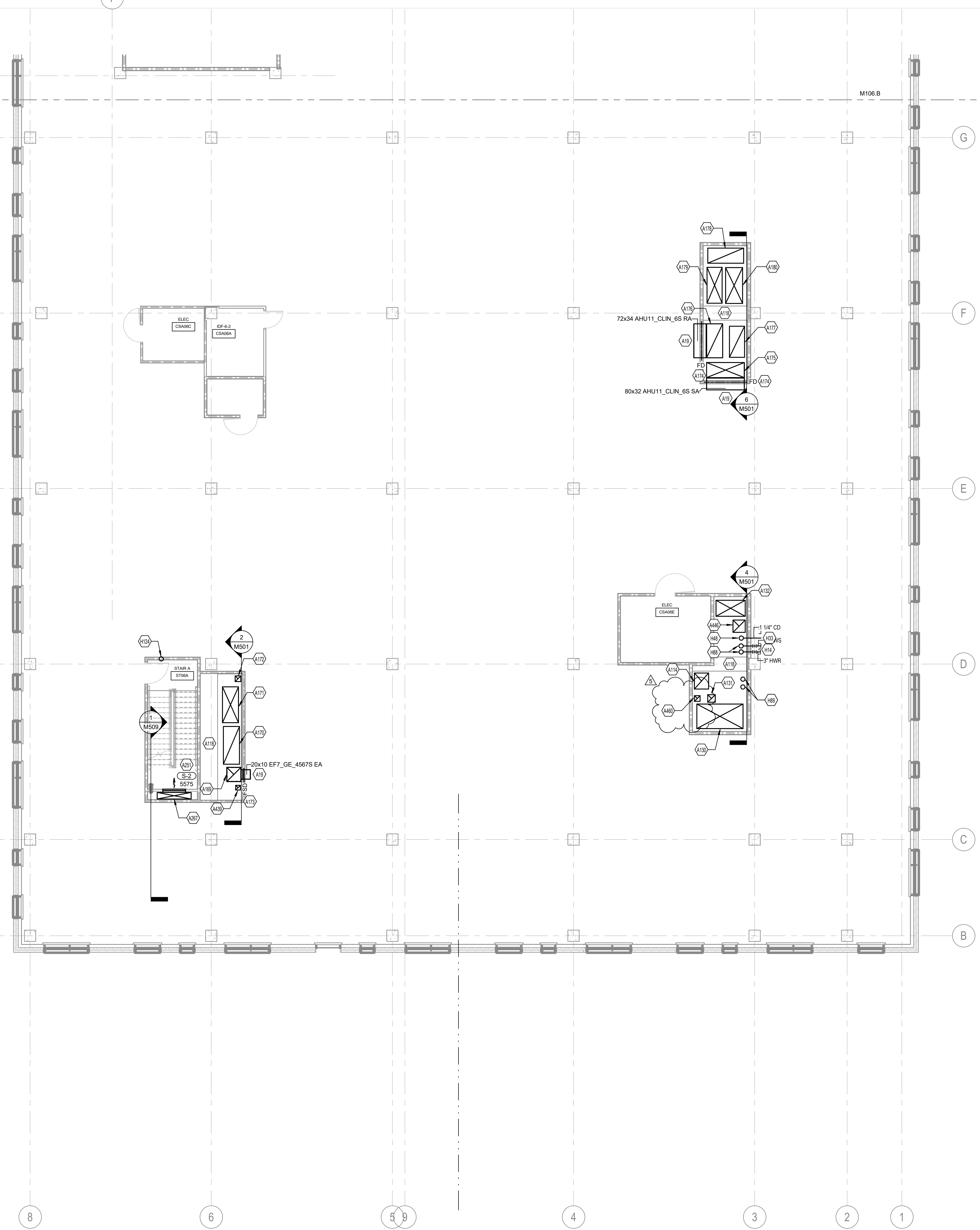
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**SHELL & CORE -  
MECHANICAL PLAN -  
LEVEL 06 - AREA A**

SHEET NO.  
**M106.A**

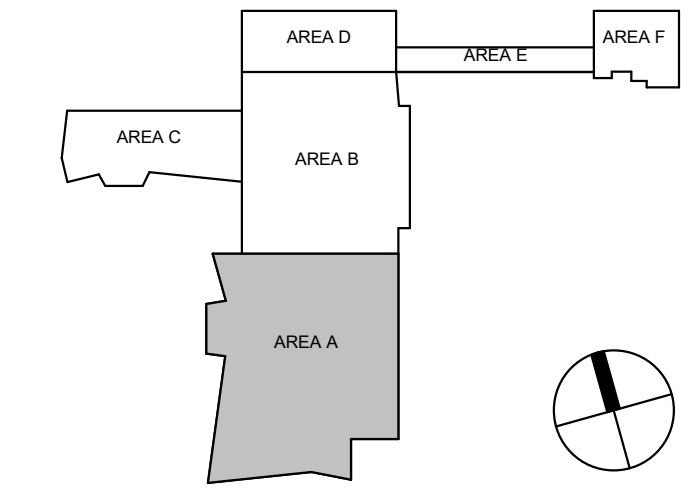


**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
- A114 34"x34" EF6, GE, 0123S DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 34"x34" EF6, GE, 0123S DOWN TO LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
- A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
- A130 88"x52" OUTSIDE AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 98"x52" OUTSIDE AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A131 16"x16" EF2, HTE, 05S EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M106.A FOR CONTINUATION. 16"x16" EF2, HTE, 05S EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
- A132 82"x34" AHU12, DT, 5S SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 62"x34" AHU12, DT, 5S SUPPLY AIR DUCT DOWN TO LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
- A169 30"x30" EF7, GE, 4567S EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 28"x28" EF7, GE, 4567S EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
- A170 80"x34" AHU10, CLIN, 3S RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 80"x34" AHU10, CLIN, 3S RETURN AIR DUCT DOWN TO LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
- A171 76"x34" AHU10, CLIN, 3S SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 76"x34" AHU10, CLIN, 3S SUPPLY AIR DUCT DOWN TO LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
- A172 12"x12" EF13, ISO, 1S EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 12"x12" EF13, ISO, 1S EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION.
- A173 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE SIXTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A174 CONTRACTOR SHALL INSTALL FIRE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE SIXTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A175 80"x32" AHU11, CLIN, 6S SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION.
- A176 72"x34" AHU11, CLIN, 6S RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION.
- A177 66"x32" AHU12, DT, 5S RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 66"x32" AHU12, DT, 5S RETURN AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A178 76"x32" AHU14, SUR, 2N RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 76"x32" AHU14, SUR, 2N RETURN AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A179 76"x32" AHU14, SUR, 2N SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 76"x32" AHU14, SUR, 2N SUPPLY AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A180 76"x36" AHU7, OFC, 4S SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO SHEET M107.A FOR CONTINUATION. 76"x36" AHU7, OFC, 4S SUPPLY AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A251 MOUNT 120" AFF.
- A267 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A439 10"x10" EF21, MED, 2S EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.A FOR CONTINUATION. 10"x10" EF21, MED, 2S EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.A FOR CONTINUATION.
- A446 26"x26" EF20, SUR, 2S EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.A FOR CONTINUATION. 26"x26" EF20, SUR, 2S EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.A FOR CONTINUATION.
- A460 12"x12" EF22, LAB, 0S EXHAUST AIR DUCT UP FROM THE FIFTH FLOOR REFER TO SHEET M105.A FOR CONTINUATION. 12"x12" EF22, LAB, 0S EXHAUST AIR DUCT UP TO THE SEVENTH LEVEL REFER TO M107.A FOR CONTINUATION.
- H14 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
- H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
- H48 5" CONDENSATE DOWN FROM THE 7TH FLOOR REFER TO SHEET M107.A FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 5TH FLOOR REFER TO SHEET M105.A FOR CONTINUATION.
- H88 8" HWS/R UP FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 8" HWS/R UP TO THE SEVENTH LEVEL REFER TO SHEET M107.A FOR CONTINUATION.
- H89 12" CHWS/R UP FROM LEVEL FIVE REFER TO SHEET M105.A FOR CONTINUATION. 12" CHWS/R UP TO THE SEVENTH LEVEL REFER TO SHEET M107.A FOR CONTINUATION.
- H124 1" CONDENSATE DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 1" CONDENSATE DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.



**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 06 - AREA A**  
1/8" = 1'-0"





**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
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Drawn By  
**KAS**

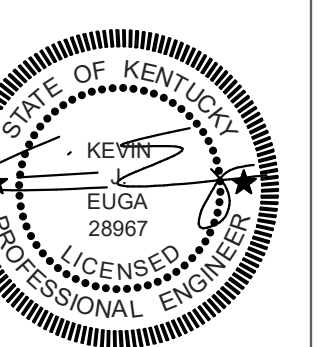
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**SAC**

Client Number  
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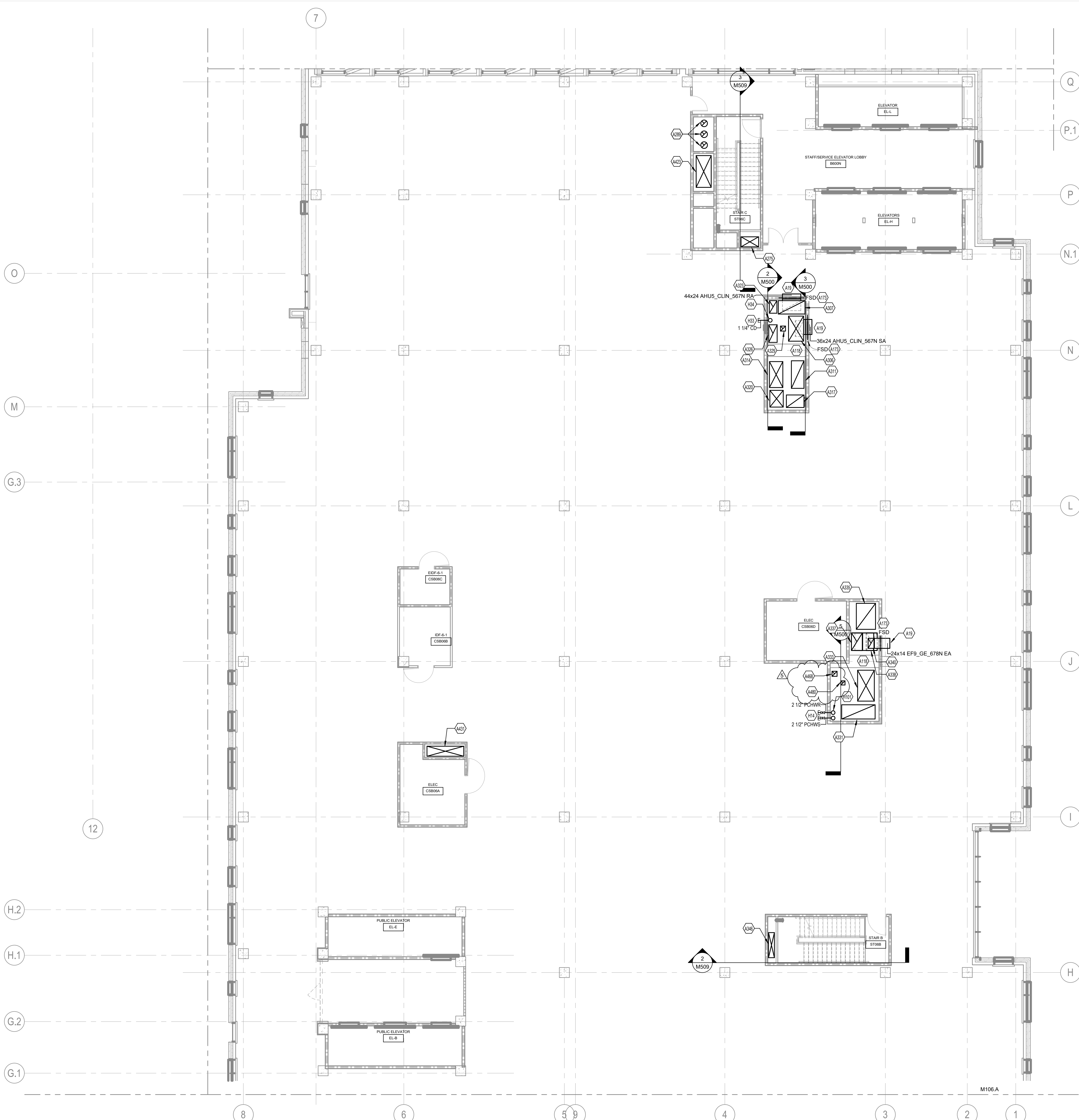
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**SHELL & CORE - MECHANICAL PLAN - LEVEL 06 - AREA B**

SHEET NO.  
**M106.B**

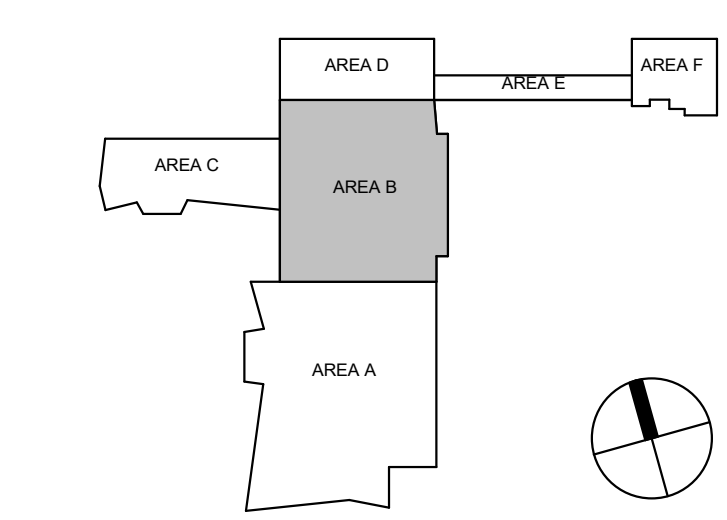


**TAGGED NOTES**

- A119 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
- A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
- A173 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE SIXTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHEET CONSTRUCTION SPECIFICATIONS.
- A275 24"x24" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 24"x24" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A289 16" GENERATOR EXHAUST UP FROM LEVEL FIVE REFER TO M105.B FOR CONTINUATION. 16" GENERATOR EXHAUST UP TO THE LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A306 60"x36" AHUS\_CLIN\_567N SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 38"x20" AHUS\_CLIN\_567N SUPPLY AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A307 64"x32" AHUS\_CLIN\_567N RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 44"x24" AHUS\_CLIN\_567N RETURN AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A311 66"x30" AHU6\_SUR\_25 RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 68"x30" AHU6\_SUR\_25 RETURN AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A314 62"x32" AHU6\_SUR\_25 SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 62"x32" AHU6\_SUR\_25 SUPPLY AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A317 42"x32" AHU9\_DT\_5N RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 40"x30" AHU9\_DT\_5N RETURN AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A320 40"x32" AHU9\_DT\_5N SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 40"x32" AHU9\_DT\_5N SUPPLY AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A323 30"x18" EF11\_LAB\_2N EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 30"x18" EF11\_LAB\_2N EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A326 42"x18" EF10\_PHM\_5N EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 42"x18" EF10\_PHM\_5N EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A329 12"x12" EF15\_LAB\_5N EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 12"x12" EF15\_LAB\_5N EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A331 80"x34" AHU7\_OFC\_4S RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 80"x34" AHU7\_OFC\_4S RETURN AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A333 74"x40" AHU7\_OFC\_4S SUPPLY AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 74"x40" AHU7\_OFC\_4S SUPPLY AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A335 62"x46" AHU8\_CLIN\_34S RETURN AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 62"x46" AHU8\_CLIN\_34S RETURN AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A337 42"x26" EF8\_GE\_2345N EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A338 42"x26" EF8\_GE\_2345N EXHAUST AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A340 24"x14" EF9\_GE\_678N EXHAUST AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A346 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 60"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL FIVE ONE TO M105.B FOR CONTINUATION.
- A423 76"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 76"x36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A431 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN FROM LEVEL SEVEN REFER TO M107.B FOR CONTINUATION. 88"x24" AHU4\_AUX\_012N OUTSIDE AIR DUCT DOWN TO LEVEL FIVE REFER TO M105.B FOR CONTINUATION.
- A468 12"x12" EF24\_ISO\_2N EXHAUST AIR DUCT UP FROM THE FIFTH FLOOR REFER TO SHEET M105.B FOR CONTINUATION. 12"x12" EF24\_ISO\_2N EXHAUST AIR DUCT UP TO THE SEVENTH LEVEL REFER TO M107.B FOR CONTINUATION.
- A480 10"x10" EF25\_MED\_2N EXHAUST AIR DUCT UP FROM THE FIFTH FLOOR REFER TO SHEET M105.B FOR CONTINUATION. 10"x10" EF25\_MED\_2N EXHAUST AIR DUCT UP TO THE SEVENTH LEVEL REFER TO M107.B FOR CONTINUATION.
- H114 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
- H33 CONTRACTOR SHALL STUB OUT AND CAP 1.25" CONDENSATE DRAIN LINE FOR FUTURE CONNECTION IN THE FIT-OUT.
- H34 5" CONDENSATE DOWN FROM THE 7TH FLOOR REFER TO SHEET M107.B FOR CONTINUATION. 5" CONDENSATE DOWN TO THE 5TH FLOOR REFER TO SHEET M105.B FOR CONTINUATION.
- H101 8" PCHWSR UP FROM LEVEL FIVE REFER TO SHEET M105.B FOR CONTINUATION. 4" PCHWSR UP TO LEVEL SEVEN TO SHEET M107.B FOR CONTINUATION.



**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 06 - AREA B**  
M106.B 1/8" = 1'-0"



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**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

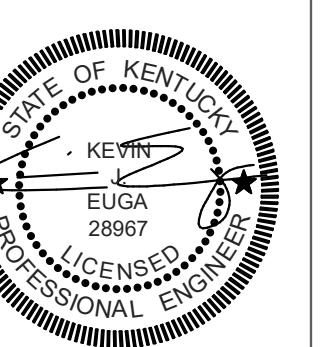
Checked By  
**SAC**

Client Number  
514

Project Number  
6926

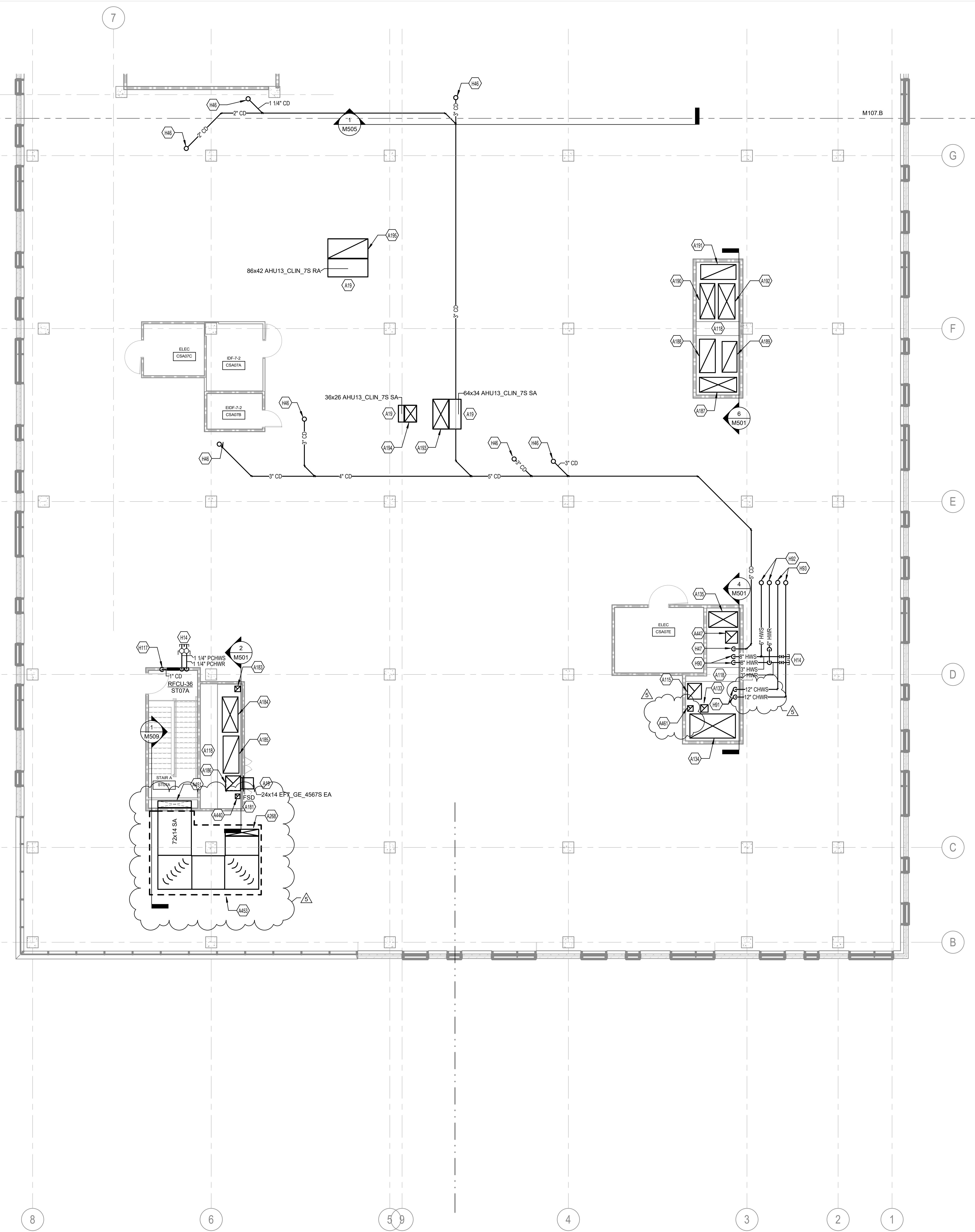
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**SHELL & CORE - MECHANICAL PLAN - LEVEL 07 - AREA A**

SHEET NO.  
**M107.A**

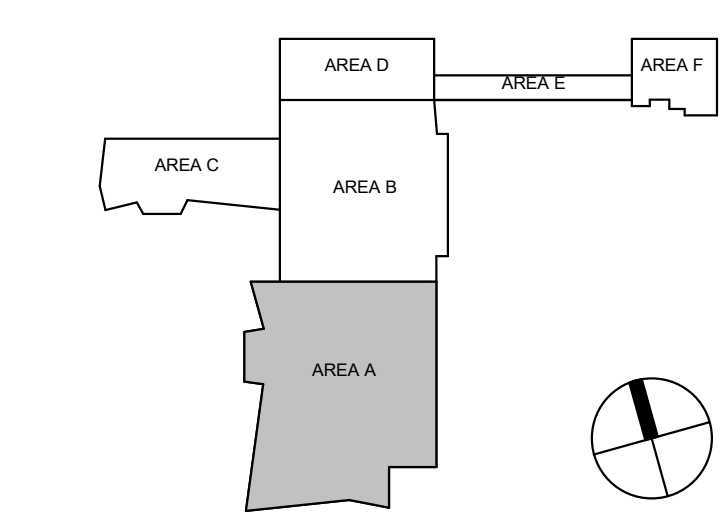


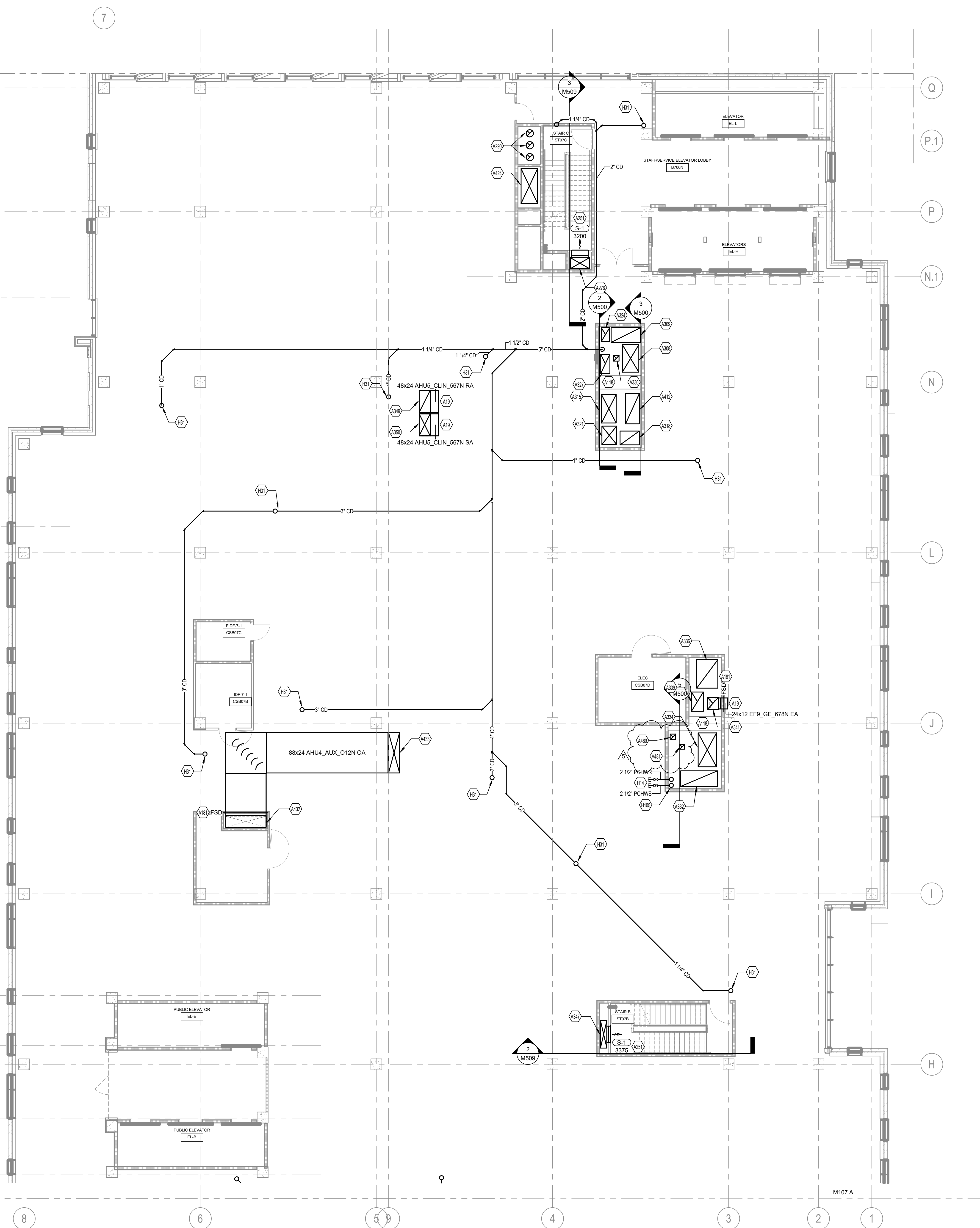
**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
- A115 34"x34" EF6, GE, 0123S DOWN FROM THE LEVEL EIGHT DOGHOUSE REFER TO SHEET M106.A FOR CONTINUATION. 34"x34" EF6, GE, 0123S DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT ROUTING WITH STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
- A133 16"x16" EF2, HTE, 05S EXHAUST AIR DUCT DOWN FROM THE LEVEL EIGHT DOGHOUSE REFER TO SHEET M106.A FOR CONTINUATION. 16"x16" EF2, HTE, 05S EXHAUST AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A134 98"x52" OUTSIDE AIR DUCT DOWN FROM THE LEVEL EIGHT DOGHOUSE REFER TO SHEET M106.A FOR CONTINUATION. 98"x52" OUTSIDE AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A135 62"x34" AHU12, DT, 5S SUPPLY AIR DUCT DOWN FROM THE LEVEL EIGHT DOGHOUSE REFER TO SHEET M106.A FOR CONTINUATION. 62"x34" AHU12, DT, 5S SUPPLY AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A161 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE SEVENTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
- A183 12"x12" EF13, ISO, 1S EXHAUST AIR DUCT DOWN FROM LEVEL EIGHT DOGHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 12"x12" EF13, ISO, 1S EXHAUST AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A184 76"x34" AHU10, CLIN, 3S SUPPLY AIR DUCT DOWN FROM LEVEL EIGHT DOGHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 76"x34" AHU10, CLIN, 3S SUPPLY AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A185 80"x34" AHU10, CLIN, 3S RETURN AIR DUCT DOWN FROM LEVEL EIGHT DOGHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 80"x34" AHU10, CLIN, 3S RETURN AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A186 32"x32" EF7, GE, 4567S EXHAUST AIR DUCT DOWN FROM LEVEL EIGHT DOGHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 32"x32" EF7, GE, 4567S EXHAUST AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A187 80"x32" AHU11, CLIN, 6S SUPPLY AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 80"x32" AHU11, CLIN, 6S SUPPLY AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A188 72"x34" AHU11, CLIN, 6S RETURN AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 72"x34" AHU11, CLIN, 6S RETURN AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A189 66"x32" AHU12, DT, 5S RETURN AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 66"x32" AHU12, DT, 5S RETURN AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A190 76"x32" AHU14, SUR, 2N SUPPLY AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 76"x32" AHU14, SUR, 2N SUPPLY AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A191 76"x32" AHU14, SUR, 2N RETURN AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 76"x32" AHU14, SUR, 2N RETURN AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A192 76"x36" AHU7, OFC, 4S SUPPLY AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION. 76"x36" AHU7, OFC, 4S SUPPLY AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A193 64"x34" AHU13, CLIN, 7S SUPPLY AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION.
- A194 36"x26" AHU13, CLIN, 7S SUPPLY AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION.
- A195 86"x42" AHU13, CLIN, 7S RETURN AIR DUCT DOWN FROM LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.1.A FOR CONTINUATION.
- A268 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN FROM LEVEL EIGHT ROOF REFER TO SHEET M108.1.A FOR CONTINUATION.
- A440 10"x10" EF21, MED, 2S EXHAUST AIR DUCT DOWN FROM LEVEL EIGHT REFER TO SHEET M108.1.A FOR CONTINUATION. 10"x10" EF21, MED, 2S EXHAUST AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A447 26"x26" EF20, SUR, 2S EXHAUST AIR DUCT DOWN FROM LEVEL EIGHT REFER TO SHEET M108.1.A FOR CONTINUATION. 26"x26" EF20, SUR, 2S EXHAUST AIR DUCT DOWN TO LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- A451 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A453 PROVIDE AND INSTALL STAIRWELL PRESSURIZATION DUCTWORK IN THE DASHED AREA WITH 2HR RATED 2M P/REV/RP?
- A461 12"x12" EF22, LAB, 0S EXHAUST AIR DUCT UP FROM THE SIXTH FLOOR REFER TO SHEET M106.A FOR CONTINUATION. 12"x12" EF22, LAB, 0S EXHAUST AIR DUCT UP TO THE EIGHT LEVEL REFER TO M108.1.A FOR CONTINUATION.
- H117 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
- H46 CONDENSATE PIPE DOWN FROM THE 8TH FLOOR REFER TO SHEET M108.3.A FOR CONTINUATION.
- H47 5" CONDENSATE DOWN TO THE 6TH FLOOR REFER TO SHEET M106.A FOR CONTINUATION.
- H49 8" HWS/UR FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- H91 12" CHWS/UR UP FROM LEVEL SIX REFER TO SHEET M106.A FOR CONTINUATION.
- H92 6" HWS/UR UP TO THE LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.3.A FOR CONTINUATION.
- H93 12" CHWS/UR UP TO THE LEVEL EIGHT PENTHOUSE REFER TO SHEET M108.3.A FOR CONTINUATION.
- H117 CONDENSATE PIPING DOWN TO THE 6TH FLOOR REFER TO M106.A FOR CONTINUATION.



**1 SHELL & CORE - MECHANICAL PLAN - LEVEL 07 - AREA A**  
M107.A 1/8" = 1'-0"





- TAGGED NOTES**
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
  - A118 STRUCTURAL BEAM ROUTED THROUGH MECHANICAL SHAFT. CONTRACTOR TO COORDINATE SHAFT TO EXISTING STRUCTURAL MEMBER. REFER TO STRUCTURAL DRAWINGS FOR SPECIFICATIONS.
  - A181 CONTRACTOR SHALL INSTALL FIRE SMOKE DAMPER IN THE VERTICAL SHAFT WALL ABOVE THE SEVENTH FLOOR CEILING. REFER TO ARCHITECTURAL PLANS FOR SHAFT CONSTRUCTION SPECIFICATIONS.
  - A251 MOUNT 12\"/>
  - A276 24\"/>
  - A290 16\"/>
  - A308 60\"/>
  - A309 64\"/>
  - A315 62\"/>
  - A318 42\"/>
  - A321 40\"/>
  - A324 30\"/>
  - A327 42\"/>
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  - A347 60\"/>
  - A349 48\"/>
  - A350 48\"/>
  - A412 68\"/>
  - A424 78\"/>
  - A432 88\"/>
  - A433 12\"/>
  - A468 12\"/>
  - A481 10\"/>
  - H14 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE
  - H51 CONDENSATE PIPE DOWN FROM THE 8TH FLOOR REFER TO SHEET M108.3.B FOR CONTINUATION.
  - H105 4\"/>

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI** Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 CIVIL ENGINEERING

**WALSH**  
 CONSULTING GROUP

**bell**  
 engineering

**CDM Smith**

**PIVOTAL**  
 lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **KAS**  
 Checked By **SAC**  
 Client Number **514**  
 Project Number **6926**

DRAWING TITLE  
**SHELL & CORE - MECHANICAL PLAN - LEVEL 07 - AREA B**

SHEET NO.  
**M107.B**

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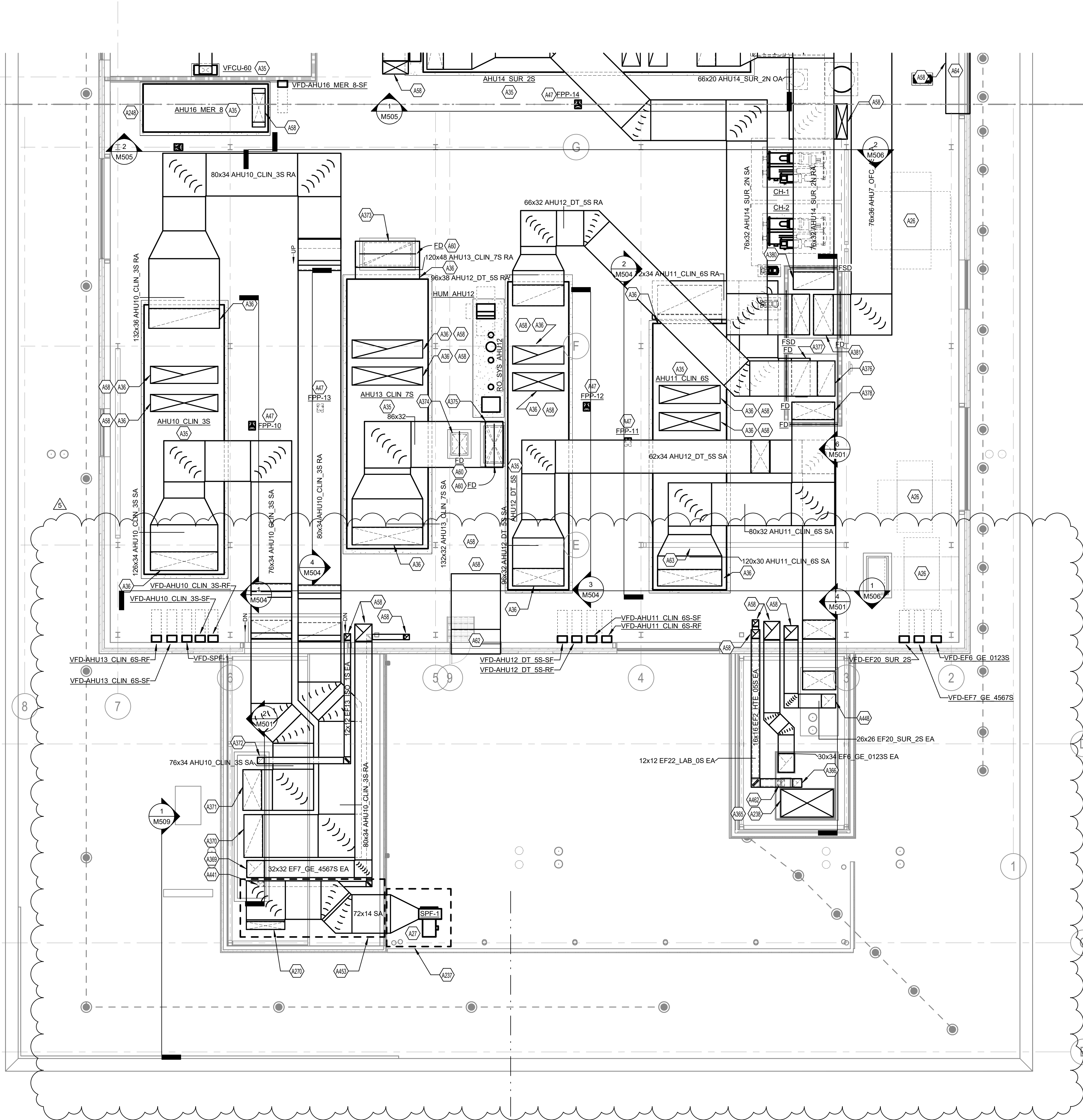
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**GENERAL NOTES:**

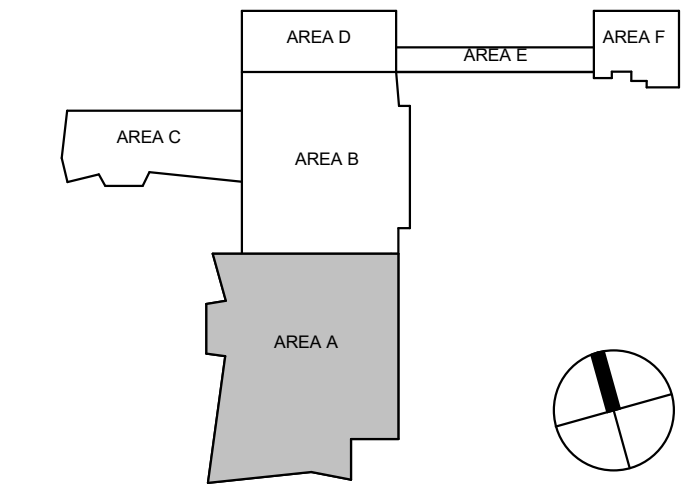
- ALL VFD'S AND ASSOCIATED UNIT/STRUT, CONCRETE PAD, ETC. ARE SHOWN FOR REFERENCE ONLY. ALL VFD'S AND ASSOCIATED APPURTANCES TO BE PROVIDED BY THE CONTRACTOR AS PART OF A FUTURE BID PACKAGE.
- ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES:**

- A26 PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS. PROVIDE AND INSTALL ON EQUIPMENT RAILS FOR MOUNTING. THYBAR TEMA-3 OR EQUAL EQUIVALENT.
- A35 INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- A36 CONTRACTOR SHALL MATCH DUCTWORK CONNECTION WITH MANUFACTURE PROVIDED PLENUM OPENING.
- A47 INSTALL AND SUPPORT PUMP PER MANUFACTURES SPECIFICATIONS.
- A58 REFER TO HIGH DUCT PLAN ON SHEET M108.2.A FOR CONTINUATION.
- A60 PROVIDE FIRE DAMPER AT PENTHOUSE FLOOR PENETRATION.
- A62 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 92" W X 138" H ACTIVE LOUVER SECTION FOR AHU12\_DT\_SS OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 11" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A63 CONTRACTOR TO PROVIDE AND INSTALL INSULATION ON STRUCTURAL CROSS BRACING ENCASED IN DUCTWORK.
- A64 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 184" W X 110" H ACTIVE LOUVER SECTION FOR AHU10\_CLIN\_3S OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 131" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A237 ALL DUCTWORK WITHIN THE OUTLINED AREA SHALL BE CONSIDERED EXPOSED OUTDOOR DUCTWORK. CONTRACTOR SHALL REFER TO THE MECHANICAL SPECIFICATIONS FOR EXPOSED OUTDOOR DUCTWORK SPECIAL REQUIREMENTS. LOUVERED DOGHOUSE DECISION IS ONGOING. REFER TO FUTURE SETS FOR FINAL DECISION.
- A238 CONTRACTOR SHALL PROVIDE AND INSTALL 4" CONCRETE LIP AROUND OUTSIDE AIR INTAKE DUCT. PROVIDE AND INSTALL LIGHT DUTY LOAD CLASS A METAL GRATE OVER OUTSIDE AIR DUCT.
- A248 RETURN PLENUM TO BE OPEN TO MECHANICAL ROOM.
- A270 72"x14" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A365 95"x52" OUTSIDE AIR DUCT UP FROM LEVEL SEVEN INTO DOGHOUSE. REFER TO M107.A FOR CONTINUATION.
- A366 16"x16" EF2\_MTE\_05S EXHAUST AIR DUCT UP FROM LEVEL SEVEN INTO DOGHOUSE. REFER TO M107.A FOR CONTINUATION.
- A369 32"x32" EF7\_GE\_4567S EXHAUST AIR DUCT UP FROM LEVEL SEVEN INTO DOGHOUSE. REFER TO M107.A FOR CONTINUATION.
- A370 80"x34" AHU10\_CLIN\_3S RETURN AIR DUCT UP FROM LEVEL SEVEN INTO DOGHOUSE. REFER TO M107.A FOR CONTINUATION.
- A371 76"x34" AHU10\_CLIN\_2S SUPPLY AIR DUCT UP FROM LEVEL SEVEN INTO DOGHOUSE. REFER TO M107.A FOR CONTINUATION.
- A372 12"x12" EF13\_ISO\_1S EXHAUST AIR DUCT UP FROM LEVEL SEVEN INTO DOGHOUSE. REFER TO M107.A FOR CONTINUATION.
- A373 86"x42" AHU13\_CLIN\_7S RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A374 36"x26" AHU13\_CLIN\_7S SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A375 64"x34" AHU13\_CLIN\_7S SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A376 86"x32" AHU12\_DT\_SS RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A377 72"x34" AHU11\_CLIN\_6S RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A378 80"x32" AHU11\_CLIN\_6S SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A380 76"x36" AHU14\_SUR\_2N RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A381 76"x36" AHU14\_SUR\_2N SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A441 10"x10" EF21\_MED\_2S EXHAUST AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A442 26"x26" EF20\_SUR\_2S EXHAUST AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.A FOR CONTINUATION.
- A453 PROVIDE AND INSTALL STAIRWELL PRESSURIZATION DUCTWORK IN THE DASHED AREA WITH 2MR RATED 2M FIREWRAP.
- A462 12"x12" EF22\_LAB\_0S EXHAUST AIR DUCT UP FROM THE SEVENTH FLOOR REFER TO SHEET M107.A FOR CONTINUATION.



**1 SHELL & CORE - AIR DISTRIBUTION PLAN - LEVEL 08 - AREA A**  
M108.1.A 1/8" = 1'-0"



**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
Affiliated Engineers  
AEI

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
PLANNING  
CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

**UK**  
HEALTHCARE

**Cancer Treatment Center + Advanced Ambulatory Center**

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Lexington, KY 40536  
UK Project Number 2563.0

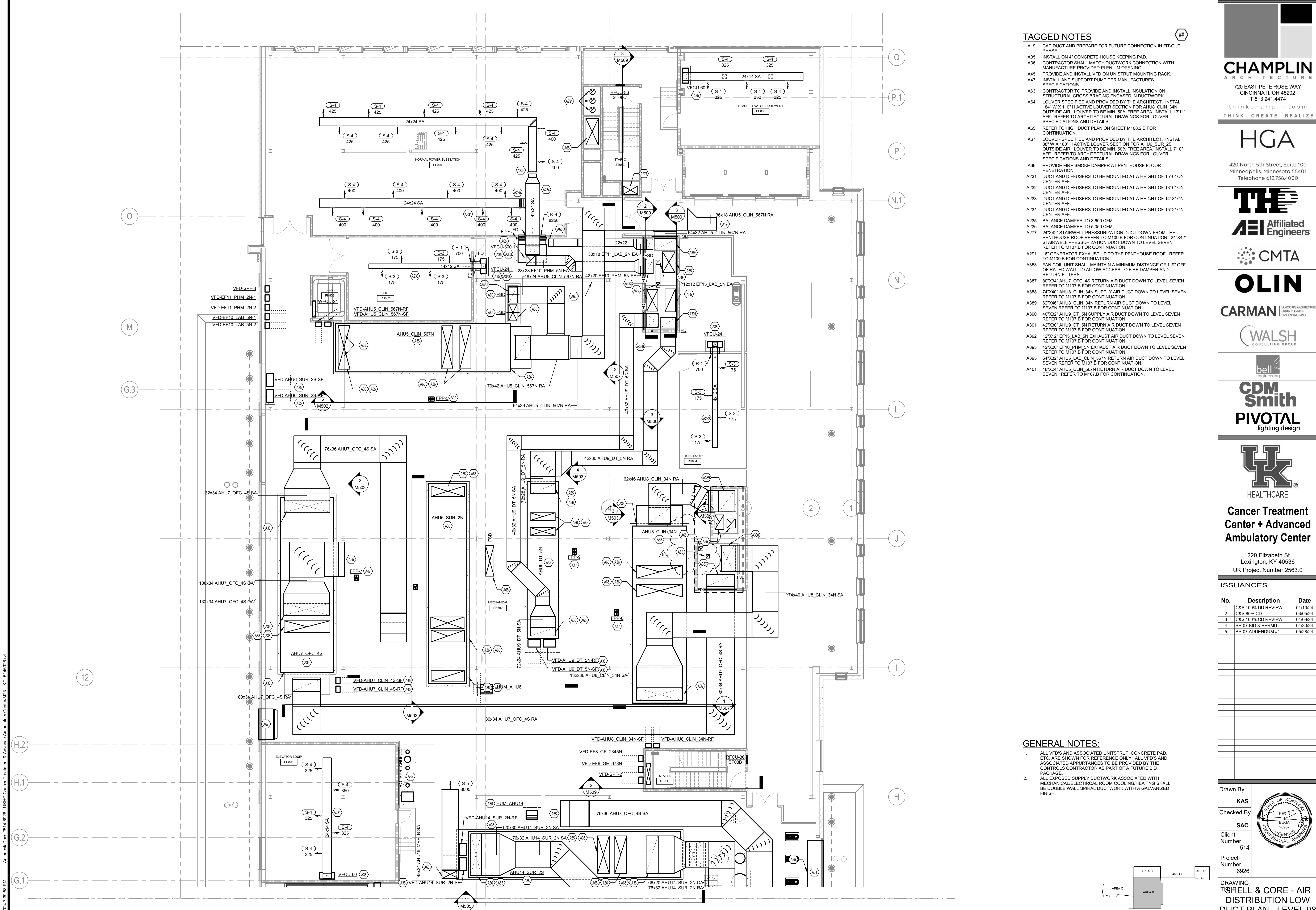
**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **KAS**  
Checked By **SAC**  
Client Number 514  
Project Number 6926

**DRAWING TITLE SHELL & CORE - AIR DISTRIBUTION LOW DUCT PLAN - LEVEL 08 - AREA A**

SHEET NO. **M108.1.A**



**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A35 INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- A36 CONTRACTOR SHALL MATCH DUCTWORK CONNECTION WITH MANUFACTURE PROVIDED FLEMING OPENING.
- A45 PROVIDE AND INSTALL VFD ON UNISTRUT MOUNTING RACK.
- A47 INSTALL AND SUPPORT PUMP PER MANUFACTURES SPECIFICATIONS.
- A63 CONTRACTOR TO PROVIDE AND INSTALL INSULATION ON STRUCTURAL CROSS BRACING ENCASED IN DUCTWORK.
- A64 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 18" W X 110" H ACTIVE LOUVER SECTION FOR AHU6, CLIN\_34N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 13"11" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A65 REFER TO HIGH DUCT PLAN ON SHEET M108.2.B FOR CONTINUATION.
- A67 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 88" W X 180" H ACTIVE LOUVER SECTION FOR AHU6, SUR\_2S OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 7"10" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A69 PROVIDE FIRE SMOKE DAMPER AT PENTHOUSE FLOOR PENETRATION.
- A231 DUCT AND DIFFUSERS TO BE MOUNTED AT A HEIGHT OF 15'-0" ON CENTER AFF.
- A232 DUCT AND DIFFUSERS TO BE MOUNTED AT A HEIGHT OF 13'-0" ON CENTER AFF.
- A233 DUCT AND DIFFUSERS TO BE MOUNTED AT A HEIGHT OF 14'-8" ON CENTER AFF.
- A234 DUCT AND DIFFUSERS TO BE MOUNTED AT A HEIGHT OF 15'-2" ON CENTER AFF.
- A235 BALANCE DAMPER TO 3,600 CFM.
- A236 BALANCE DAMPER TO 5,050 CFM.
- A277 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN FROM THE PENTHOUSE ROOF REFER TO M108.B FOR CONTINUATION. 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A291 16" GENERATOR EXHAUST UP TO THE PENTHOUSE ROOF. REFER TO M108.B FOR CONTINUATION.
- A353 FAN COIL UNIT SHALL MAINTAIN A MINIMUM DISTANCE OF 1'-0" OFF OF RATED WALL TO ALLOW ACCESS TO FIRE DAMPER AND RETURN FILTERS.
- A387 80"x34" AHU7\_OFC\_4S RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A388 74"x40" AHU8\_CLIN\_34N SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A389 62"x46" AHU8\_CLIN\_34N RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A390 40"x32" AHU9\_DT\_5N SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A391 42"x30" AHU9\_DT\_5N RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A392 12"x12" EF15\_LAB\_5N EXHAUST AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A393 42"x20" EF10\_PHM\_5N EXHAUST AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A395 84"x32" AHU5\_LAB\_567N RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A401 48"x24" AHU5\_CLIN\_567N RETURN AIR DUCT DOWN TO LEVEL SEVEN. REFER TO M107.B FOR CONTINUATION.

**GENERAL NOTES:**

1. ALL VFD'S AND ASSOCIATED UNITSTRUT, CONCRETE PAD, ETC. ARE SHOWN FOR REFERENCE ONLY. ALL VFD'S AND ASSOCIATED APPURTANCES TO BE PROVIDED BY THE CONTROLS CONTRACTOR AS PART OF A FUTURE BID PACKAGE.
2. ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
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lighting design

**UK**  
HEALTHCARE

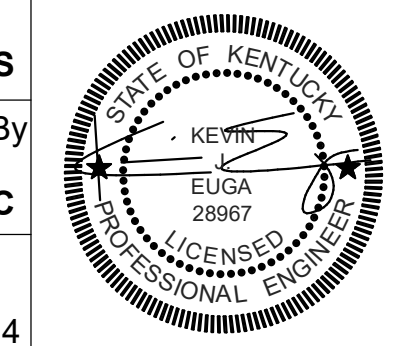
**Cancer Treatment**  
**Center + Advanced**  
**Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **KAS**  
Checked By **SAC**  
Client Number 514  
Project Number 6926



DRAWING TITLE **WELLS & CORE - AIR DISTRIBUTION LOW DUCT PLAN - LEVEL 08 - AREA B**  
SHEET NO. **M108.1.B**

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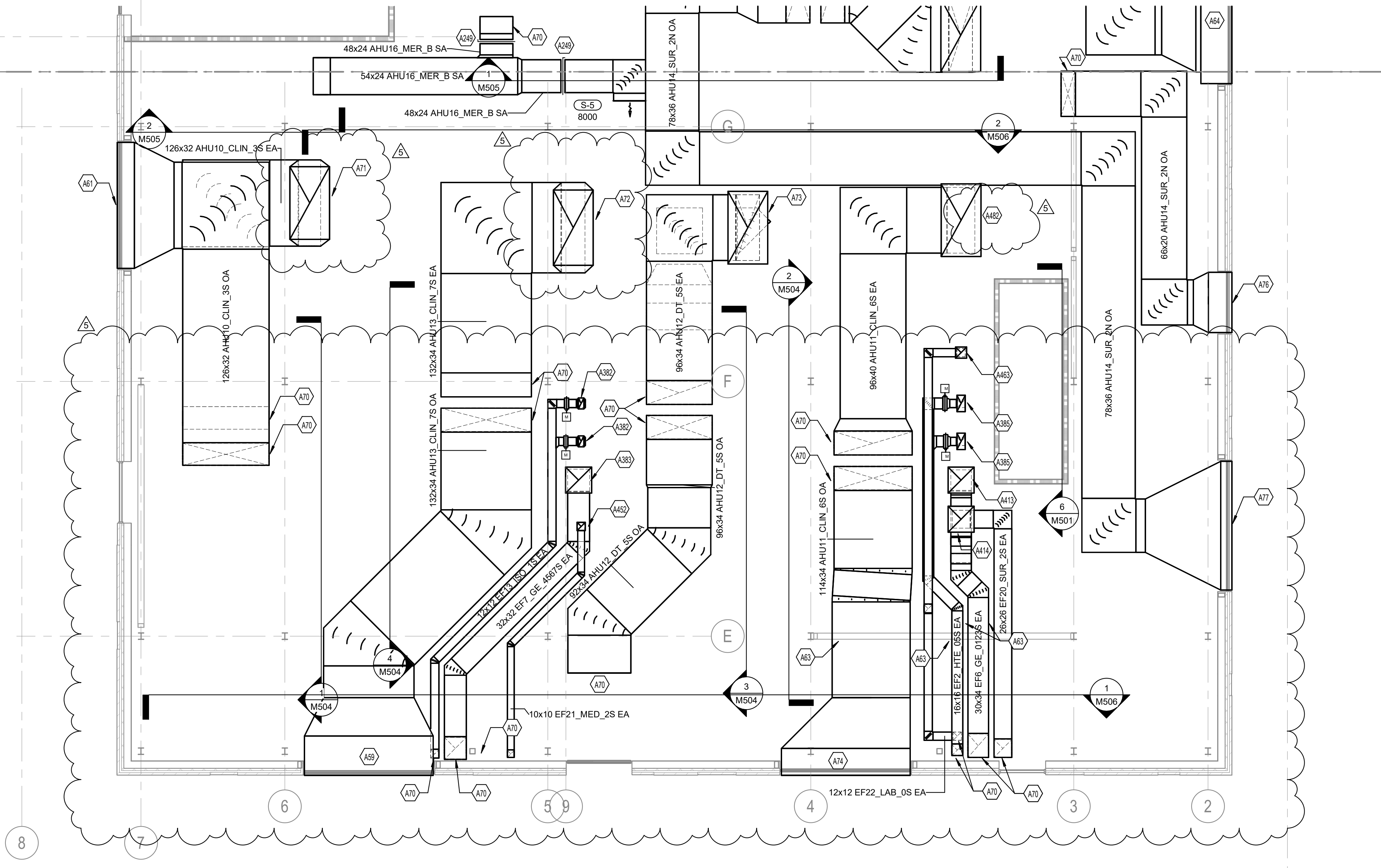
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**GENERAL NOTES:**

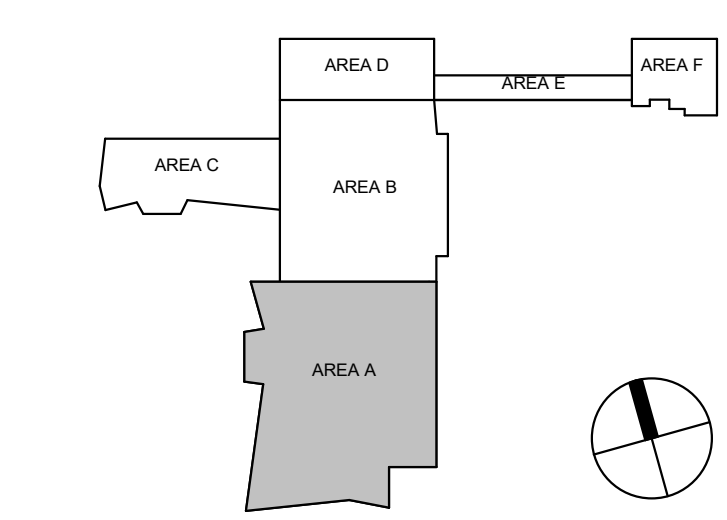
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- 2. ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES**

- A59 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 18" W X 100" H ACTIVE LOUVER SECTION FOR AHU13\_CLIN\_7S OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 14" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A61 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 18" W X 90" H ACTIVE LOUVER SECTION FOR AHU10\_CLIN\_3S OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 14" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A63 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 18" W X 110" H ACTIVE LOUVER SECTION FOR AHU8\_CLIN\_5AN OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 13" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A70 REFER TO LOW DUCT PLAN ON SHEET M108.1A FOR CONTINUATION.
- A71 106"X58" AHU10\_CLIN\_3S RELIEF AIR DUCT UP TO LP-10. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A72 110"X58" AHU13\_CLIN\_7S RELIEF AIR DUCT UP TO LP-13. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A73 106"X58" AHU12\_DT\_5S RELIEF AIR DUCT UP TO LP-12. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A74 PROVIDE AND INSTALL 18" W X 90" H ACTIVE LOUVER SECTION FOR AHU11\_CLIN\_6S OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 15" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A76 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 8" W X 80" H ACTIVE LOUVER SECTION FOR AHU14\_SUR\_2N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 17" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A77 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 18" W X 80" H ACTIVE LOUVER SECTION FOR AHU14\_SUR\_2N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 15" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A249 BALANCE DAMPER TO 8,000 CFM.
- A382 16"X8" EF13\_ISO\_15 EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.A FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A383 38"X38" EF7\_GE\_4567S EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.A FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A385 24"X12" EF2\_HTE\_05S EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.A FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A413 38"X38" EF6\_GE\_0123S EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.A FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A414 38"X38" EF20\_SUR\_2S EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.A FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A452 12"X12" EF21\_MED\_2S EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.A FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A463 18"X18" EF22\_LAB\_0S EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.A FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A482 106"X58" AHU11\_CLIN\_6S RELIEF AIR DUCT UP TO LP-11. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.



**SHELL & CORE - AIR DISTRIBUTION HIGH DUCT PLAN - LEVEL 08 - AREA A**  
 1 M108.2 1/8" = 1'-0"



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
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**bell**  
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**CDM Smith**

**PIVOTAL**  
 lighting design

**UK HEALTHCARE**  
**Cancer Treatment Center + Advanced Ambulatory Center**  
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 UK Project Number 2563.0

**ISSUANCES**

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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **KAS**

Checked By **SAC**

Client Number **514**

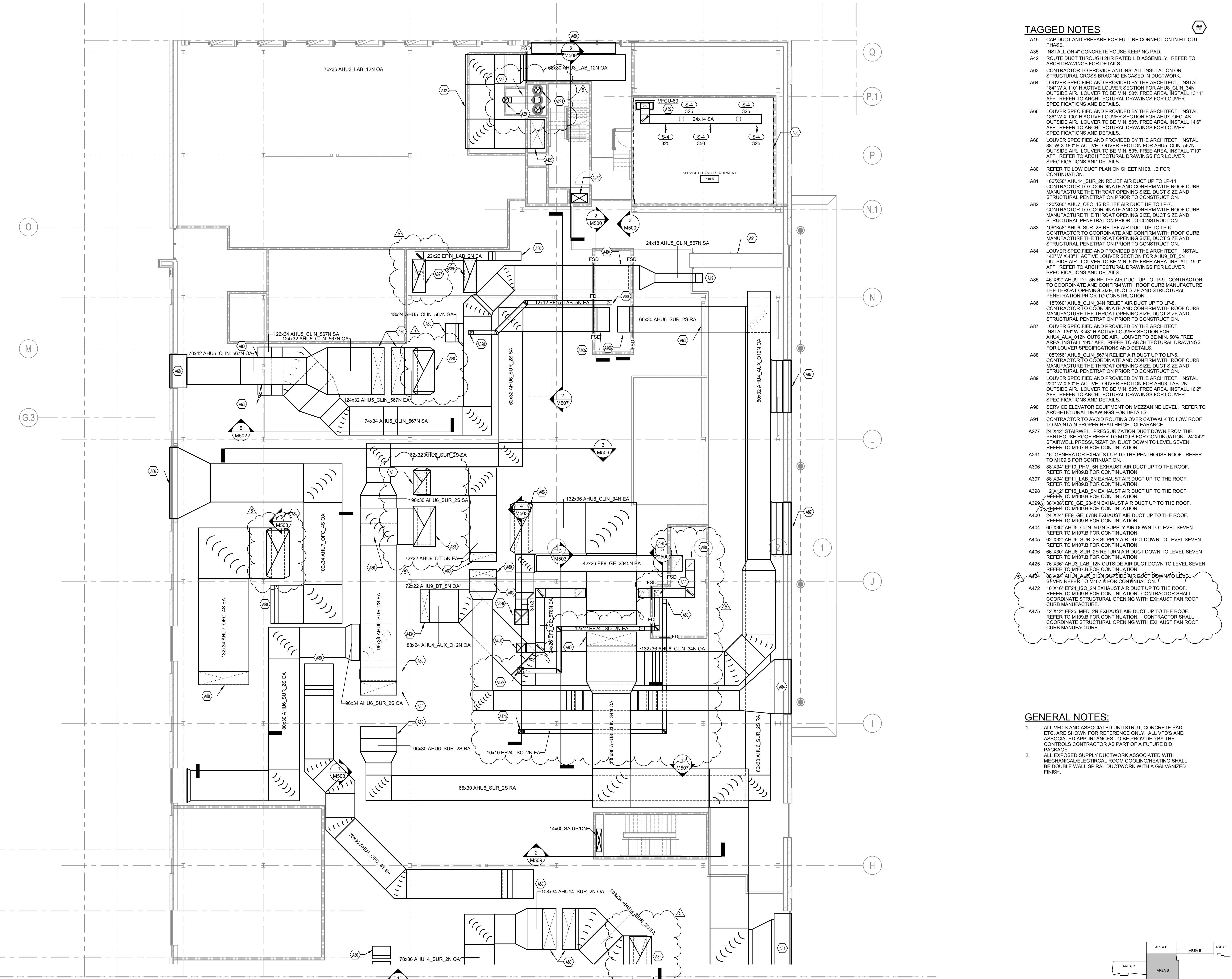
Project Number **6926**

DRAWING TITLE **SHELL & CORE - AIR DISTRIBUTION HIGH DUCT PLAN - LEVEL 08 - AREA A**

SHEET NO. **M108.2.A**

STATE OF KENTUCKY  
 KEVIN EUGA  
 28987  
 LICENSED PROFESSIONAL ENGINEER

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 Autodesk® AutoCAD® 2024  
 User: KAS  
 Project: 14-6203 - UMKC Clinical Treatment & Ambulatory Center M108.2.B  
 Drawing: SHELL & CORE - AIR DISTRIBUTION HIGH DUCT PLAN - LEVEL 08 - AREA B



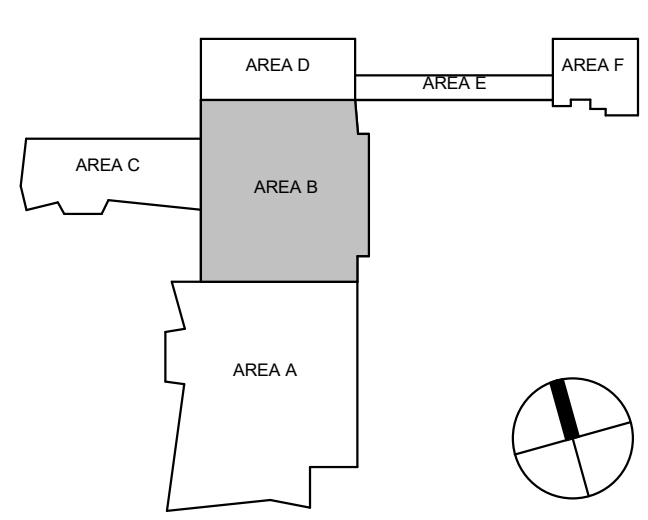
**SHELL & CORE - AIR DISTRIBUTION HIGH DUCT PLAN - LEVEL 08 - AREA B**  
 M108.2.B 1/8" = 1'-0"

**TAGGED NOTES**

- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A35 INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- A42 ROUTE DUCT THROUGH RATED LID ASSEMBLY. REFER TO ARCH DRAWINGS FOR DETAILS.
- A63 CONTRACTOR TO PROVIDE AND INSTALL INSULATION ON STRUCTURAL CROSS BRACE ENCASED IN DUCTWORK.
- A64 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 18" X 110" H ACTIVE LOUVER SECTION FOR AHU3\_CLIN\_34N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 1311" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A66 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 18" W X 107" H ACTIVE LOUVER SECTION FOR AHU7\_OFC\_4S OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 147" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A68 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 8" W X 187" H ACTIVE LOUVER SECTION FOR AHU5\_CLIN\_567N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 710" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A80 REFER TO LOW DUCT PLAN ON SHEET M108.1.B FOR CONTINUATION.
- A81 106"X58" AHU14\_SUR\_2N RELIEF AIR DUCT UP TO LP-14. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A82 120"X60" AHU7\_OFC\_4S RELIEF AIR DUCT UP TO LP-7. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A83 106"X58" AHU6\_SUR\_2S RELIEF AIR DUCT UP TO LP-6. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A84 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 142" W X 45" H ACTIVE LOUVER SECTION FOR AHU9\_DT\_5N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 197" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A85 48"X62" AHU9\_DT\_5N RELIEF AIR DUCT UP TO LP-9. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A86 118"X60" AHU8\_CLIN\_34N RELIEF AIR DUCT UP TO LP-8. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A87 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 136" W X 45" H ACTIVE LOUVER SECTION FOR AHU4\_AUX\_012N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 197" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A88 108"X56" AHU5\_CLIN\_567N RELIEF AIR DUCT UP TO LP-5. CONTRACTOR TO COORDINATE AND CONFIRM WITH ROOF CURB MANUFACTURE THE THROAT OPENING SIZE, DUCT SIZE AND STRUCTURAL PENETRATION PRIOR TO CONSTRUCTION.
- A89 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 220" W X 80" H ACTIVE LOUVER SECTION FOR AHU3\_LAB\_2N OUTSIDE AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 162" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A90 SERVICE ELEVATOR EQUIPMENT ON MEZZANINE LEVEL. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.
- A91 CONTRACTOR TO AVOID ROUTING OVER CATWALK TO LOW ROOF TO MAINTAIN PROPER HEAD HEIGHT CLEARANCE.
- A277 24"X42" STAIRWELL PRESSURIZATION DUCT DOWN FROM THE PENTHOUSE ROOF REFER TO M109.B FOR CONTINUATION. 24"X42" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A291 18" GENERATOR EXHAUST UP TO THE PENTHOUSE ROOF. REFER TO M109.B FOR CONTINUATION.
- A396 88"X34" EF10\_PHN\_5N EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.B FOR CONTINUATION.
- A397 88"X34" EF11\_LAB\_2N EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.B FOR CONTINUATION.
- A398 12"X42" EF15\_LAB\_5N EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.B FOR CONTINUATION.
- A399 38"X39" EF8\_GE\_2345N EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.B FOR CONTINUATION.
- A400 24"X24" EF9\_GE\_678N EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.B FOR CONTINUATION.
- A404 60"X36" AHU5\_CLIN\_567N SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A405 62"X32" AHU6\_SUR\_2S SUPPLY AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A406 60"X30" AHU6\_SUR\_2S RETURN AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A425 76"X36" AHU3\_LAB\_12N OUTSIDE AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A434 88"X34" AHU4\_AUX\_012N EXHAUST AIR DUCT DOWN TO LEVEL SEVEN REFER TO M107.B FOR CONTINUATION.
- A472 16"X16" EF24\_ISO\_2N EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.B FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.
- A475 12"X12" EF25\_MED\_2N EXHAUST AIR DUCT UP TO THE ROOF. REFER TO M109.B FOR CONTINUATION. CONTRACTOR SHALL COORDINATE STRUCTURAL OPENING WITH EXHAUST FAN ROOF CURB MANUFACTURE.

**GENERAL NOTES:**

1. ALL VFD'S AND ASSOCIATED INSTRUIT, CONCRETE PAD, ETC. ARE SHOWN FOR REFERENCE ONLY. ALL VFD'S AND ASSOCIATED APPURTANCES TO BE PROVIDED BY THE CONTRACTOR AS PART OF A FUTURE BID PACKAGE.
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 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

420 North 5th Street, Suite 100  
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 lighting design

UK  
 HEALTHCARE

**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By: **KAS**  
 Checked By: **SAC**  
 Client Number: **514**  
 Project Number: **6926**

DRAWING TITLE: **SHELL & CORE - AIR DISTRIBUTION HIGH DUCT PLAN - LEVEL 08 - AREA B**  
 SHEET NO.: **M108.2.B**

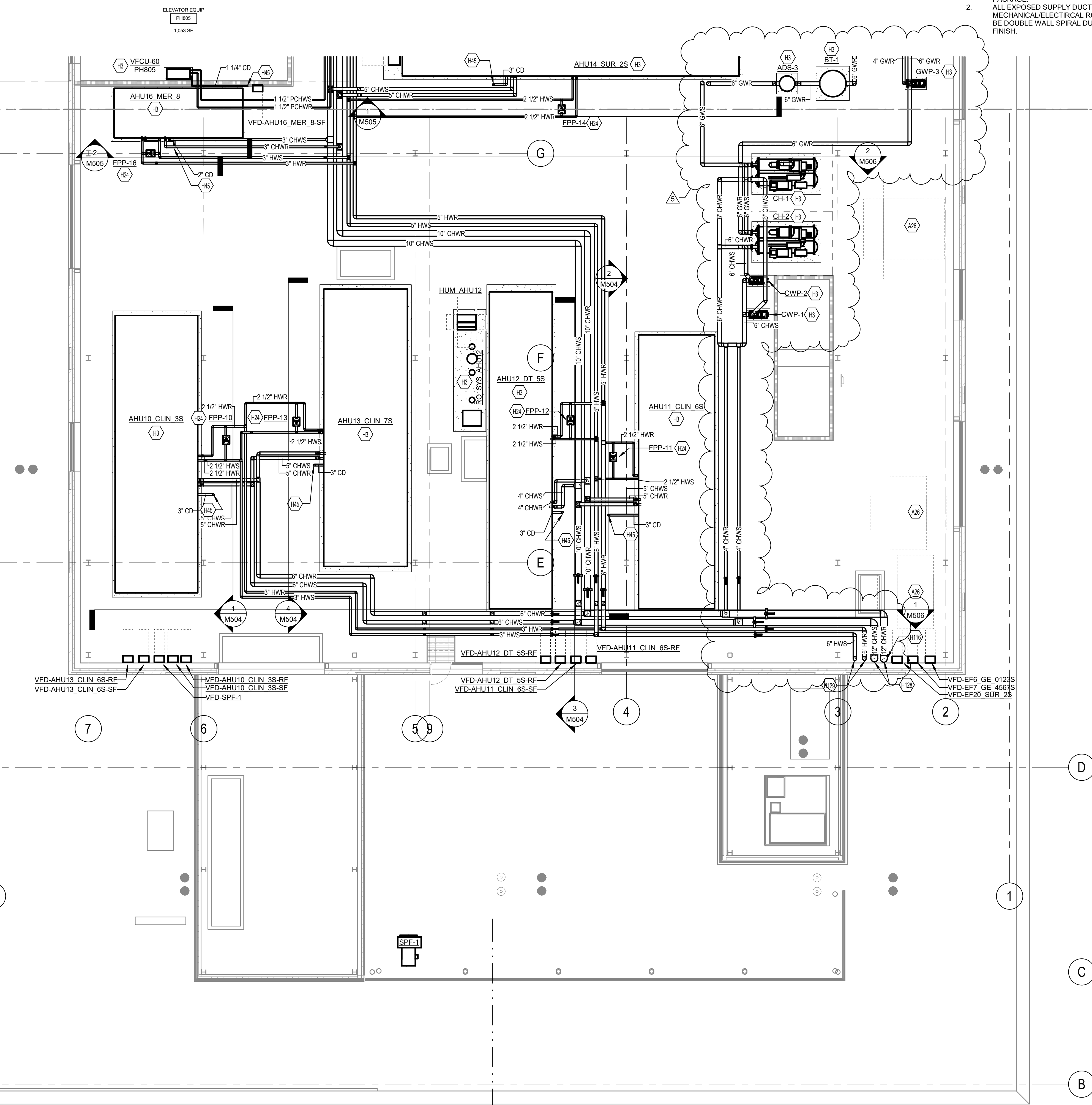
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**GENERAL NOTES:**

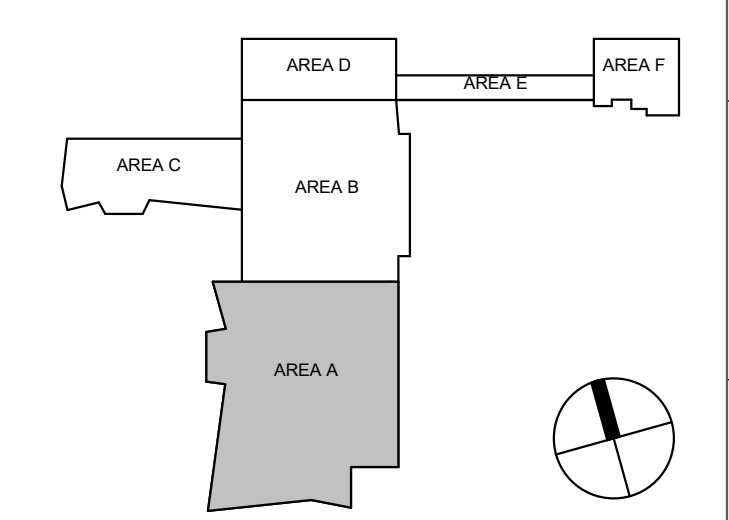
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- ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES**

- A26 PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS.
- H3
- H24 INSTALL AND SUPPORT PUMP PER MANUFACTURERS SPECIFICATIONS.
- H45 CONDENSATE PIPE DOWN TO THE 7TH FLOOR REFER TO SHEET M107 A FOR CONTINUATION.
- H116 PROVIDE AND INSTALL CHILLED WATER BYPASS IN THE VERTICAL SECTION OF PIPE.
- H128 12" CHWS/R UP FROM LEVEL SEVEN REFER TO M107 A FOR CONTINUATION.
- H129 6" HWS/R UP FROM LEVEL SEVEN REFER TO M107 A FOR CONTINUATION.



1 SHELL & CORE - HYDRONIC PLANS - LEVEL 08 - AREA A  
M108.3.A 1/8" = 1'-0"



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

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Drawn By **KAS**  
 Checked By **SAC**  
 Client Number **514**  
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Professional Engineer Seal for State of Kentucky, License No. 29897.

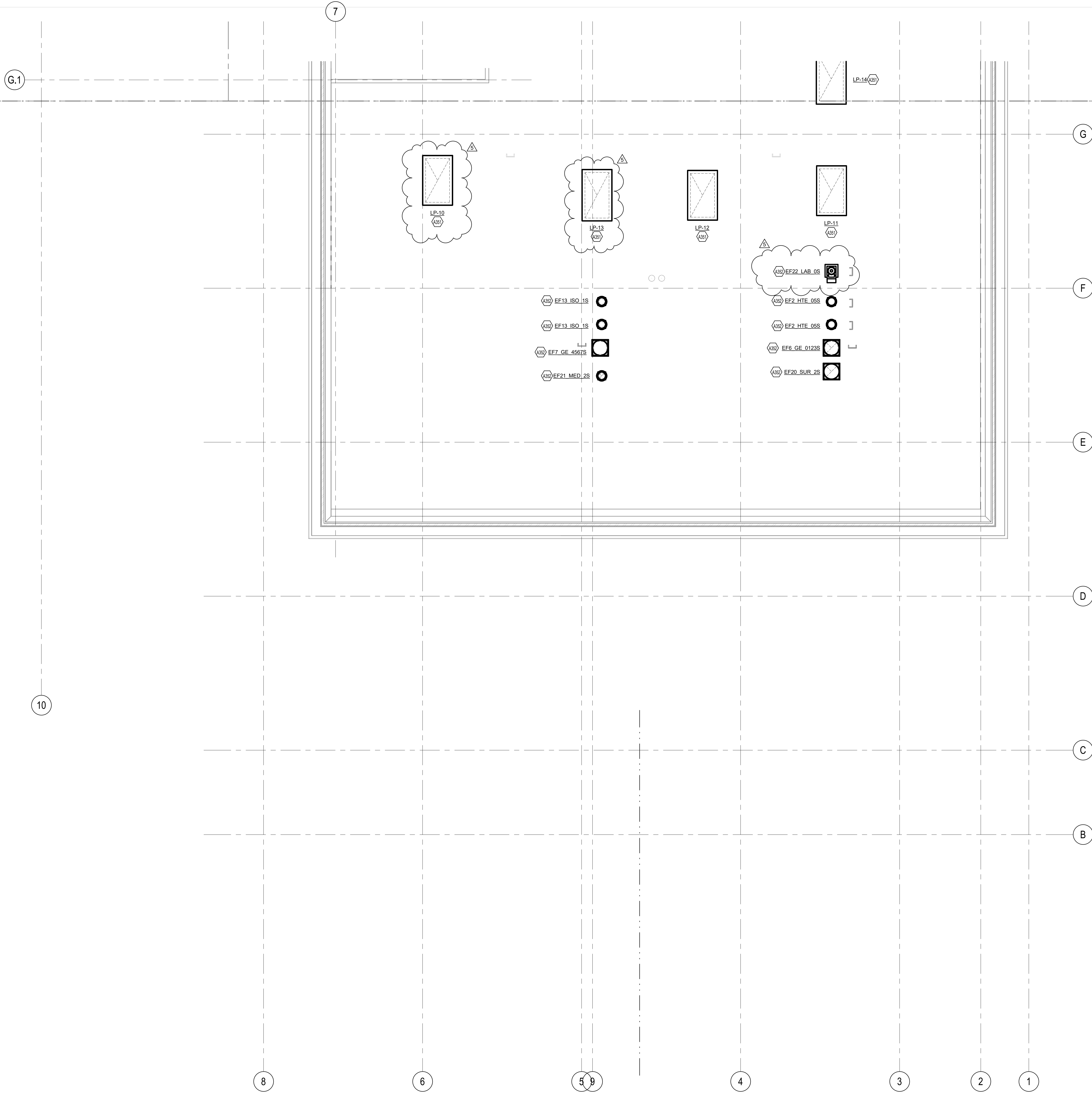
DRAWING TITLE  
**SHELL & CORE - HYDRONIC PLAN - LEVEL 08 - AREA A**

SHEET NO.  
**M108.3.A**





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**TAGGED NOTES**  
A351 INSTALL ON 24" ROOF CURB.  
A352 INSTALL ON 18" ROOF CURB.

#

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP** Affiliated Engineers

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**WALSH**  
CONSULTING GROUP

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**CDM Smith**

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Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

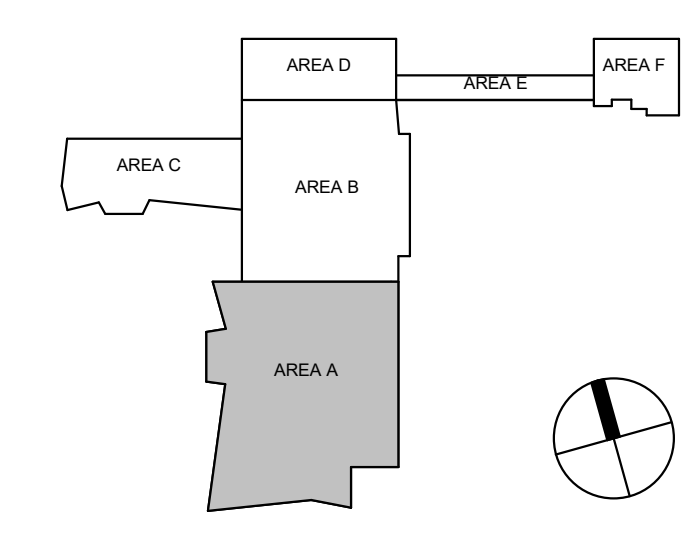
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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By <b>KAS</b>
Checked By <b>SAC</b>
Client Number 514
Project Number 6926

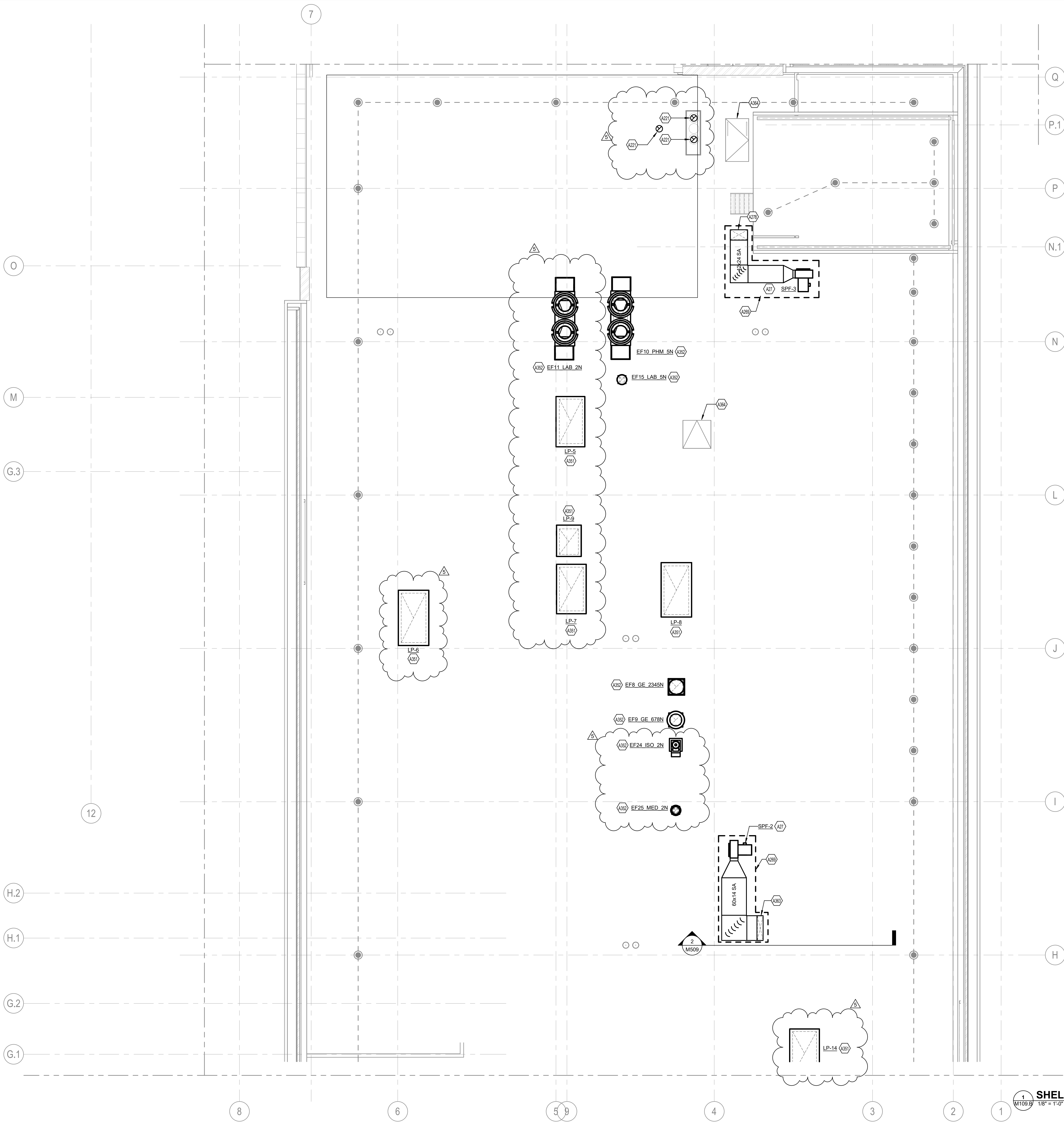
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SHELL & CORE - MECHANICAL PLAN - ROOF - AREA A

**SHEET NO.**  
M109.A

1 M109.A SHELL & CORE - MECHANICAL PLAN - ROOF - AREA A 1/8" = 1'-0"



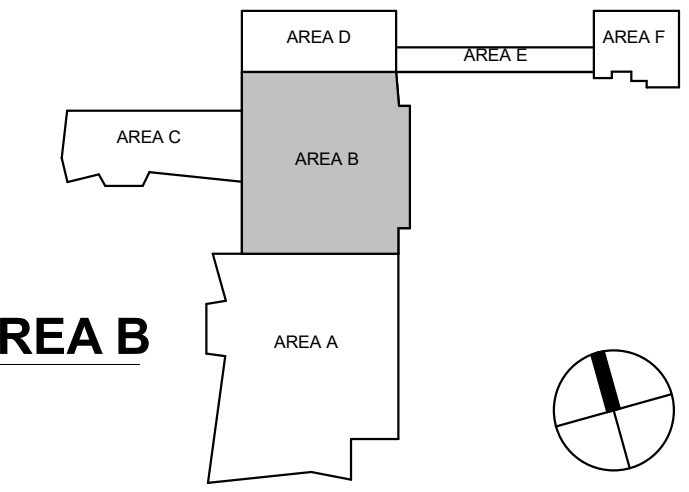
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**TAGGED NOTES**

- A27 PROVIDE AND INSTALL ON EQUIPMENT RAILS FOR MOUNTING. THYBAR TEMA-3 OR EQUAL EQUIVALENT.
- A221 ROUTE 16" GENERATOR EXHAUST UP IN CHASE TO ROOF. TERMINATE WITH RAIN CAP APPROVED BY GENERATOR MANUFACTURER. REFER TO "GENERATOR EXHAUST VENT DETAIL" ON SHEET M405. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING EXPANSION BELLOWS AS NECESSARY TO ACCOMMODATE THE VERTICAL EXPANSION OF THE DUCT ROUTED THROUGH THE SHAFT. EXPANSION BELLOWS TO BE METRAFLEX EX10 OR EQUAL EQUIVALENT. INSTALL AND ANCHOR EXHAUST PER MANUFACTURER'S RECOMMENDATIONS.
- A269 ALL DUCTWORK WITHIN THE OUTLINED AREA SHALL BE CONSIDERED EXPOSED OUTDOOR DUCTWORK. CONTRACTOR SHALL REFER TO THE MECHANICAL SPECIFICATIONS FOR EXPOSED OUTDOOR DUCTWORK SPECIAL REQUIREMENTS.
- A278 24"x42" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL EIGHT REFER TO M109.1.B FOR CONTINUATION. PROVIDE AND INSTALL 18" WATER TIGHT ROOF CURB FOR STAIRWELL PRESSURIZATION DUCTWORK.
- A351 INSTALL ON 2" ROOF CURB.
- A352 INSTALL ON 2" ROOF CURB.
- A363 14"x60" STAIRWELL PRESSURIZATION DUCT DOWN TO LEVEL EIGHT REFER TO M109.1.B FOR CONTINUATION. PROVIDE AND INSTALL 18" WATER TIGHT ROOF CURB FOR STAIRWELL PRESSURIZATION DUCTWORK.
- A366 ROOF ACCESS HATCH CONTRACTOR TO MAINTAIN CLEARANCE. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFICATIONS.

**SHELL & CORE - MECHANICAL PLAN - ROOF - AREA B**  
1/8" = 1'-0"



**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
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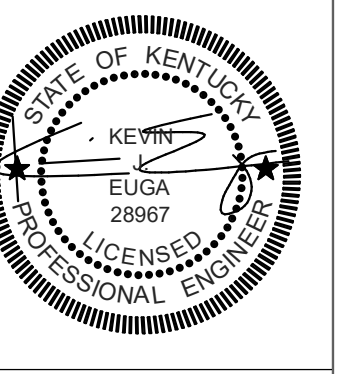
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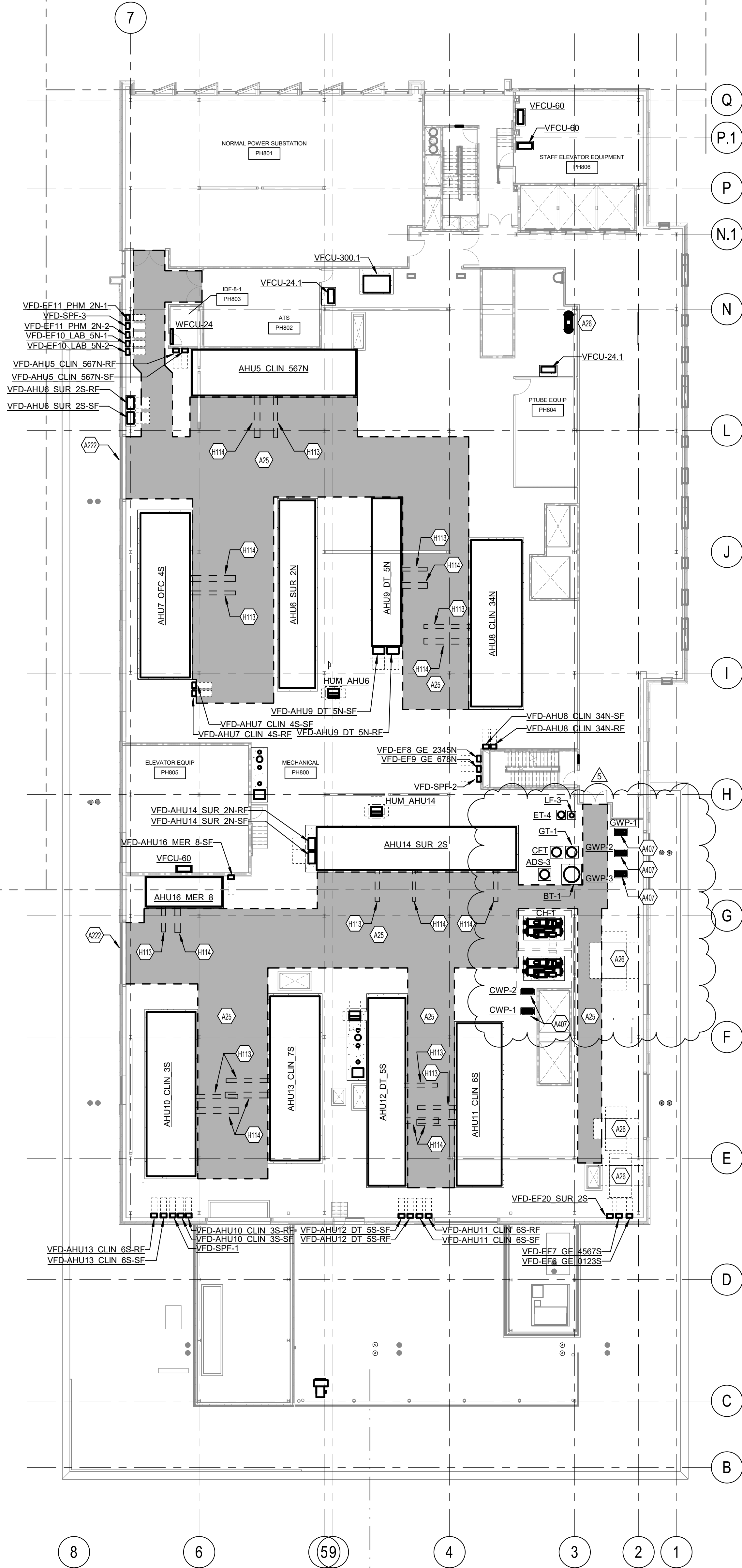


DRAWING TITLE  
**SHELL & CORE - MECHANICAL PLAN - ROOF - AREA B**

SHEET NO.  
**M109.B**

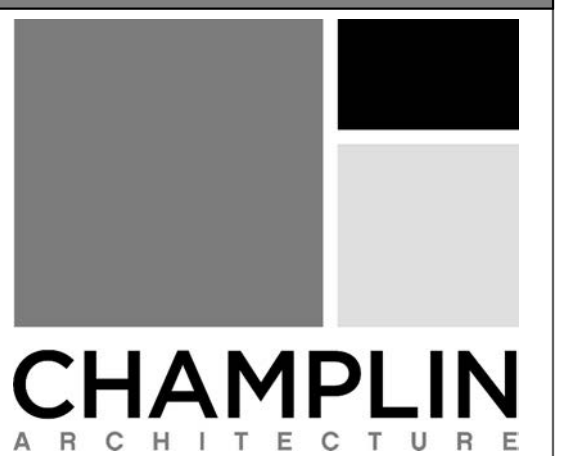
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**TAGGED NOTES**

- A25 SHADED AREA TO BE KEPT CLEAR FOR MECHANICAL EQUIPMENT ACCESS AND REPLACEMENT. CONTRACTOR SHALL MARK AND TAPE MECHANICAL ROOM FLOOR OUTLINING THE SHADED REGION SHOWN TO INDICATE FLOOR SPACE TO REMAIN CLEAR OF OBSTRUCTIONS. CONTRACTOR SHALL MARK FLOOR USING "DURALABEL, PATHFINDER RIGID FLOOR MARKING TAPE" OR EQUAL EQUIVALENT.
- A26 PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS. PROVIDE AND INSTALL 18" W X 156" H REMOVABLE LOUVER SECTION FOR AHU INSTALLATION AND REPLACEMENT. INSTALL BELOW ACTIVE LOUVER SECTION REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A407 PROVIDE PUMP WITH PUMP ELECTRICAL CONNECTION ON THIS SIDE AS INDICATED.
- H113 HOT WATER COIL PULL CLEARANCE. CLEARANCE AREA TO REMAIN OPEN AND UNOBSTRUCTED.
- H114 CHILLED WATER COIL PULL CLEARANCE. CLEARANCE AREA TO REMAIN OPEN AND UNOBSTRUCTED.



720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
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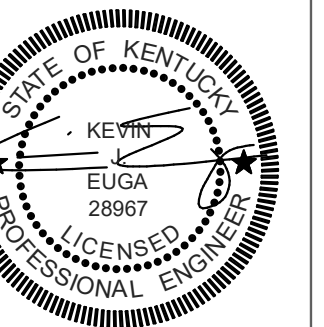
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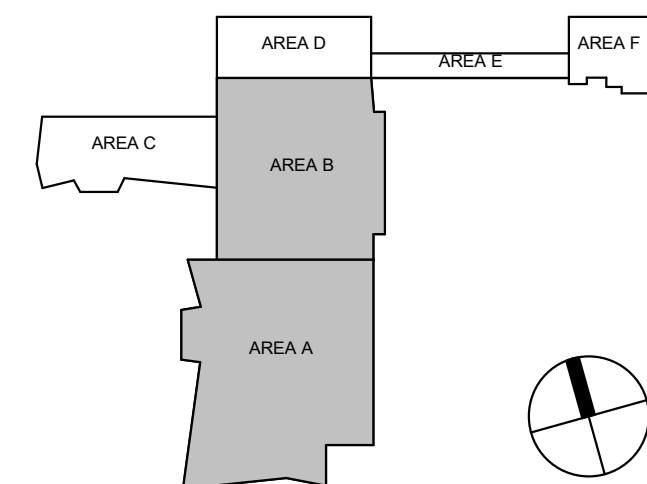


DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL ACCESS  
PLAN - LEVEL 08**

SHEET NO.  
**M201**

**LEVEL 08 - PENTHOUSE MECHANICAL ACCESS PLAN**

1/16" = 1'-0"



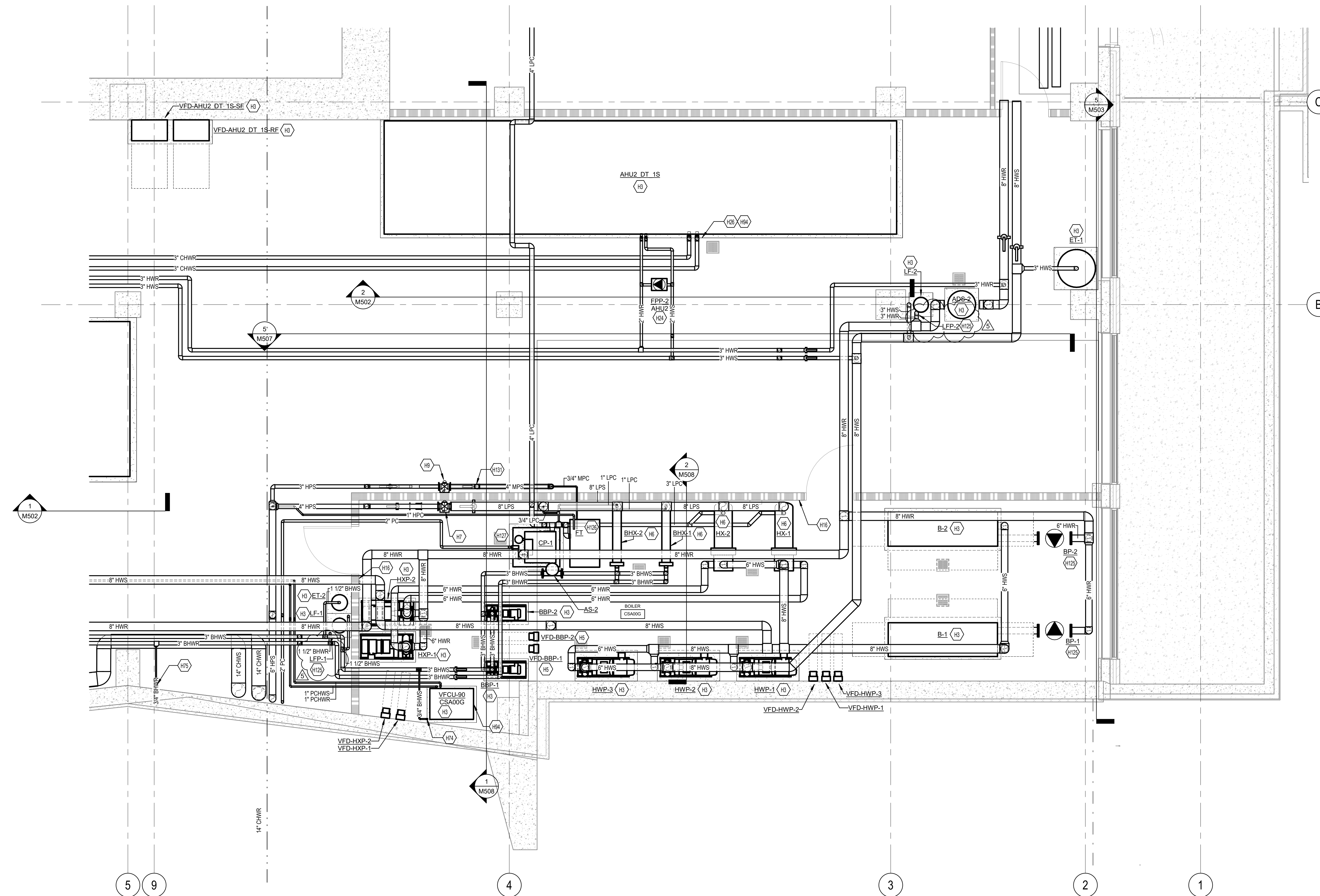
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**GENERAL NOTES:**

- ALL VFD'S AND ASSOCIATED UNITSTRUT, CONCRETE PAD, ETC. ARE SHOWN FOR REFERENCE ONLY. ALL VFD'S AND ASSOCIATED APPURTANCES TO BE PROVIDED BY THE CONTRACTOR AS PART OF A FUTURE BID PACKAGE.
- ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES**

- H3 PROVIDE AND INSTALL VFD ON UNISTRUT MOUNTING RACK.
- H5 PROVIDE AND INSTALL ON 4" HIGH STEEL FRAME. REFER TO "HEAT EXCHANGER SUPPORT DETAIL" ON SHEET M405.
- H7 HIGH PRESSURE TO LOW PRESSURE STEAM PRESSURE REDUCING STATION. CONTRACTOR SHALL MOUNT AND RACK TO BOILER ROOM WALL. REFER TO "LOW PRESSURE STEAM REDUCING SCHEMATIC" ON SHEET M802.
- H9 HIGH PRESSURE TO MEDIUM PRESSURE STEAM PRESSURE REDUCING STATION. CONTRACTOR SHALL MOUNT AND RACK TO BOILER ROOM WALL. REFER TO "MEDIUM PRESSURE STEAM REDUCING SCHEMATIC" ON SHEET M802.
- H16 BOILER EMERGENCY KILL BUTTON. BUTTON SHALL BE RED MUSHROOM BUTTON. LABEL WITH RED LAMACOID PLATE.
- H24 INSTALL AND SUPPORT PUMP PER MANUFACTURES SPECIFICATIONS.
- H26 REFER TO SHEET M803 "CHILLED WATER COIL PIPING SCHEMATIC" TO SHEET M101.A FOR CONTINUATION.
- H74 3/4" BASEBOARD HEATER SUPPLY UP TO THE FIRST FLOOR, REFER TO SHEET M101.A FOR CONTINUATION.
- H75 3/4" BASEBOARD HEATER RETURN UP TO THE FIRST FLOOR, REFER TO SHEET M101.A FOR CONTINUATION.
- H94 PIPE AND SPILL CONDENSATE TO NEAREST FLOOR DRAIN. REFER TO PLUMBING PLANS FOR FLOOR DRAIN LOCATIONS.
- H125 PROVIDE AND INSTALL WITH MANUFACTURE APPROVED FLOOR MOUNTED SUPPORTS.
- H126 SUPPORT WITH STEEL FRAME OFF FLOOR.
- H127 PROVIDE AND INSTALL ON 4" THICK CONCRETE HOUSEKEEPING PAD. CONDENSATE PUMP SHALL BE INSTALLED WITH ELEVATED LEGS PER MANUFACTURES REQUIREMENTS.
- H131 4" MEDIUM PRESSURE STEAM UP TO LEVEL ONE REFER TO M101.A FOR CONTINUATION.



**SHELL & CORE - MECHANICAL ENLARGED PLAN - CSA00F  
MECH/PLUMBING - EAST**

M302 1/4" = 1'-0"

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
AEI Affiliated  
Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
LANDSCAPING  
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1220 Elizabeth St.  
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UK Project Number 2563.0

**ISSUANCES**

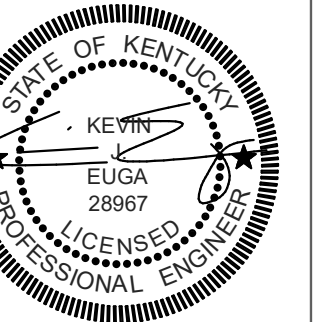
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5	BP-07 ADDENDUM #1	05/28/24

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**SAC**

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514

Project Number  
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DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL  
ENLARGED PLANS**

SHEET NO.  
**M302**

**GENERAL NOTES:**

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- ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES**

- PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS.
- INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- CONTRACTOR SHALL MATCH DUCTWORK CONNECTION WITH MANUFACTURE PROVIDED PLENUM OPENING.
- PROVIDE AND INSTALL VFD ON UNISTRUT MOUNTING RACK. REFER TO HIGH DUCT PLAN ON SHEET M305 FOR CONTINUATION.
- INSTALL AND SUPPORT PUMP PER MANUFACTURES SPECIFICATIONS.

#

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
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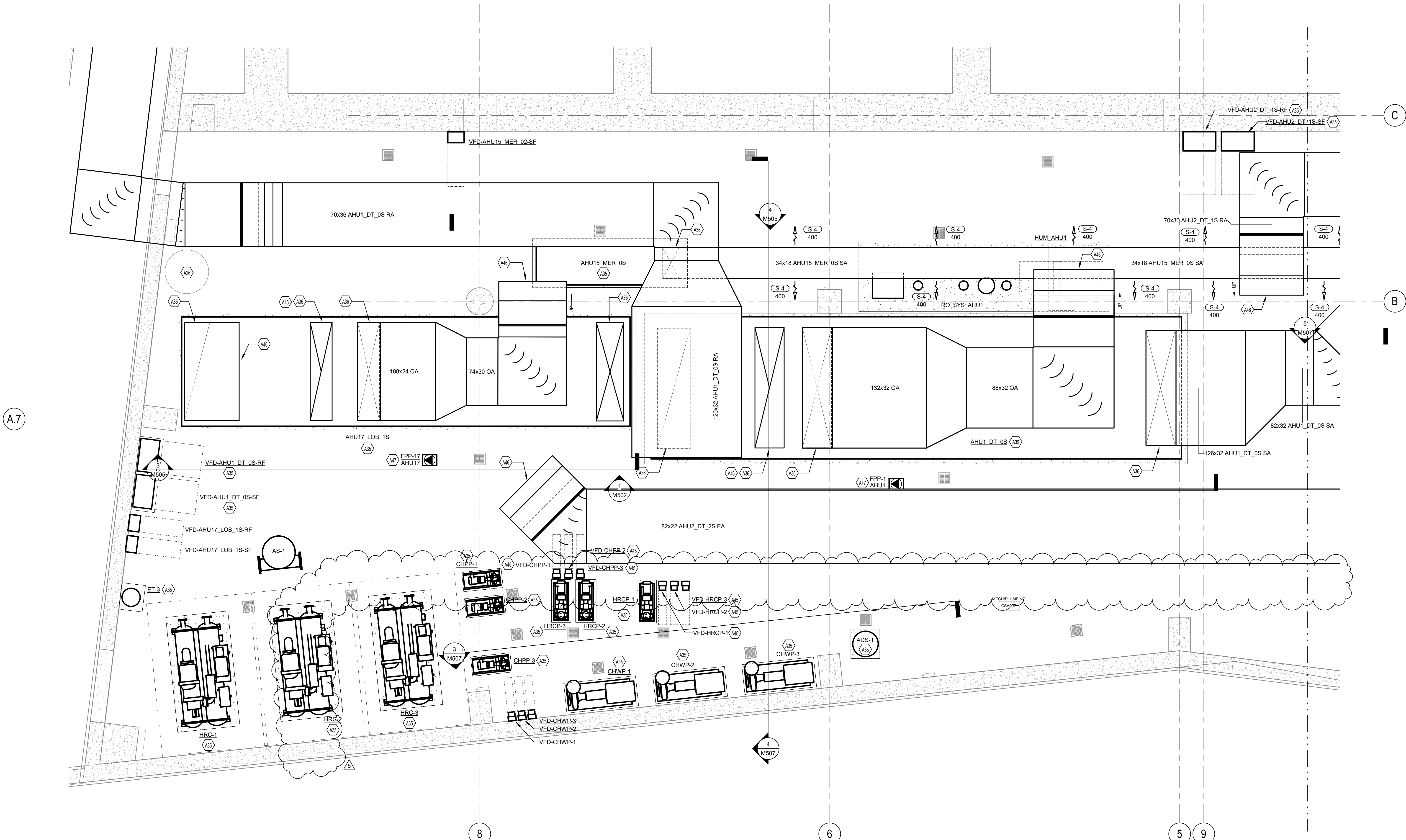
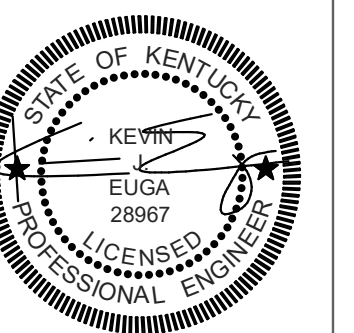
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DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL  
ENLARGED PLANS**

SHEET NO.  
**M303**



**SHELL & CORE - AIR DISTRIBUTION LOW DUCT ENLARGED PLAN -  
CSA00F MECH/PLUMBING - WEST**

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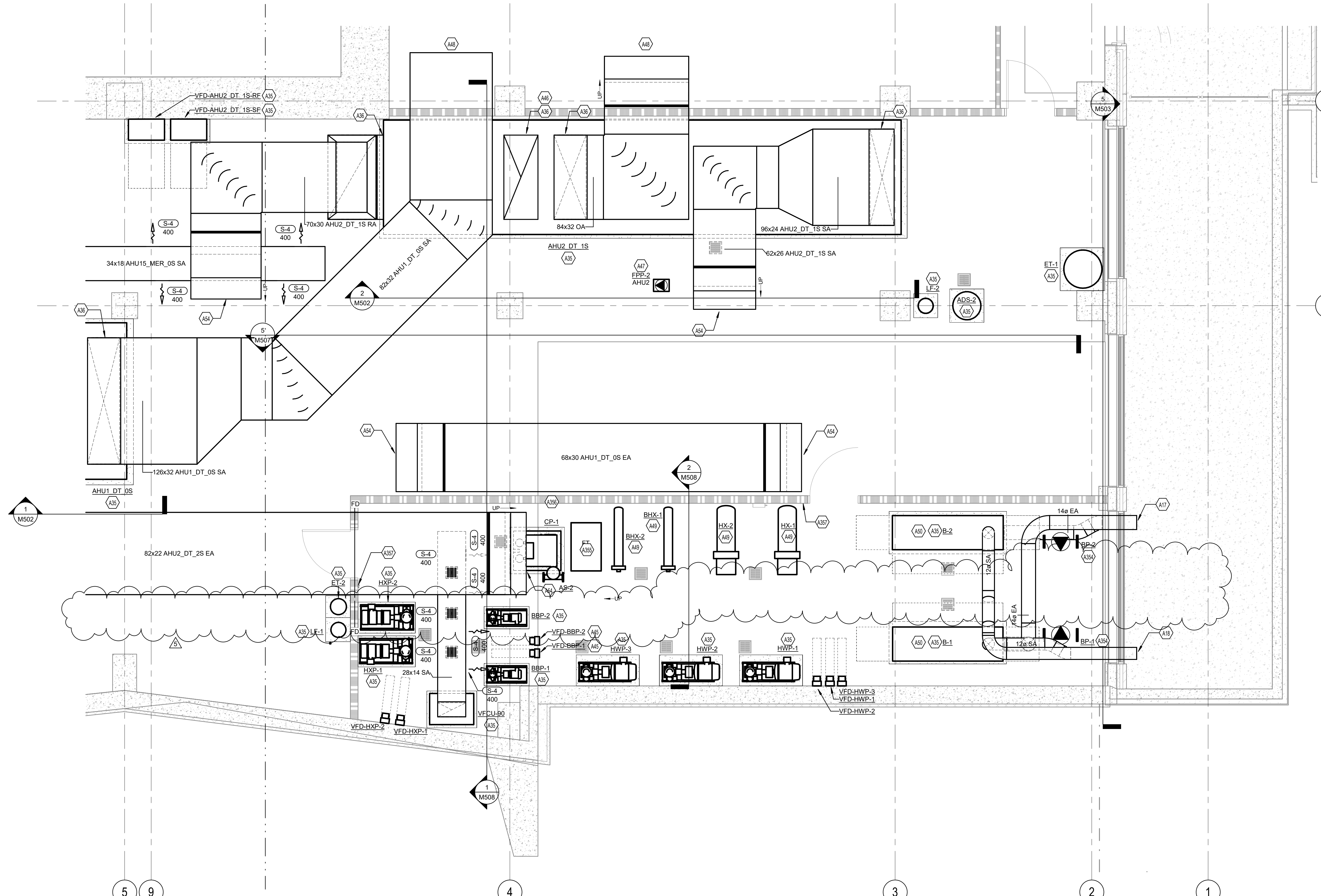
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2. ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES**

- A17 14" BOILER FLUE GAS EXHAUST OUTLET. CONTRACTOR SHALL INSTALL PER MANUFACTURERS REQUIREMENTS AS HIGH AS POSSIBLE.
- A18 12" BOILER COMBUSTION AIR INLET. CONTRACTOR SHALL INSTALL PER MANUFACTURERS REQUIREMENTS. MAINTAIN MINIMUM 4' VERTICAL CLEARANCE FROM BOILER FLUE GAS EXHAUST AND 10' HORIZONTAL CLEARANCE FROM BOILER FLUE GAS EXHAUST.
- A35 INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- A36 CONTRACTOR SHALL MATCH DUCTWORK CONNECTION WITH MANUFACTURE PROVIDED PLENUM OPENING.
- A45 PROVIDE AND INSTALL VFD ON UNISTRUT MOUNTING RACK.
- A46 REFER TO HIGH DUCT PLAN ON SHEET M305 FOR CONTINUATION.
- A47 INSTALL AND SUPPORT PUMP PER MANUFACTURES SPECIFICATIONS.
- A48 REFER TO SHEET M100.A FOR CONTINUATION.
- A49 PROVIDE AND INSTALL ON 4" HIGH STEEL FRAME. REFER TO HEAT EXCHANGER SUPPORT DETAIL ON SHEET M405.
- A50 CONTRACTOR TO INSTALL, SIZE AND ROUTE BOILER EXHAUST VENT AND COMBUSTION AIR INLET PER MANUFACTURE REQUIREMENTS.
- A54 REFER TO HIGH DUCT PLAN ON SHEET M306 FOR CONTINUATION.
- A354 PROVIDE AND INSTALL WITH MANUFACTURE APPROVED FLOOR MOUNTED SUPPORTS.
- A355 SUPPORT WITH STEEL FRAME OFF FLOOR.
- A356 PROVIDE AND INSTALL ON 4" THICK CONCRETE HOUSEKEEPING PAD. CONDENSATE PUMP SHALL BE INSTALLED WITH ELEVATED LEGS PER MANUFACTURES REQUIREMENTS.
- A357 BOILER EMERGENCY KILL BUTTON. BUTTON SHALL BE RED MUSHROOM BUTTON. LABEL WITH RED LAMACOID PLATE.



**SHELL & CORE - AIR DISTRIBUTION LOW DUCT ENLARGED PLAN - CSA00F MECH/PLUMBING - EAST**

1/4" = 1'-0"



**CHAMPLIN**  
ARCHITECTURE

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE



**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000



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Client Number	514
Project Number	6926

**DRAWING TITLE**

SHELL & CORE - MECHANICAL ENLARGED PLANS

**SHEET NO.**

**M304**

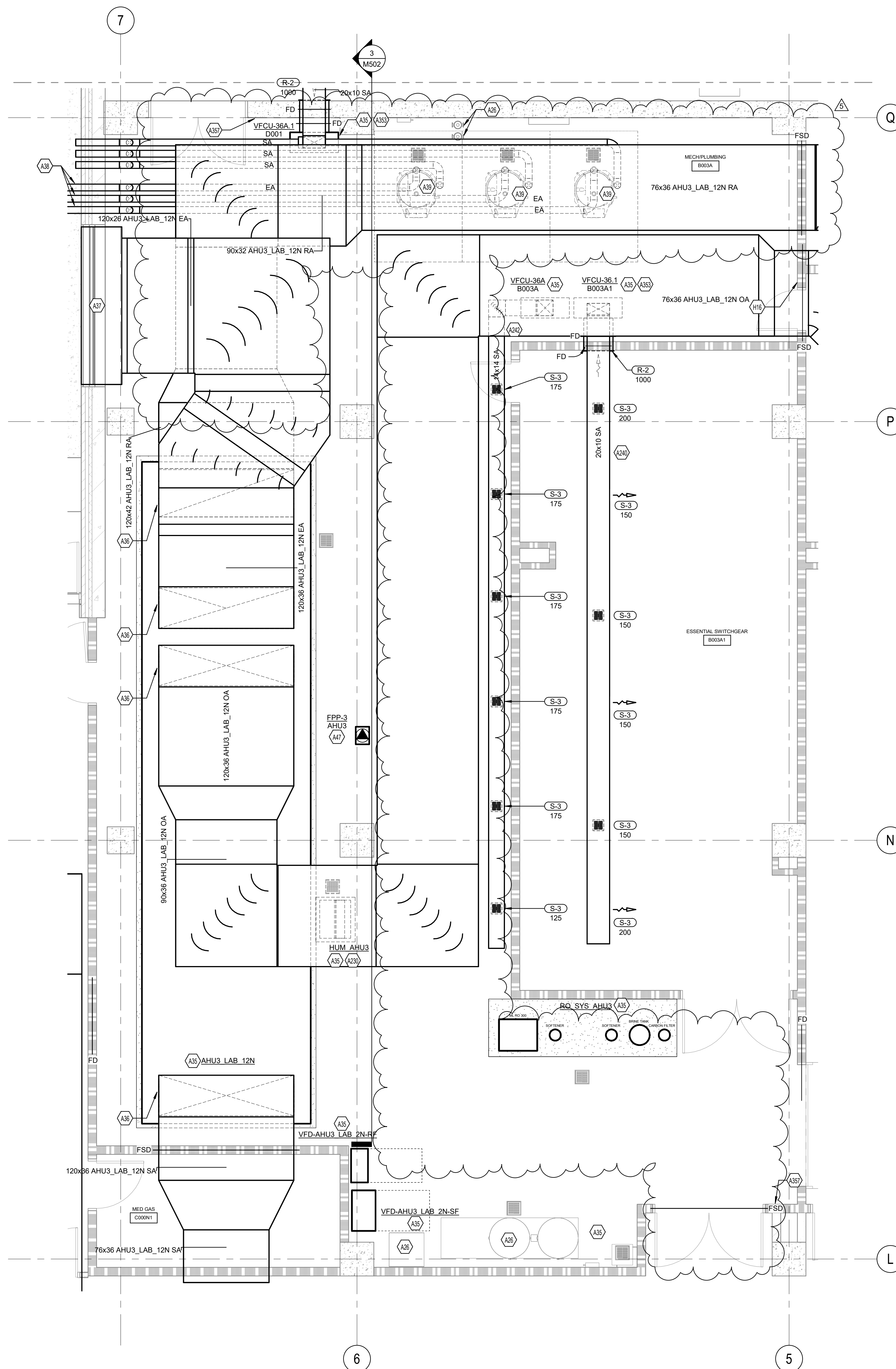
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EUGENE  
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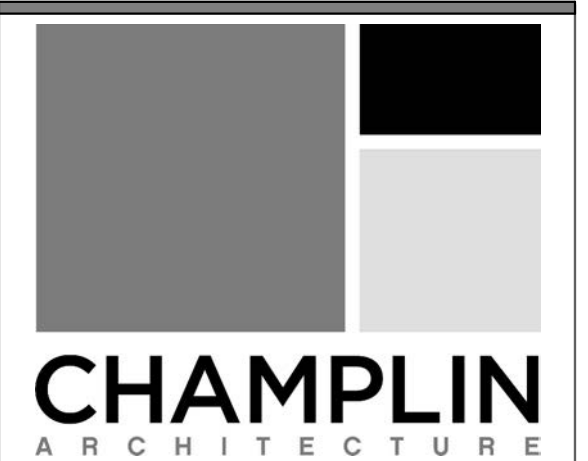
**TAGGED NOTES**

- A35 PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS.
- A36 INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- A36 CONTRACTOR SHALL MATCH DUCTWORK CONNECTION WITH MANUFACTURE PROVIDED PLENIUM OPENING.
- A37 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 140" W X 100" H ACTIVE LOUVER SECTION FOR AHU3 LAB 2N RELIEF AIR. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A38 ROUTE DOMESTIC WATER HEATER EXHAUST VENT ABOVE OVERHANG CEILING.
- A39 CONTRACTOR TO INSTALL, SIZE AND ROUTE DOMESTIC WATER HEATER EXHAUST VENT AND COMBUSTION AIR INLET PER MANUFACTURE REQUIREMENTS. REFER TO PLUMBING DRAWINGS FOR WATER HEATER SPECIFICATIONS AND DETAILS.
- A47 INSTALL AND SUPPORT PUMP PER MANUFACTURES SPECIFICATIONS.
- A230 REVERSE OSMOSIS (RO) WATER SYSTEM IS OWNER PURCHASED AND CONTRACTOR INSTALLED. PROVIDE ALL NECESSARY PIPING AND VALVES AS REQUIRED BY MANUFACTURER.
- A240 PROVIDE DUCT TRANSITION BETWEEN SOUND ATTENUATOR AND RADIATOR DISCHARGE OF GENERATOR.
- A242 DUCT TO BE MOUNTED AT A HEIGHT OF 12'-11" ON CENTER AFF. DIFFUSERS TO BE MOUNTED ON BOTTOM OF DUCT.
- A353 FAN COIL UNIT SHALL MAINTAIN A MINIMUM DISTANCE OF 1'-9" OFF OF RATED WALL TO ALLOW ACCESS TO FIRE DAMPER AND RETURN FILTERS.
- A357 BOILER EMERGENCY KILL BUTTON. BUTTON SHALL BE RED MUSHROOM BUTTON. LABEL WITH RED LAMACOID PLATE.
- H16 BOILER EMERGENCY KILL BUTTON. BUTTON SHALL BE RED MUSHROOM BUTTON. LABEL WITH RED LAMACOID PLATE.



**SHELL & CORE - AIR DISTRIBUTION ENLARGED PLAN - B003A  
MECH/PLUMBING**

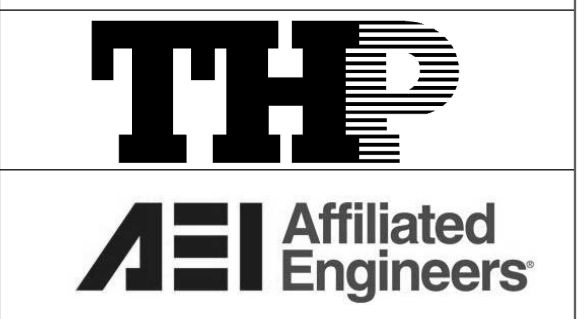
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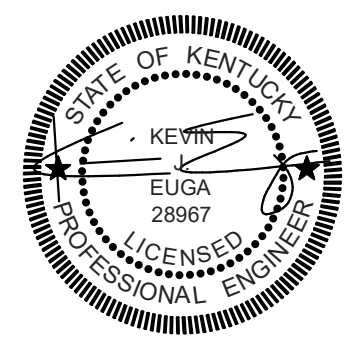
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**SHELL & CORE - MECHANICAL ENLARGED PLANS**

SHEET NO.  
**M307**

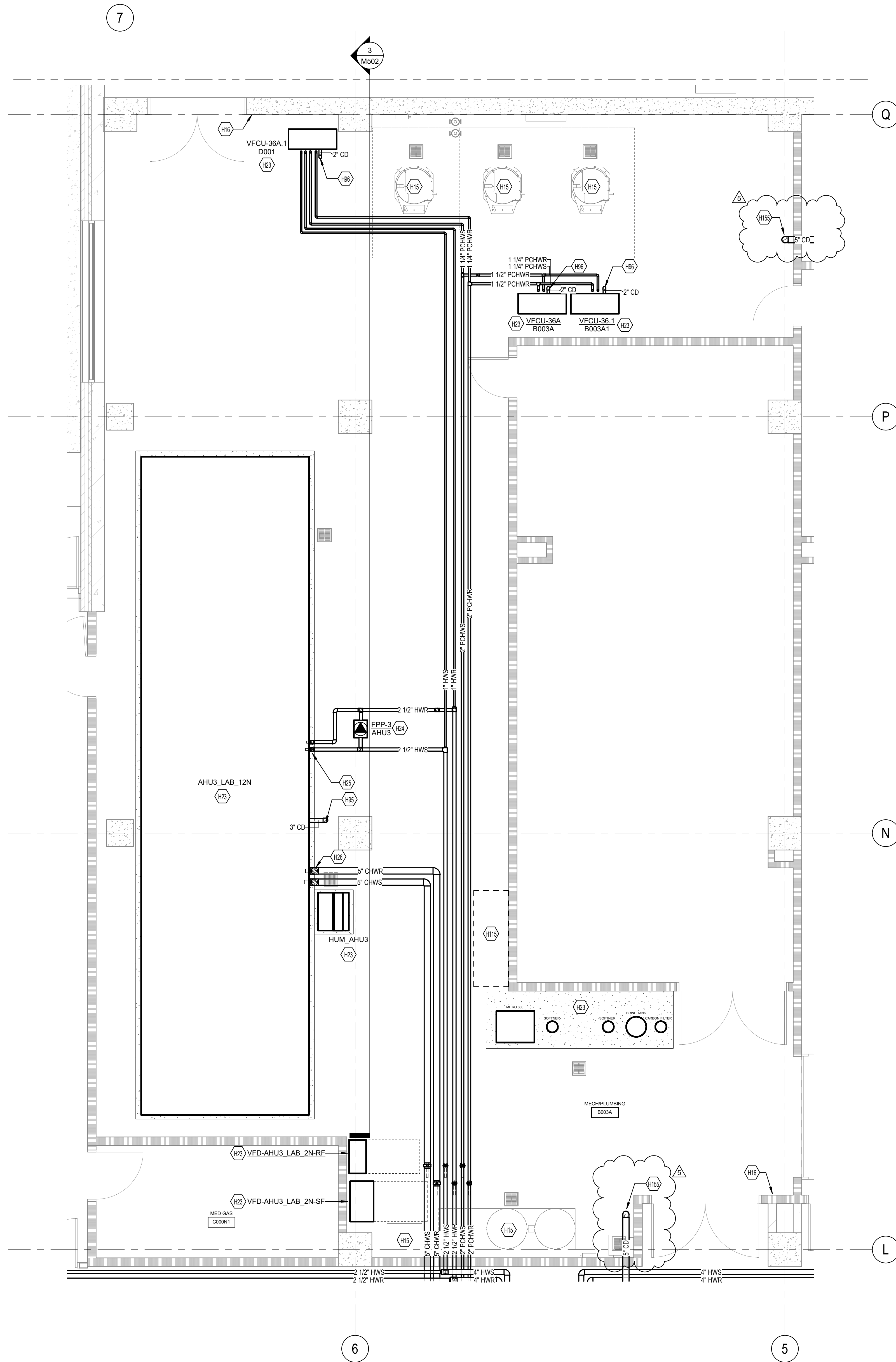


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**SHELL & CORE - HYDRONIC ENLARGED PLAN - B003A**  
**MECH/PLUMBING**  
 1/4" = 1'-0"

**GENERAL NOTES:**

- ALL VFD'S AND ASSOCIATED UNITSTRUT, CONCRETE PAD, ETC ARE SHOWN FOR REFERENCE ONLY. ALL VFD'S AND ASSOCIATED APPURTANCES TO BE PROVIDED BY THE CONTROLS CONTRACTOR AS PART OF A FUTURE BID PACKAGE.
- ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES**

- H15 PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS.
- H16 BOILER EMERGENCY KILL BUTTON. BUTTON SHALL BE RED MUSHROOM BUTTON. LABEL WITH RED LAMACOID PLATE.
- H23 INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- H24 INSTALL AND SUPPORT PUMP PER MANUFACTURERS SPECIFICATIONS.
- H25 REFER TO SHEET M603 "HOT WATER COIL PIPING SCHEMATIC".
- H26 REFER TO SHEET M603 "CHILLED WATER COIL PIPING SCHEMATIC".
- H95 3" CONDENSATE DOWN TO THE UNDERSLAB REFER TO PLUMBING PLANS FOR UNDERSLAB CONDENSATE PIPING.
- H96 2" CONDENSATE DOWN TO THE UNDERSLAB REFER TO PLUMBING PLANS FOR UNDERSLAB CONDENSATE PIPING.
- H115 SPACE RESERVED FOR RO SYSTEM SALT STORAGE.
- H155 5" CONDENSATE DOWN TO THE UNDERSLAB REFER TO PLUMBING PLANS FOR UNDERSLAB CONDENSATE PIPING.

**CHAMPLIN**  
 ARCHITECTURE  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
 AEI Affiliated Engineers

**CMTA**

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**WALSH**  
 CONSULTING GROUP

**bell**  
 engineering

**CDM Smith**

**PIVOTAL**  
 lighting design

**UK**  
 HEALTHCARE

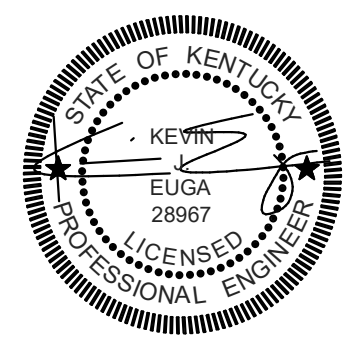
**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

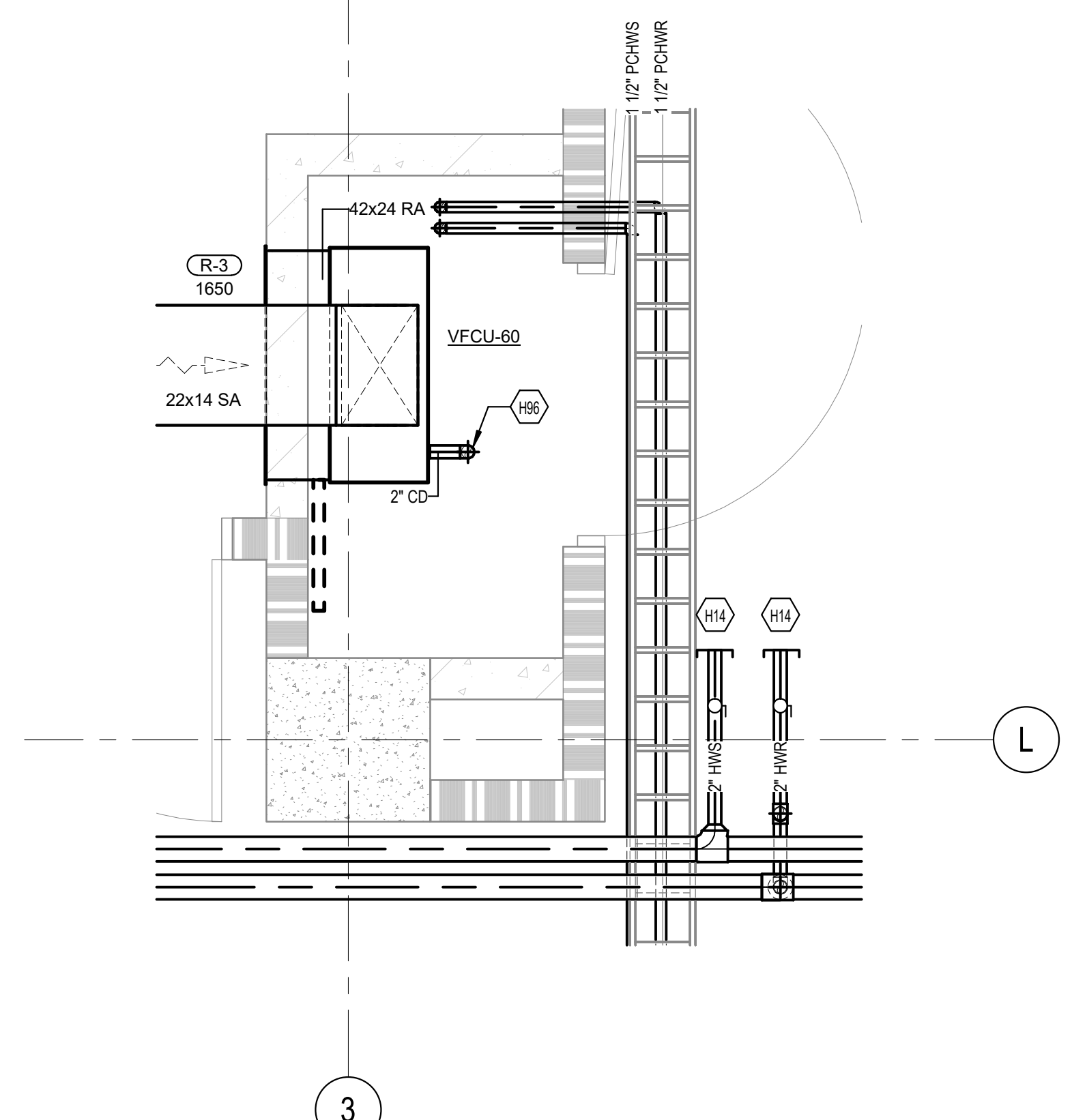
Drawn By  
**KAS**  
 Checked By  
**SAC**  
 Client Number  
 514  
 Project Number  
 6926



DRAWING TITLE  
**SHELL & CORE - MECHANICAL ENLARGED PLANS**

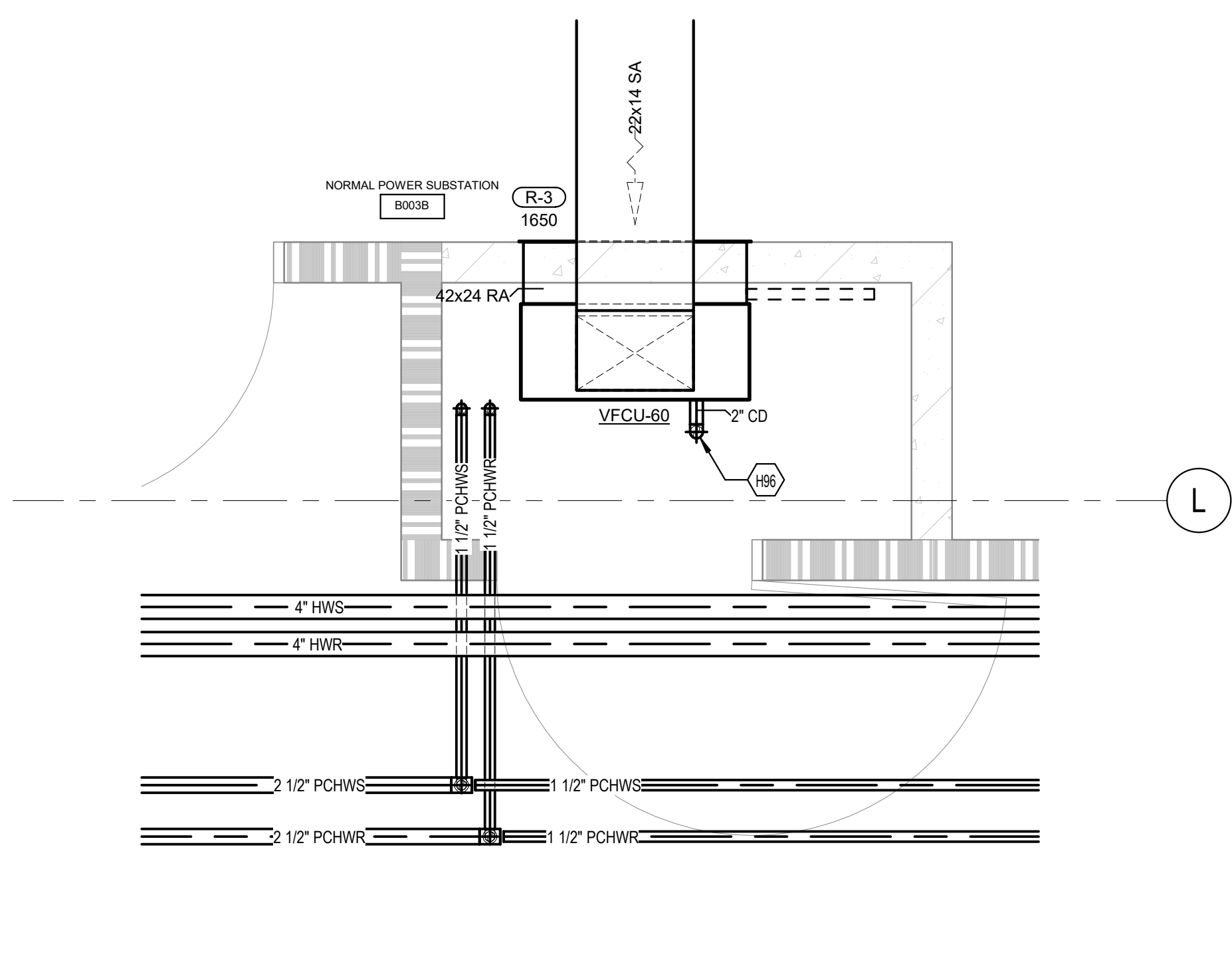
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**M308**

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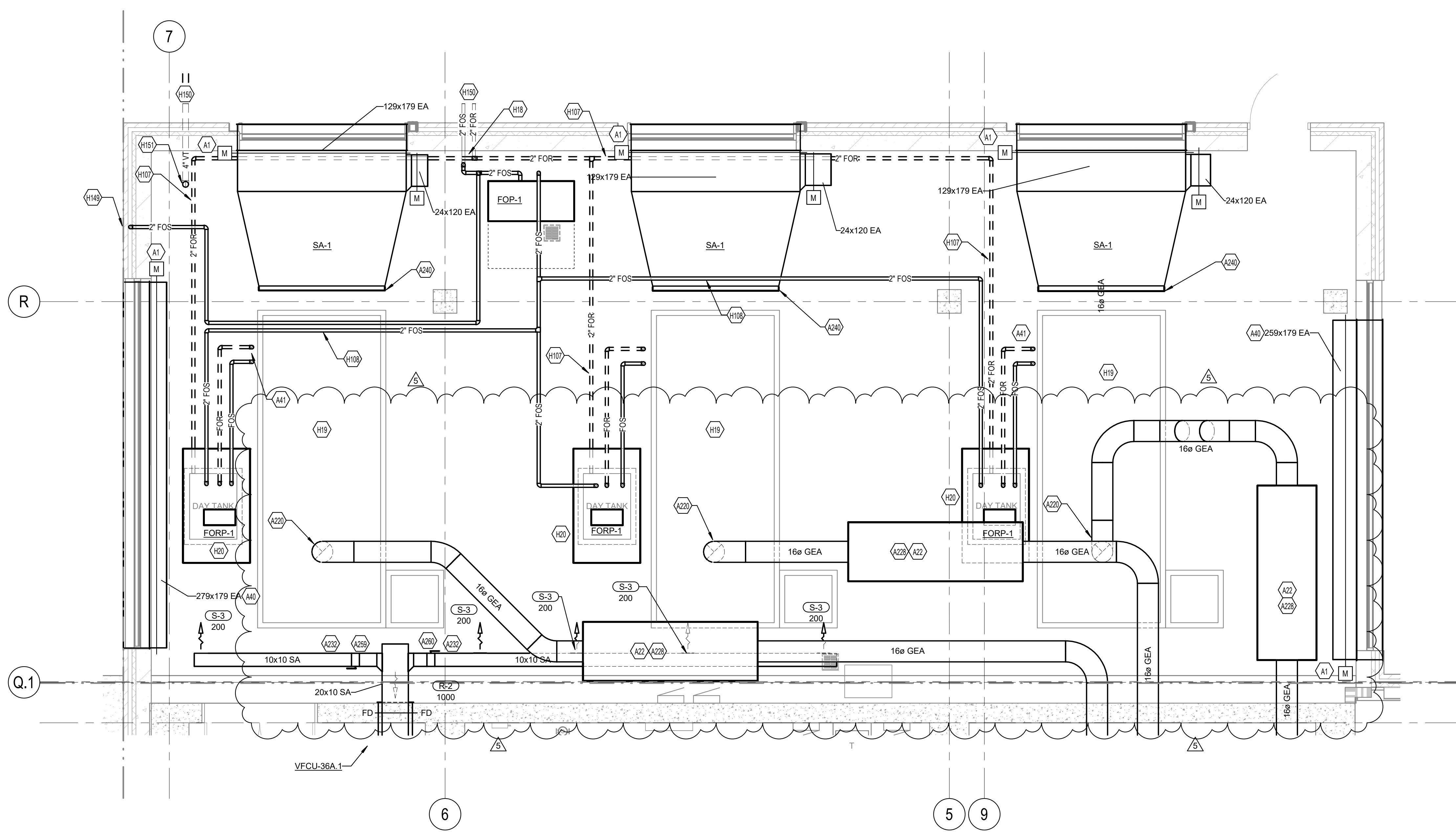
**3**  
SHELL & CORE - MECHANICAL PLAN - LEVEL 00 - AREA B - ATS B003C FAN COIL CLOSET

SCALE: 1/2" = 1'-0"  
0 0.5 1 2 4 6 8



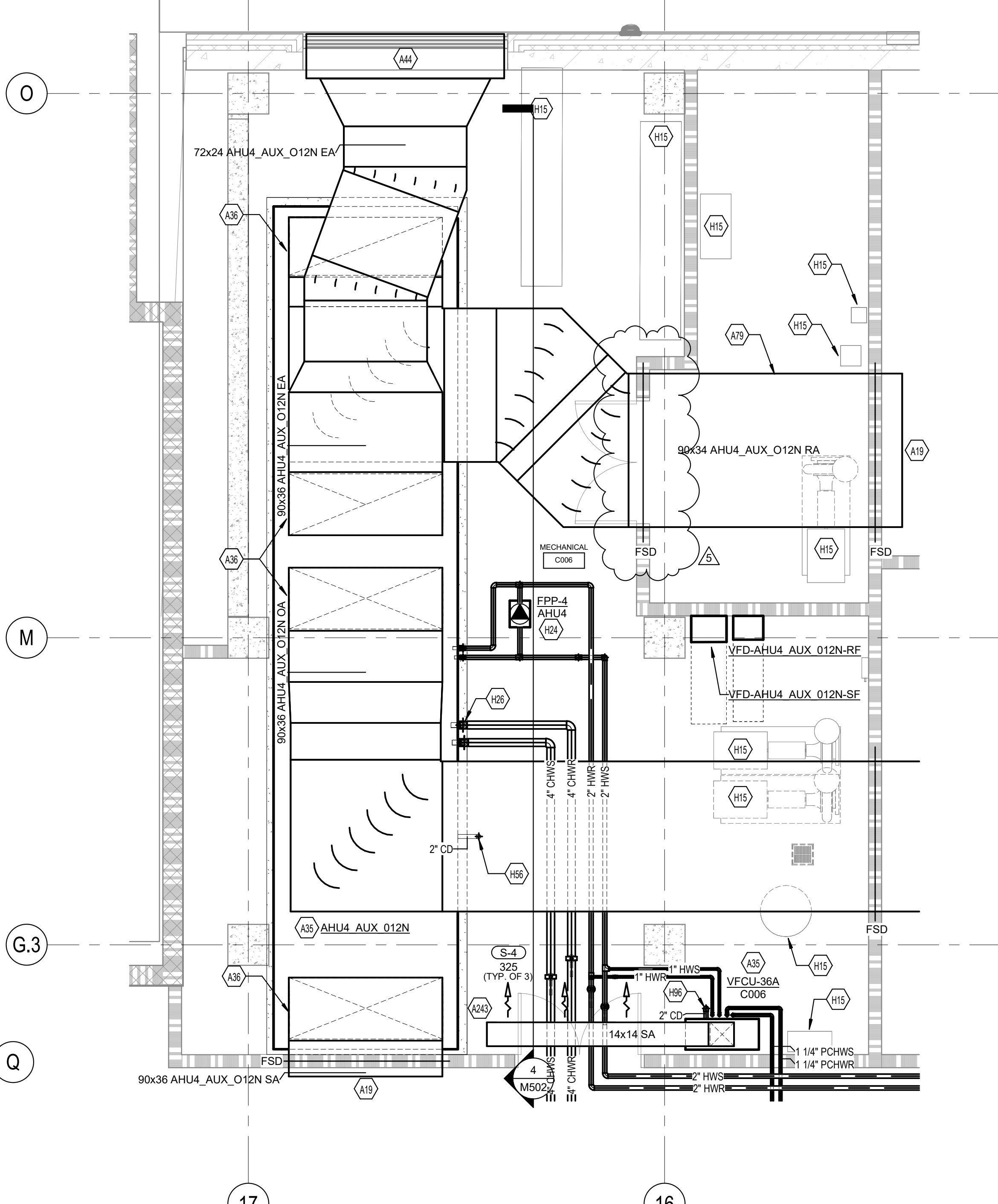
**4**  
SHELL & CORE - MECHANICAL PLAN - LEVEL 00 - AREA B - NORMAL POWER SUBSTATION B003B FAN COIL CLOSET

SCALE: 1/2" = 1'-0"  
0 0.5 1 2 4 6 8



**1**  
SHELL & CORE - MECHANICAL ENLARGED PLAN - GENERATORS 293

SCALE: 1/4" = 1'-0"  
0 1 2 4 8 12 16



**2**  
SHELL & CORE - MECHANICAL ENLARGED PLAN - MECHANICAL 189

SCALE: 1/4" = 1'-0"  
0 1 2 4 8 12 16

**GENERAL NOTES:**

- ALL VFD'S AND ASSOCIATED UNIT/STRUT, CONCRETE PAD, ETC. ARE SHOWN FOR REFERENCE ONLY. ALL VFD'S AND ASSOCIATED APPURTANCES TO BE PROVIDED BY THE CONTRACTOR AS PART OF A FUTURE BID PACKAGE.
- ALL EXPOSED SUPPLY DUCTWORK ASSOCIATED WITH MECHANICAL/ELECTRICAL GENERATOR ROOM COOLING/HEATING SHALL BE DOUBLE WALL SPIRAL DUCTWORK WITH A GALVANIZED FINISH.

**TAGGED NOTES:**

- A1 PROVIDE AND INSTALL FAST ACTING MOTORIZED DAMPER, BELIMO EFCX24-S N4 OR EQUAL EQUIVALENT. DAMPER SHALL BE NORMALLY CLOSED AND FAIL OPEN.
- A19 CAP DUCT AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- A22 INSTALL GENERATOR EXHAUST MUFFLER. MUFFLER TO BE PROVIDED WITH GENERATOR. REFER TO ELECTRICAL PLANS AND SPECIFICATIONS.
- A35 INSTALL ON 4" CONCRETE HOUSE KEEPING PAD.
- A36 CONTRACTOR SHALL MATCH DUCTWORK CONNECTION WITH MANUFACTURE PROVIDED FLENUM OPENING.
- A40 CONNECT INTAKE DUCT TO LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS. PROVIDE AND INSTALL FULL-SIZE MOTORIZED DAMPER AT GENERATOR ROOM INTAKE LOUVER DUCT. PROVIDE FAST-ACTING 24V DAMPER ACTUATOR.
- A41 FUEL OIL PIPING TO GENERATOR. REFER TO GENERATOR INSTALLATION REQUIREMENTS.
- A44 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 116" W X 60" H ACTIVE LOUVER SECTION FOR AHU4\_AUX\_012N RELIEF AIR LOUVER TO BE MIN. 50% FREE AREA. INSTALL 120" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A79 ROUTE DUCT OVER FIRE RATED LID ASSEMBLY. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILS.
- A220 CONNECT GENERATOR EXHAUST TO GENERATOR AS REQUIRED BY MANUFACTURER INSTALLATION INSTRUCTIONS.
- A228 REFER TO "GENERATOR EXHAUST DETAIL" ON SHEET M405.
- A232 DUCT AND DIFFUSERS TO BE MOUNTED AT A HEIGHT OF 13'-0" ON CENTER AFF.
- A240 PROVIDE DUCT TRANSITION BETWEEN SOUND ATTENUATOR AND RADIATOR DISCHARGE OF GENERATOR.
- A243 DUCT AND DIFFUSERS TO BE MOUNTED AT A HEIGHT OF 14'-0" ON CENTER AFF.
- A259 BALANCE DAMPER TO 200 CFM.
- A260 BALANCE DAMPER TO 800 CFM.
- H14 CAP PIPE AND PREPARE FOR FUTURE CONNECTION IN FIT-OUT PHASE.
- H15 PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS.
- H18 ROUTE NEW 2" FOS/FOR PIPE UP FROM BELOW GRADE INTO BUILDING WITHIN IN TRANSITION SLUMP. PROVIDE 4" PIPE SLEEVES. REFER TO SCHEMATIC ON SHEET M602.
- H19 EMERGENCY GENERATOR. REFER TO ELECTRICAL DRAWINGS.
- H20 GENERATOR DAY TANK AND RETURN PUMP. CONNECT FOS/FOR PIPING TO DAY TANK. PROVIDE ALL FOS/FOR PIPING BETWEEN DAY TANK AND GENERATOR. REFER TO FUEL OIL SYSTEM SCHEMATIC ON SHEET M602.
- H24 INSTALL AND SUPPORT PUMP PER MANUFACTURER SPECIFICATIONS.
- H26 REFER TO SHEET M603 "CHILLED WATER COIL PIPING SCHEMATIC"
- H56 2" CONDENSATE DOWN TO THE UNDERSLAB REFER TO PLUMBING PLANS FOR UNDERSLAB CONDENSATE.
- H96 2" CONDENSATE DOWN TO THE UNDERSLAB REFER TO PLUMBING PLANS FOR UNDERSLAB CONDENSATE PIPING.
- H107 ROUTE FOR PIPING 16'-0" ABOVE THE FLOOR.
- H108 ROUTE FOS PIPING OVER TOP OF GENERATOR AND ACCESSORIES.
- H149 PROVIDE AND INSTALL PREFERRED MODEL 2-CS2-2 HORIZONTAL SPILL CONTAINER, FUEL OIL SYSTEM EMERGENCY FILL PANEL RECESSED INTO EXTERIOR WALL.
- H150 REFER TO MECHANICAL SITE PLAN ON SHEET M800 FOR CONTINUATION.
- H151 4" FUEL OIL TANK VENT UP TO LEVEL ONE FROM UNDERSLAB REFER TO M101.D FOR CONTINUATION.

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

Checked By  
**SAC**

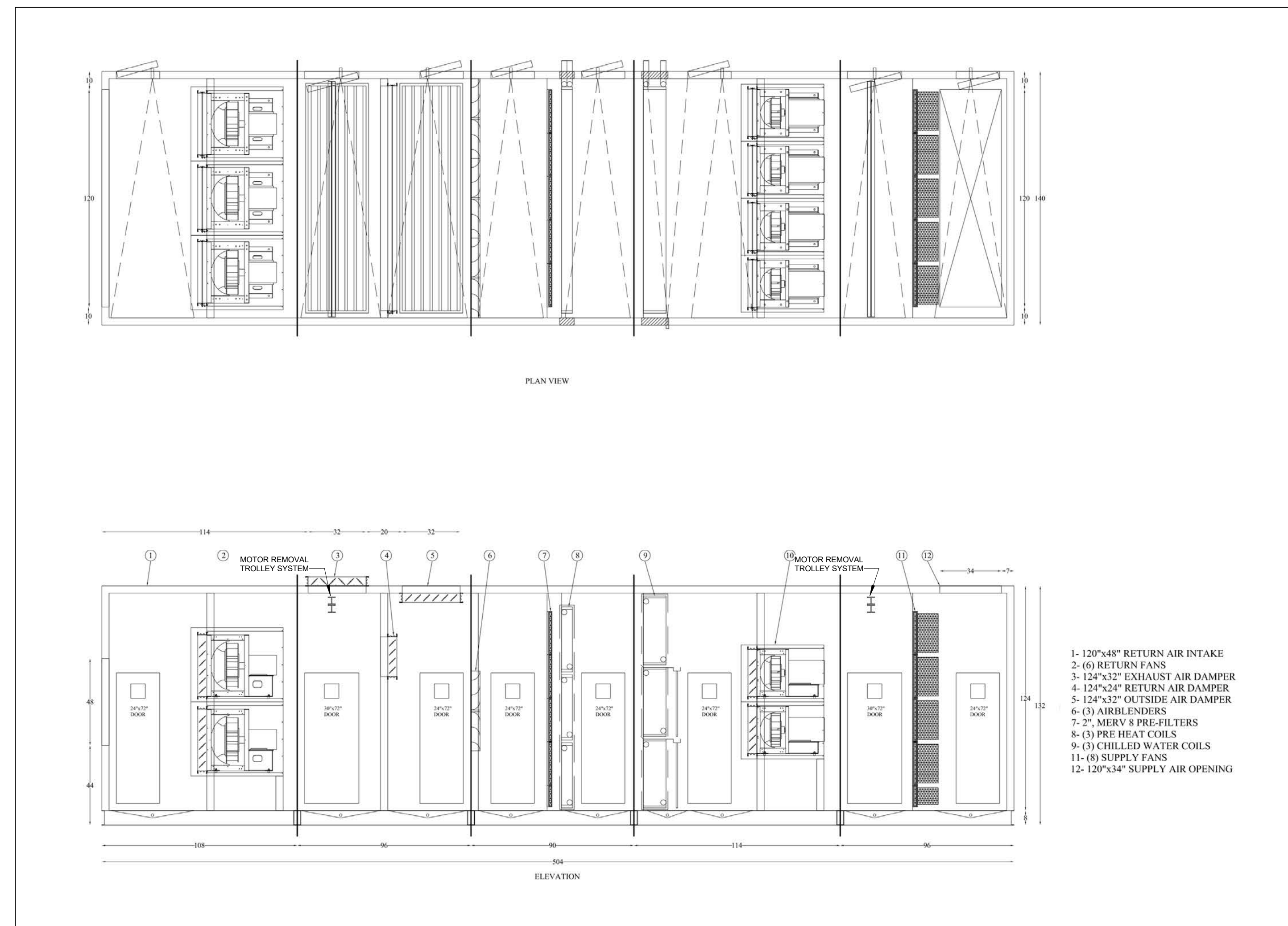
Client Number  
514

Project Number  
6926

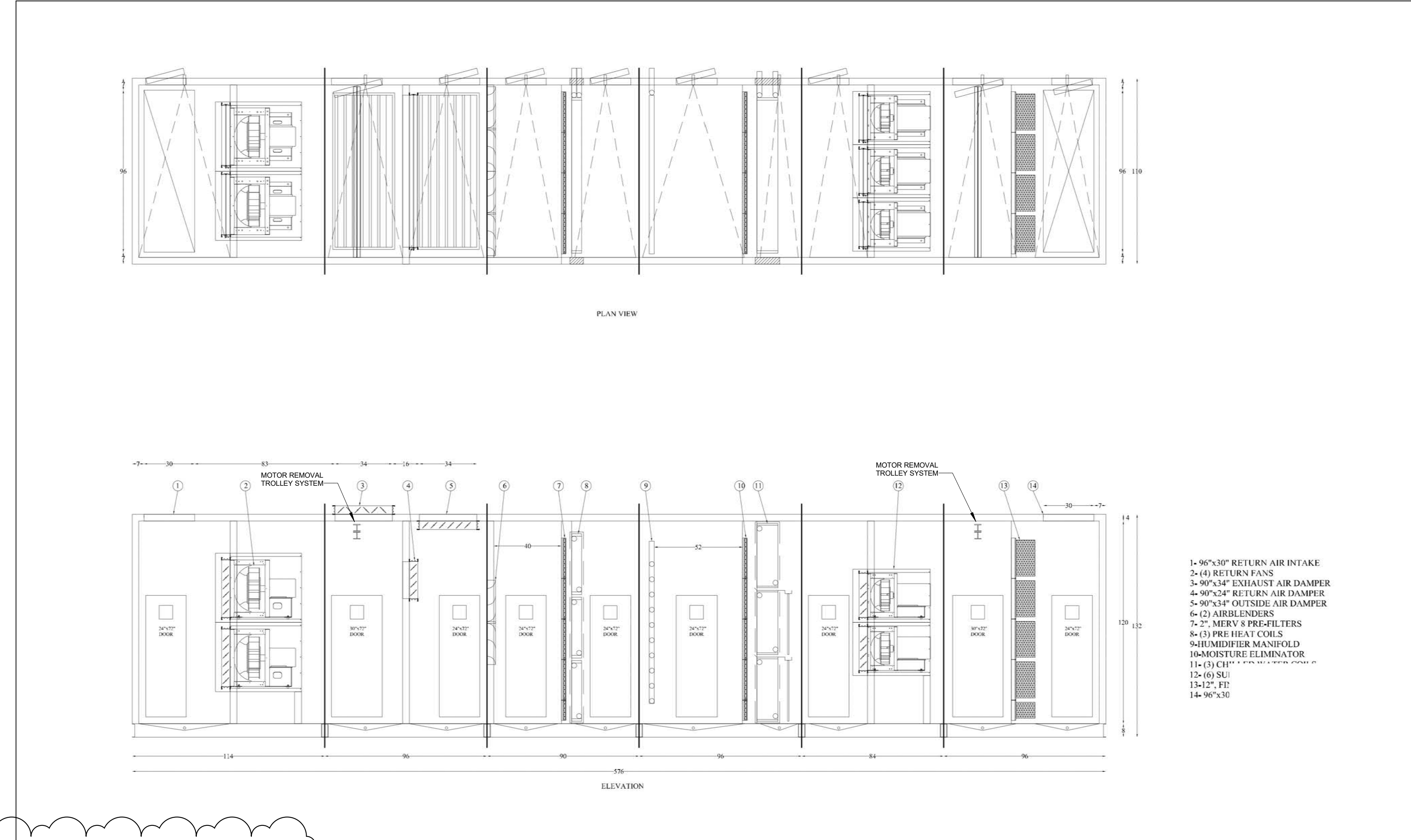
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**SHELL & CORE - MECHANICAL ENLARGED PLANS**

SHEET NO.  
**M309**

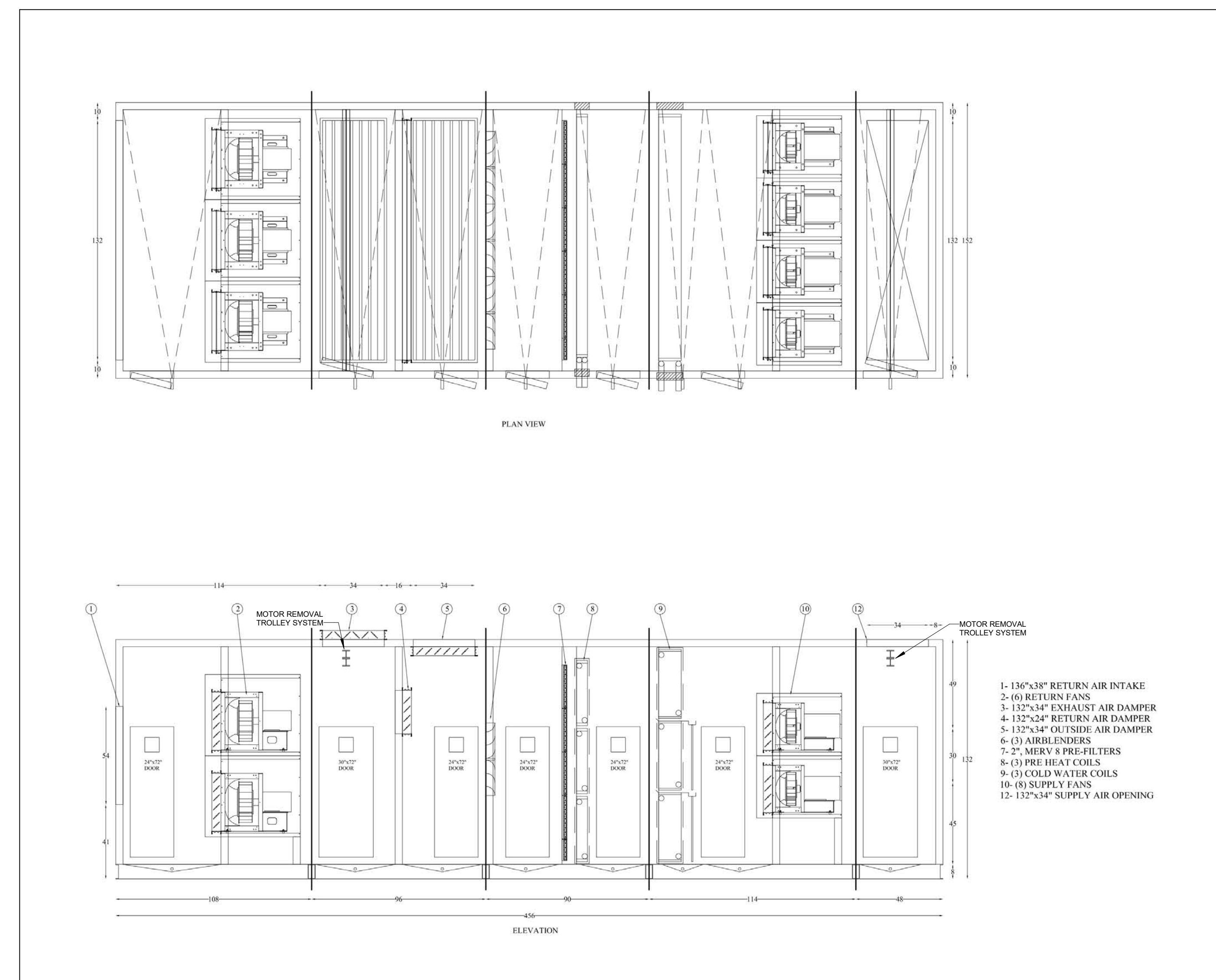
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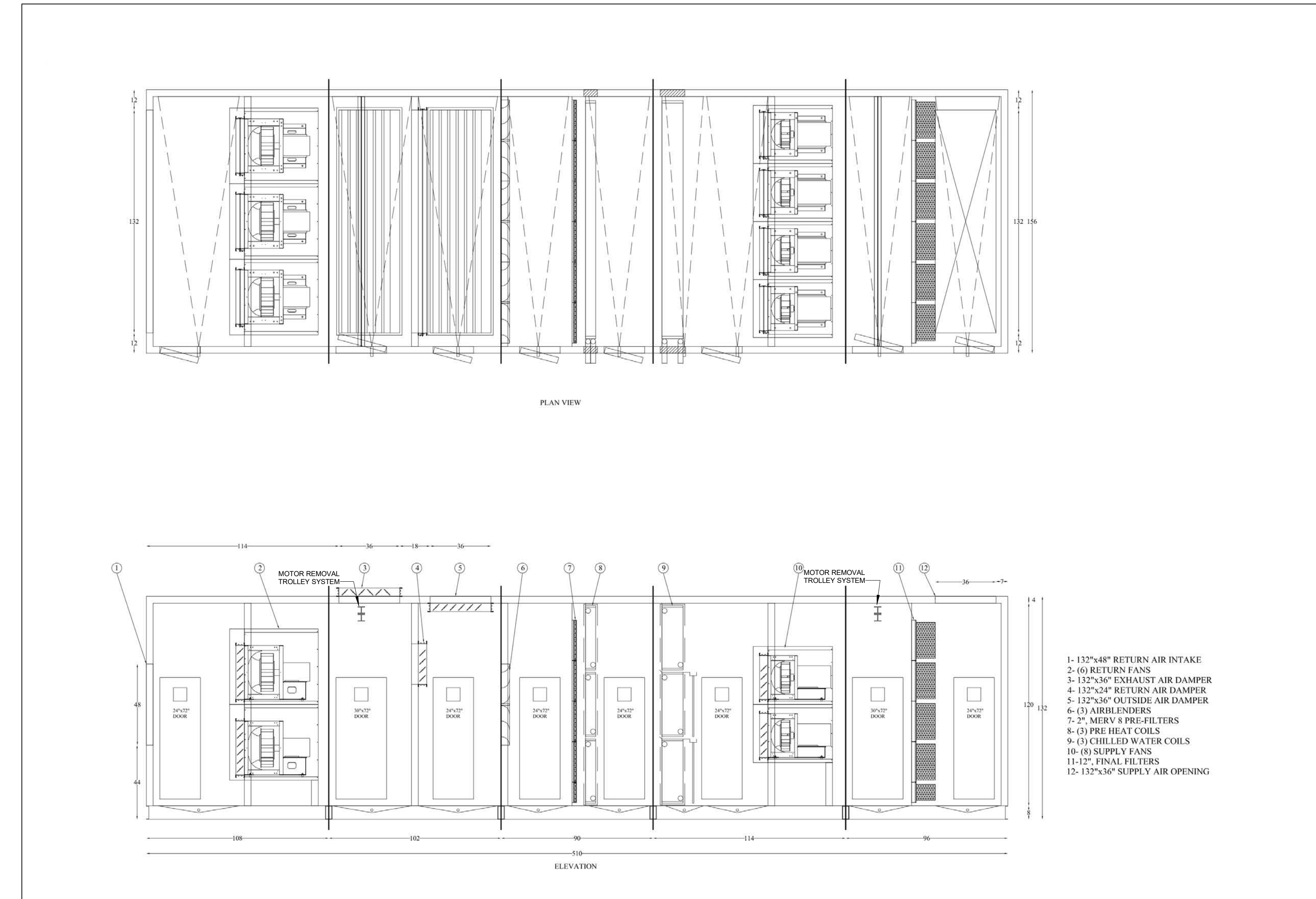
1 AHU5\_CLIN\_567N DETAIL  
SCALE: NONE



2 AHU6-SUR-2N DETAIL  
SCALE: NONE



3 AHU7\_OFC\_4S DETAIL  
SCALE: NONE



4 AHU8\_CLIN\_34N DETAIL  
SCALE: NONE

ISSUANCES

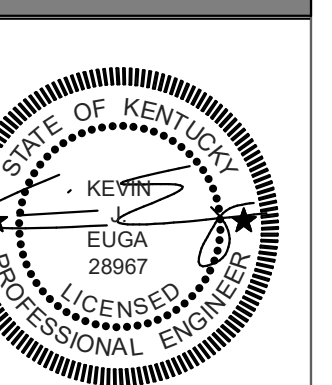
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2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

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**SAC**

Client Number  
514

Project Number  
6926



DRAWING TITLE  
**SHELL & CORE - AIR  
HANDLING UNIT  
DETAILS**

SHEET NO.  
**M401**

**ISSUANCES**

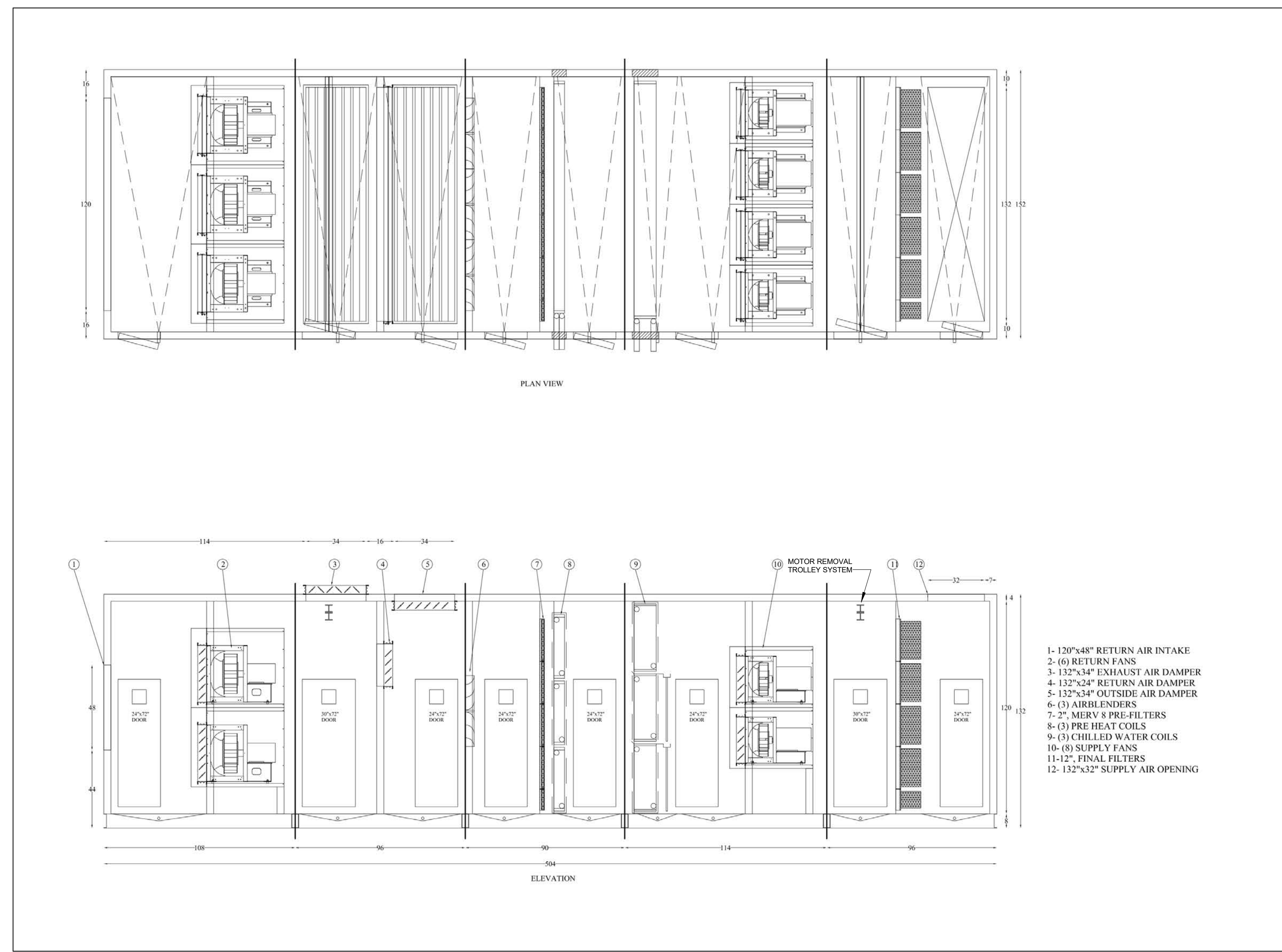
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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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Checked By  
**SAC**  
Client Number  
514  
Project Number  
6926

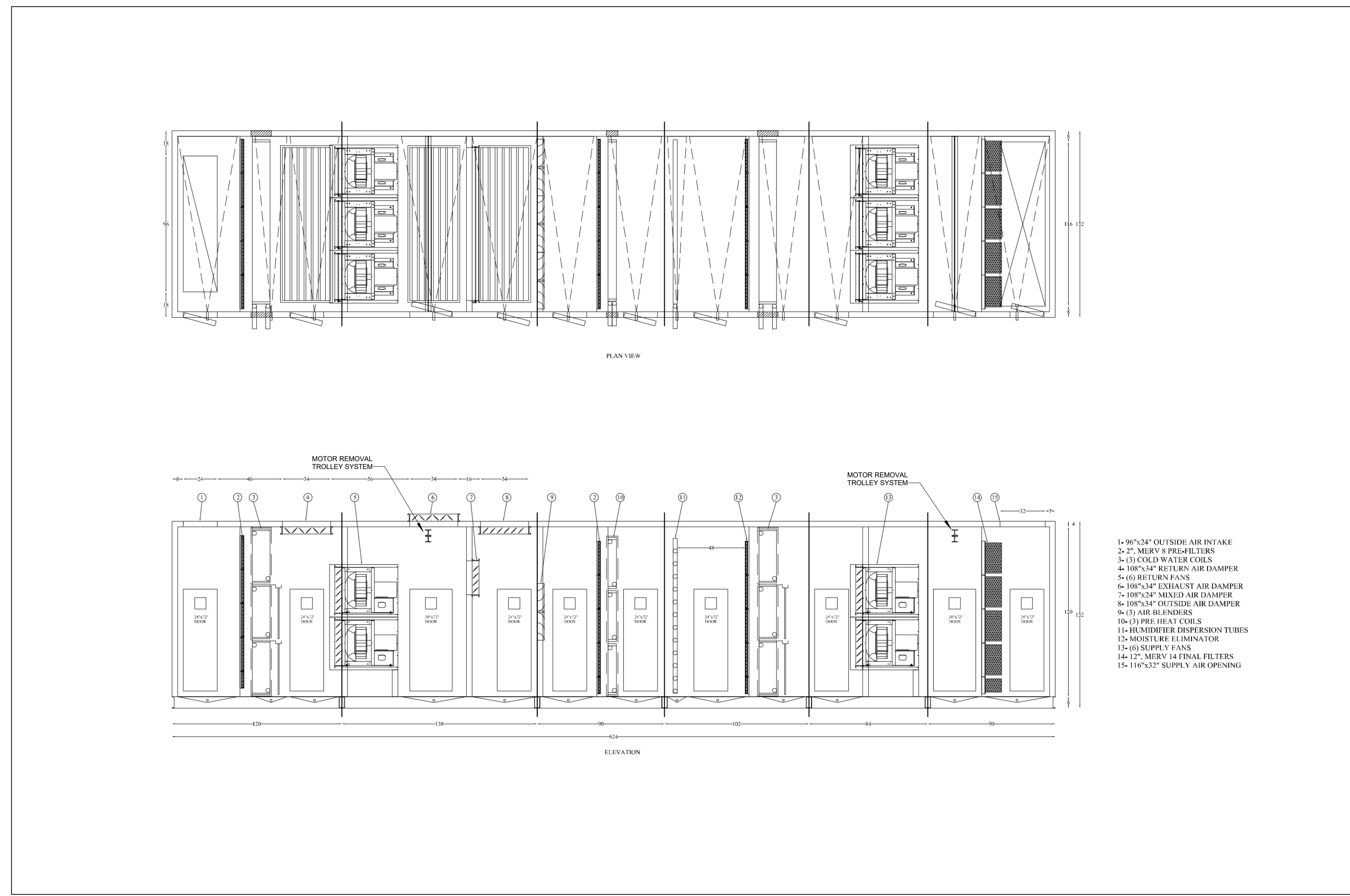
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**SHELL & CORE - AIR  
HANDLING UNIT  
DETAILS**

SHEET NO.  
**M403**

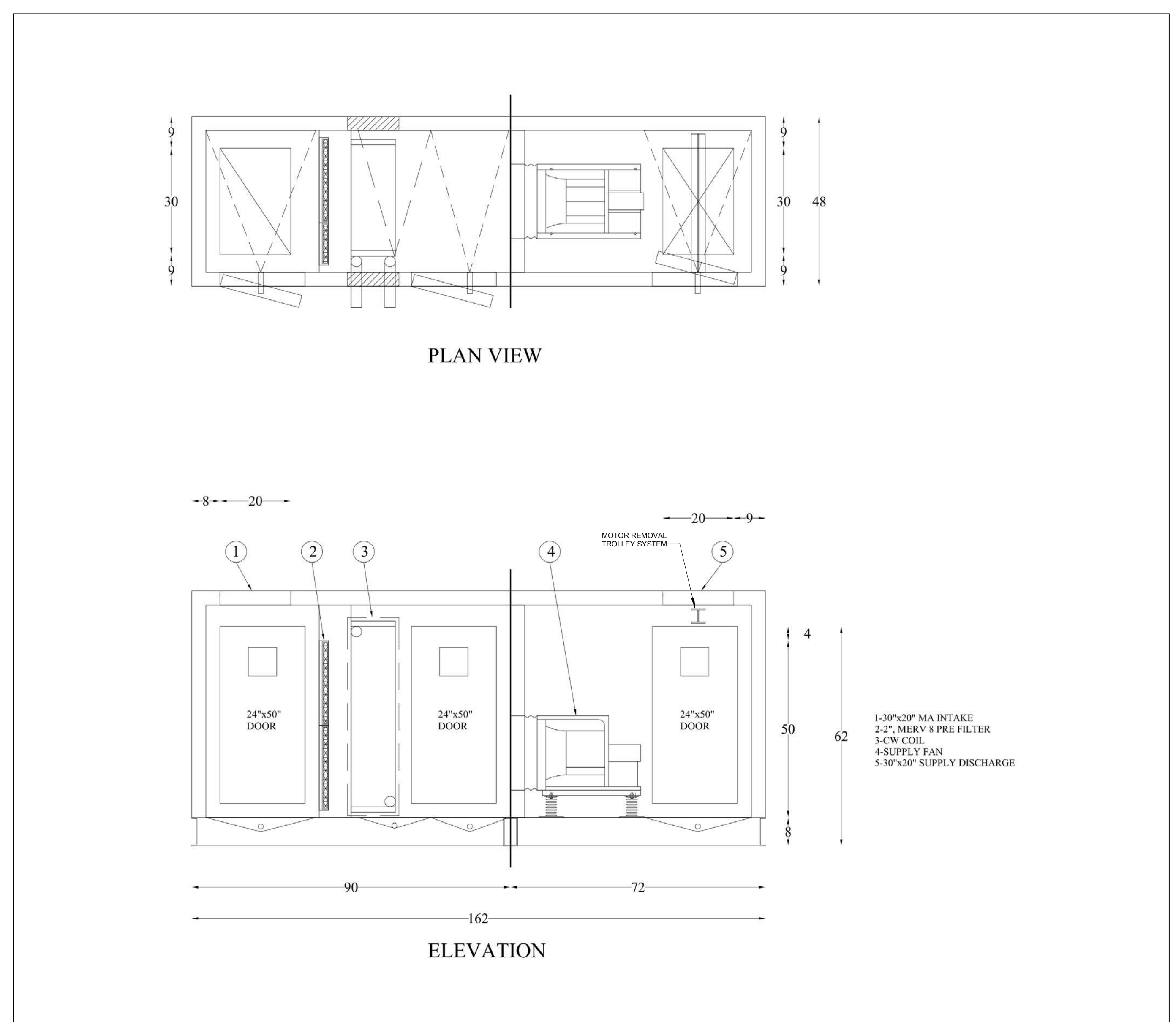
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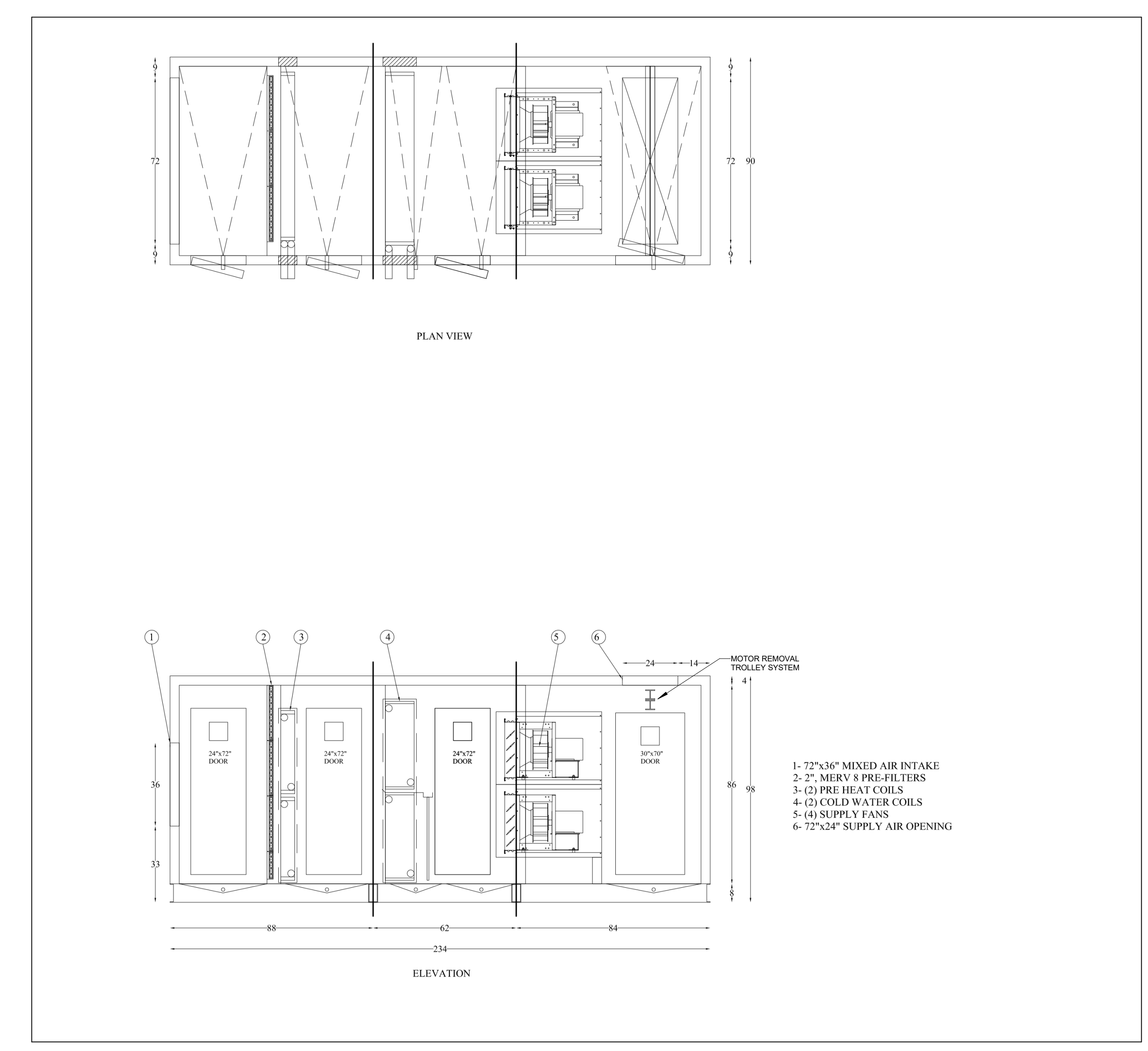
1 AHU13\_CLIN\_7S DETAIL  
SCALE: NONE



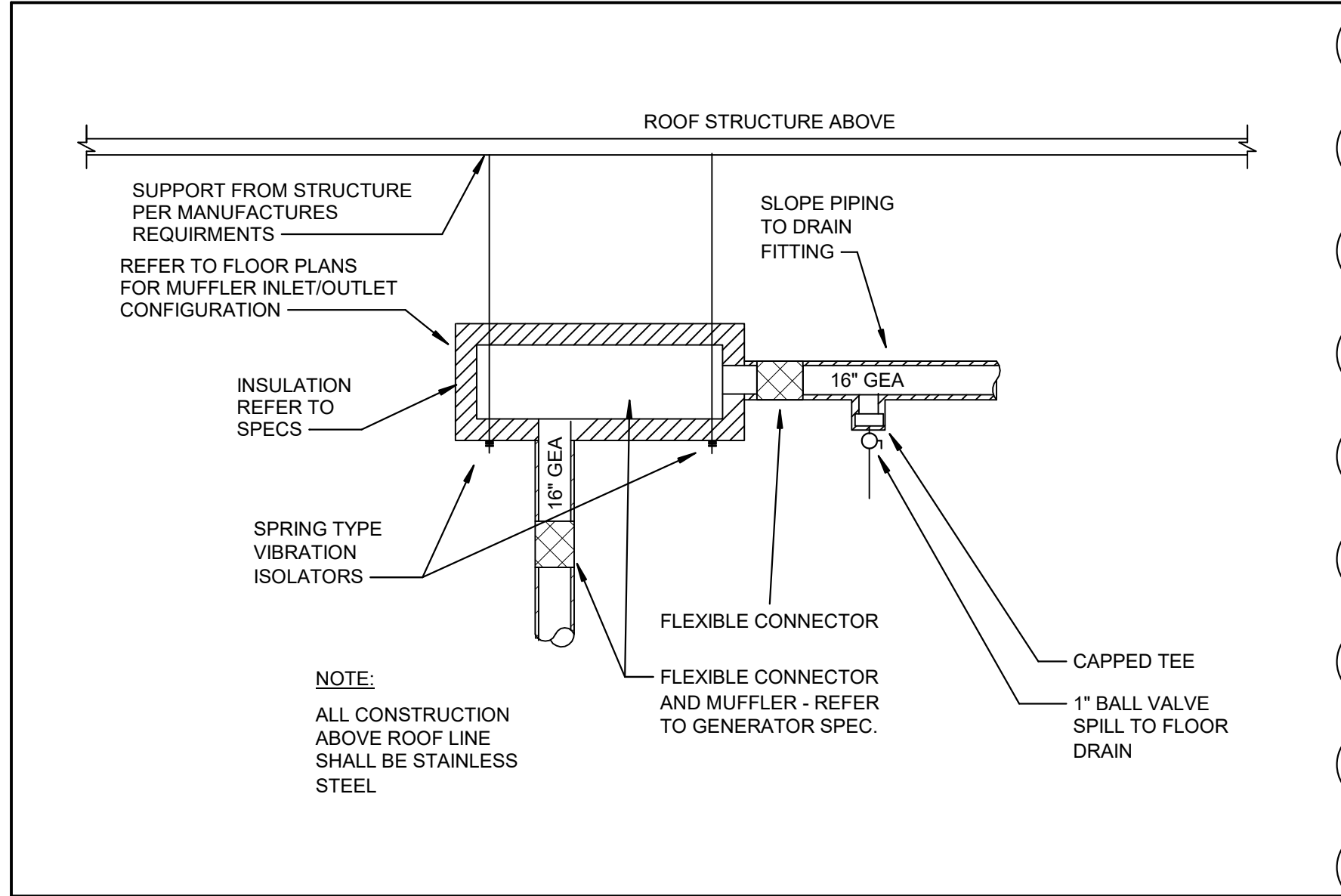
2 AHU14\_SUR\_2S DETAIL  
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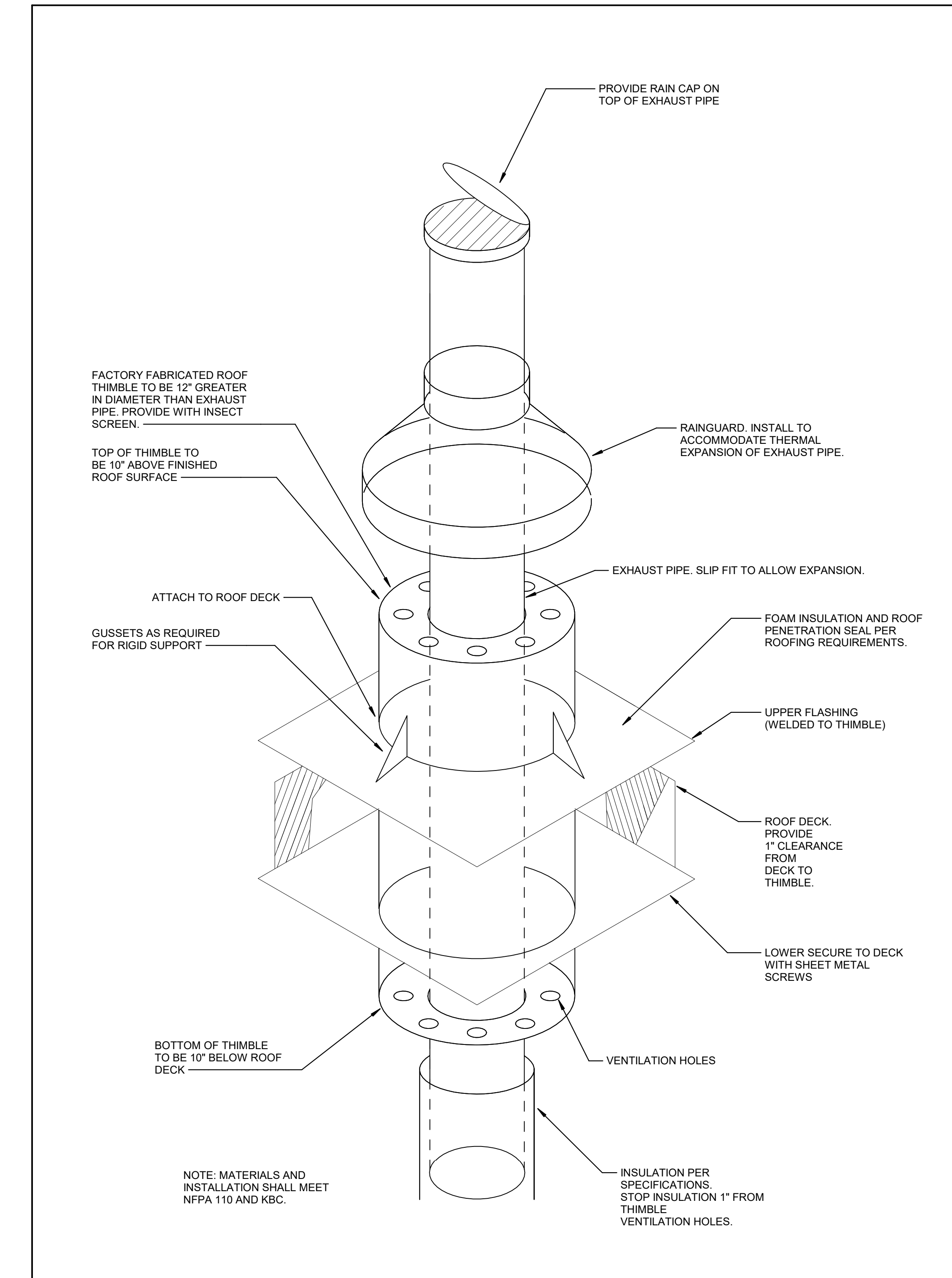
3 AHU15\_MER\_0S DETAIL  
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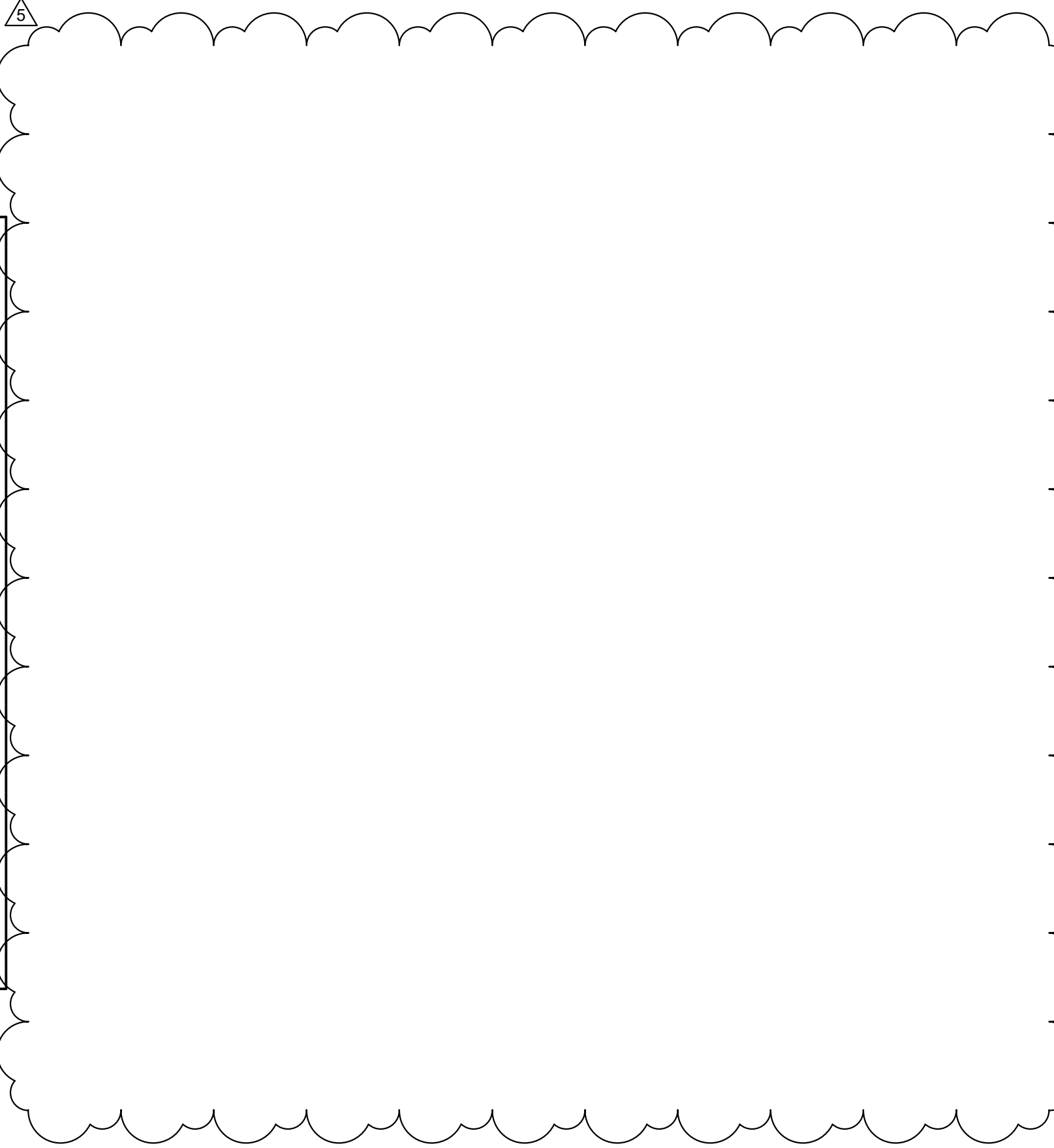
4 AHU16\_MER\_8 DETAIL  
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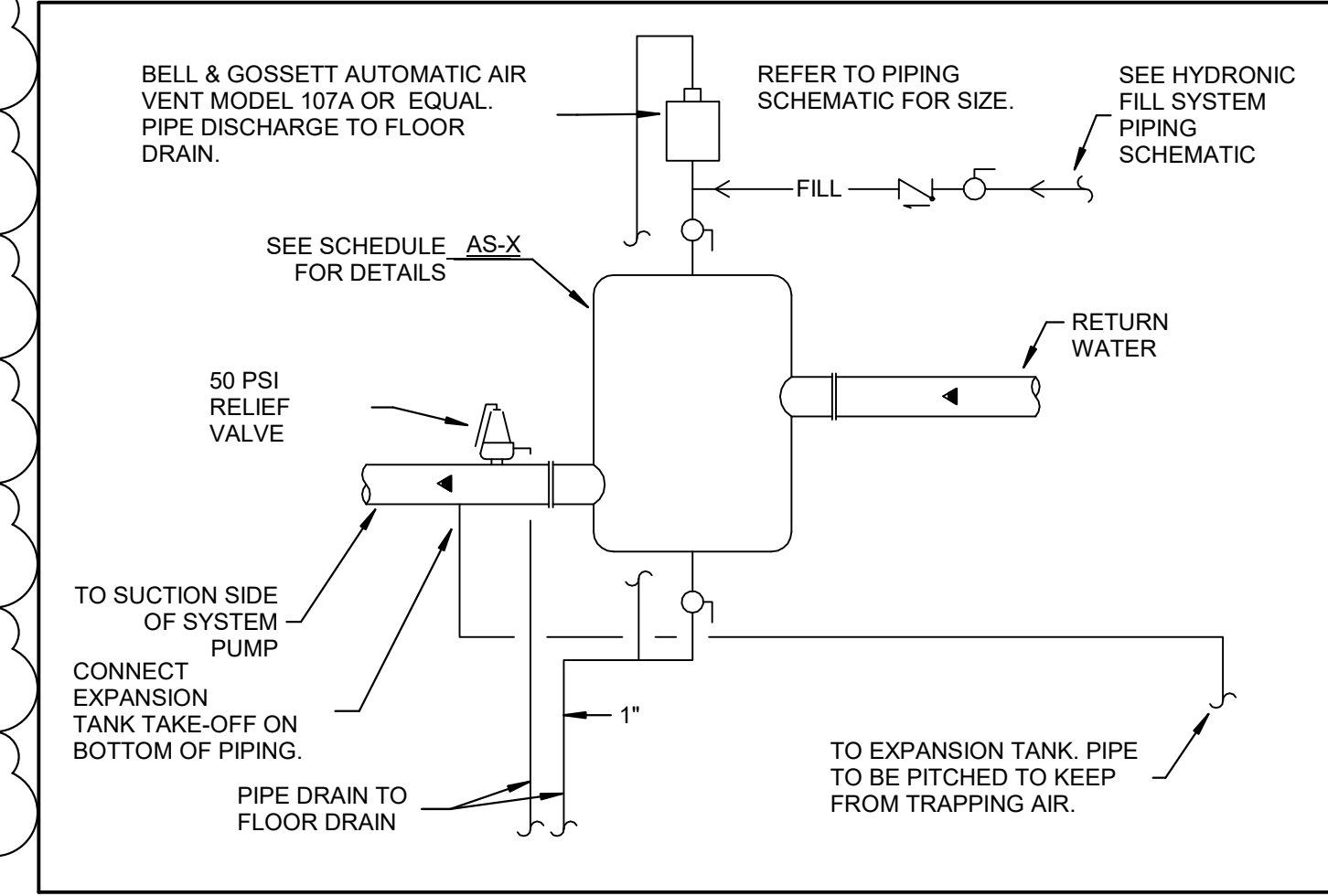
**1 GENERATOR EXHAUST DETAIL**  
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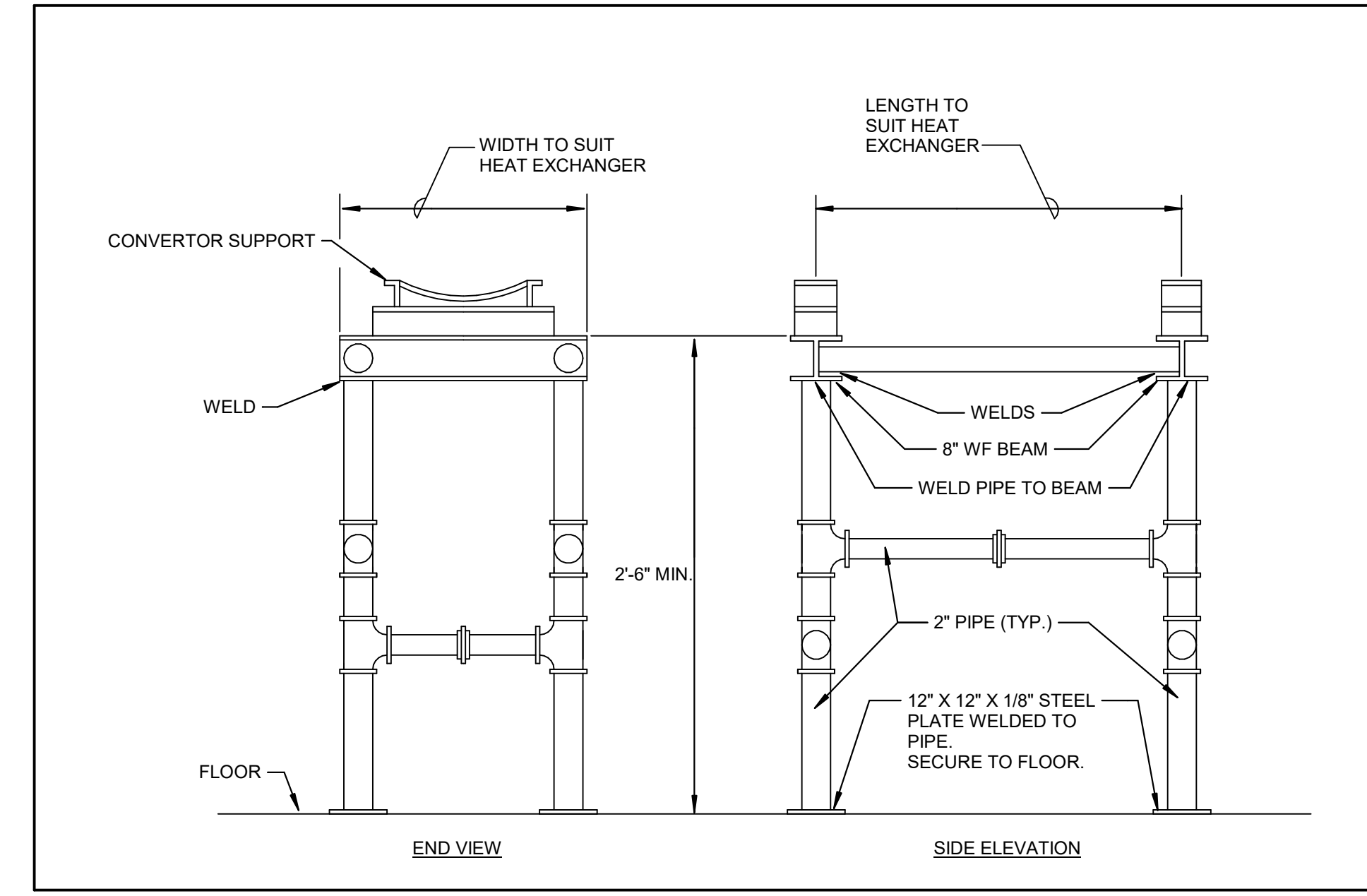
**5 GENERATOR EXHAUST VENT DETAIL**  
SCALE: NONE



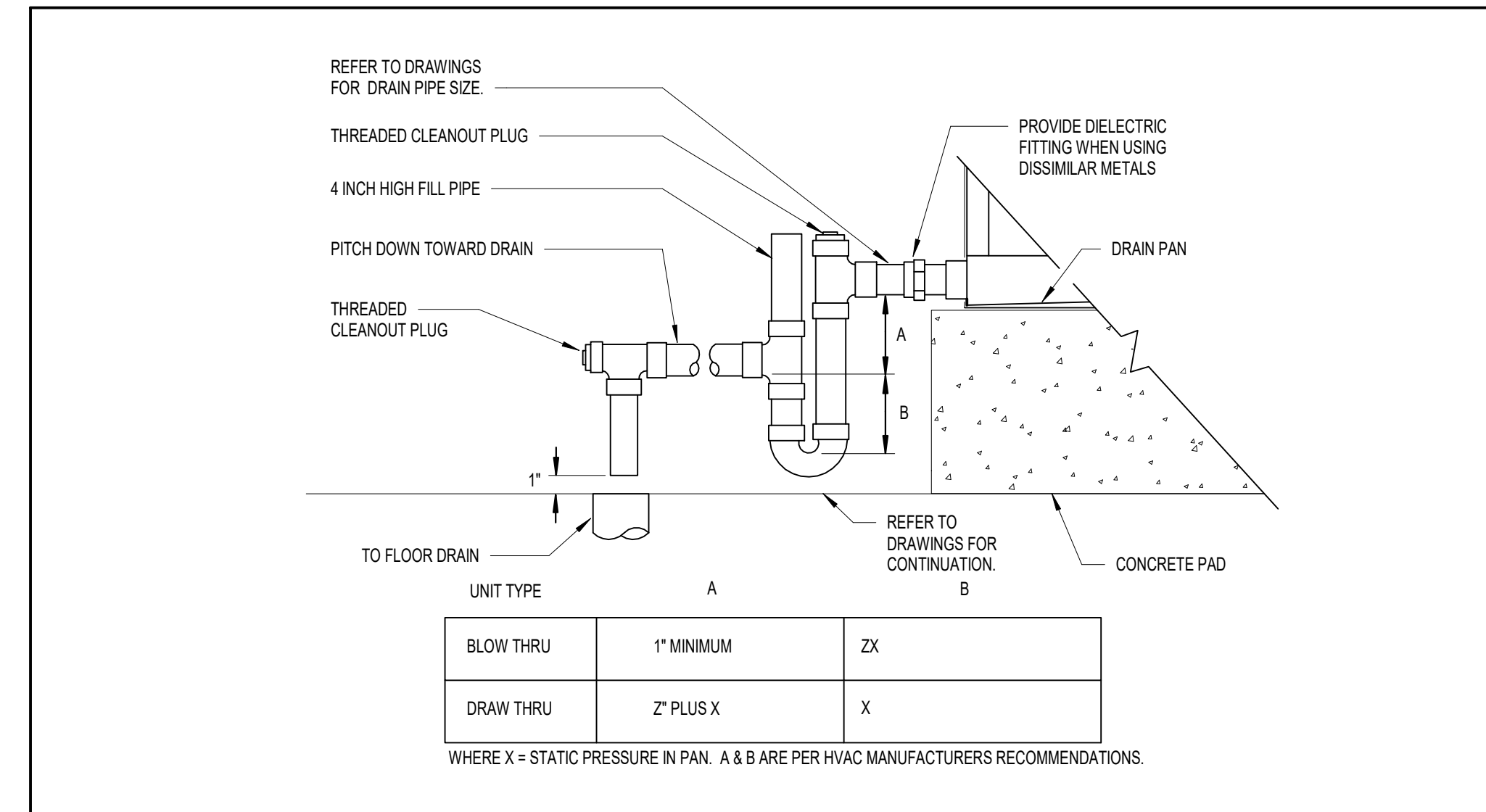
**3 EXPANSION TANK PIPING DETAIL**  
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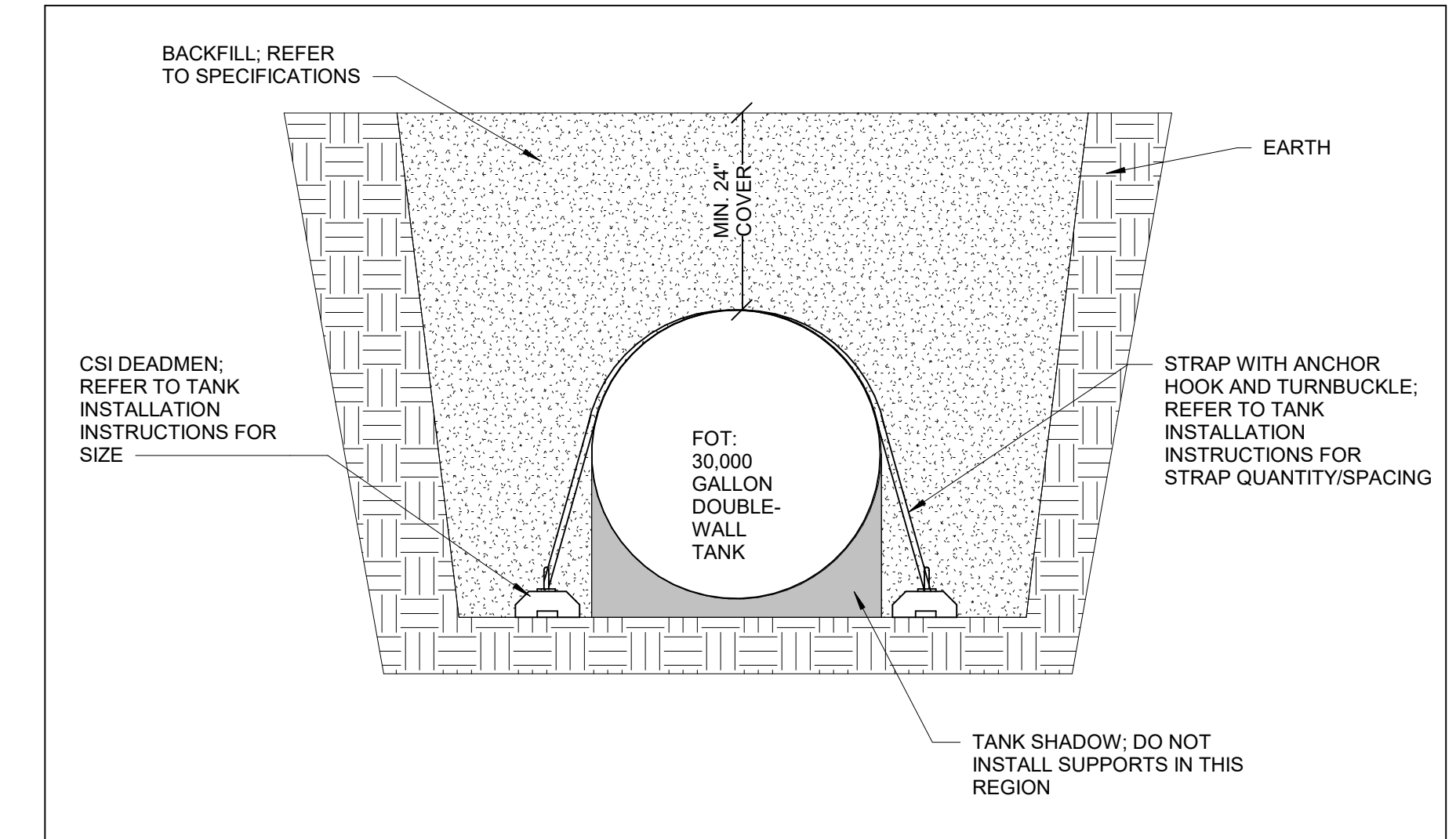
**4 AIR SEPARATOR TANK DETAIL**  
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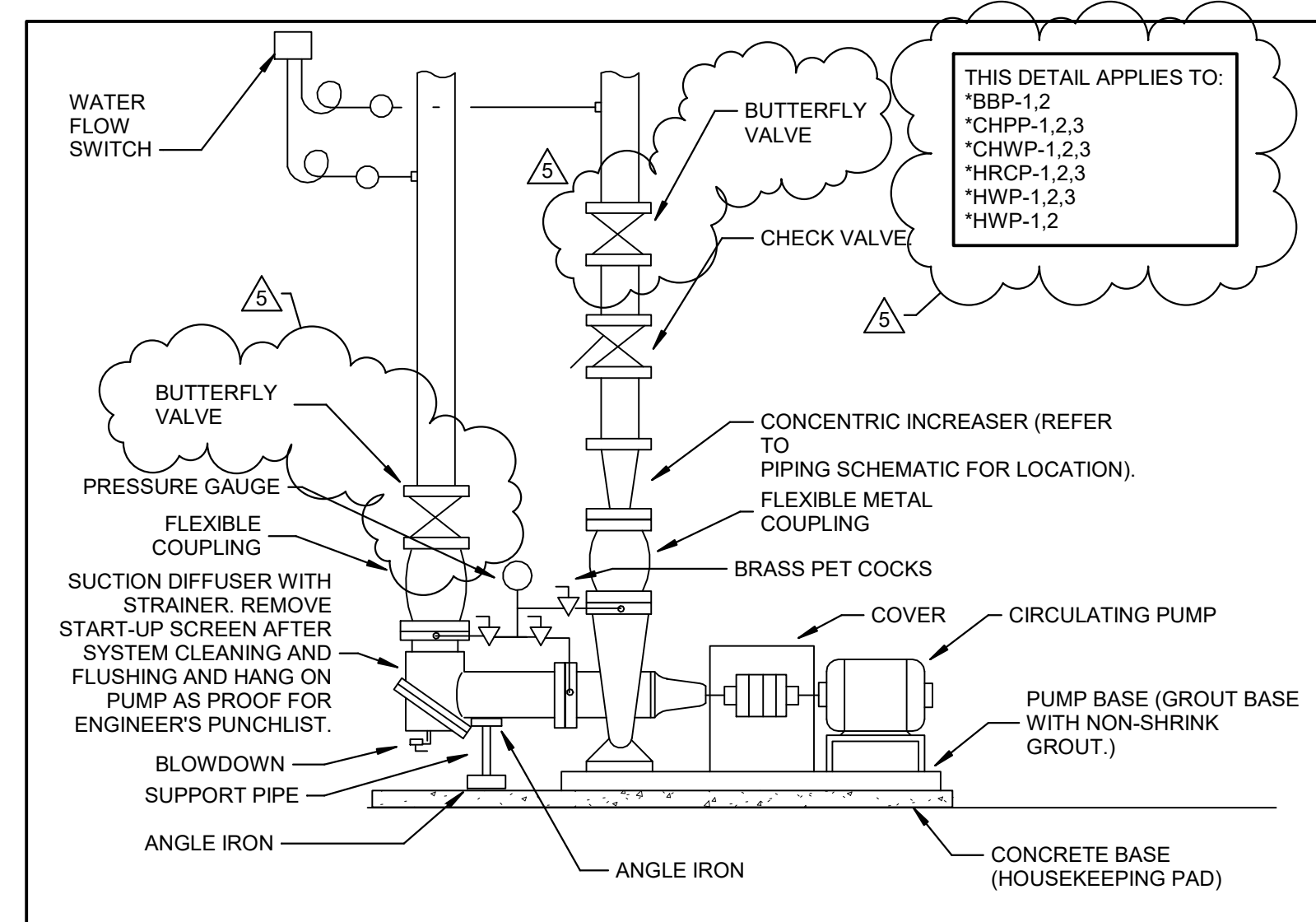
**9 HEAT EXCHANGER SUPPORT DETAIL**  
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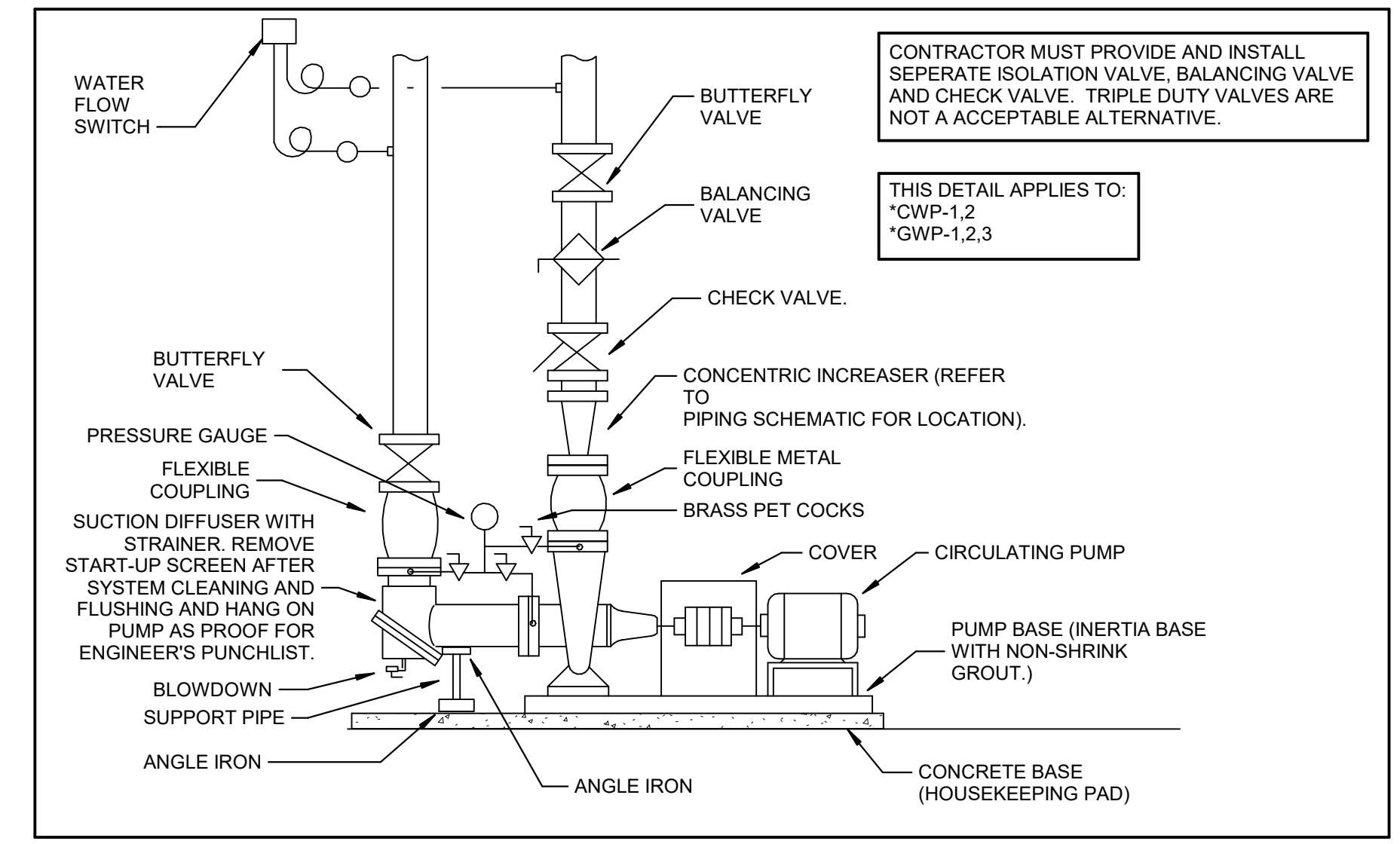
**8 AIR HANDLING UNIT DRAIN TRAP DETAIL**  
SCALE: NONE



**7 FUEL OIL TANK DETAIL**  
SCALE: NONE



**6 BASE MOUNTED PUMP PIPING DETAIL - TYPE A**  
SCALE: NONE



**10 BASE MOUNTED PUMP PIPING DETAIL - TYPE B**  
SCALE: NONE

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
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4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

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Checked By **SAC**

Client Number **514**

Project Number **6926**

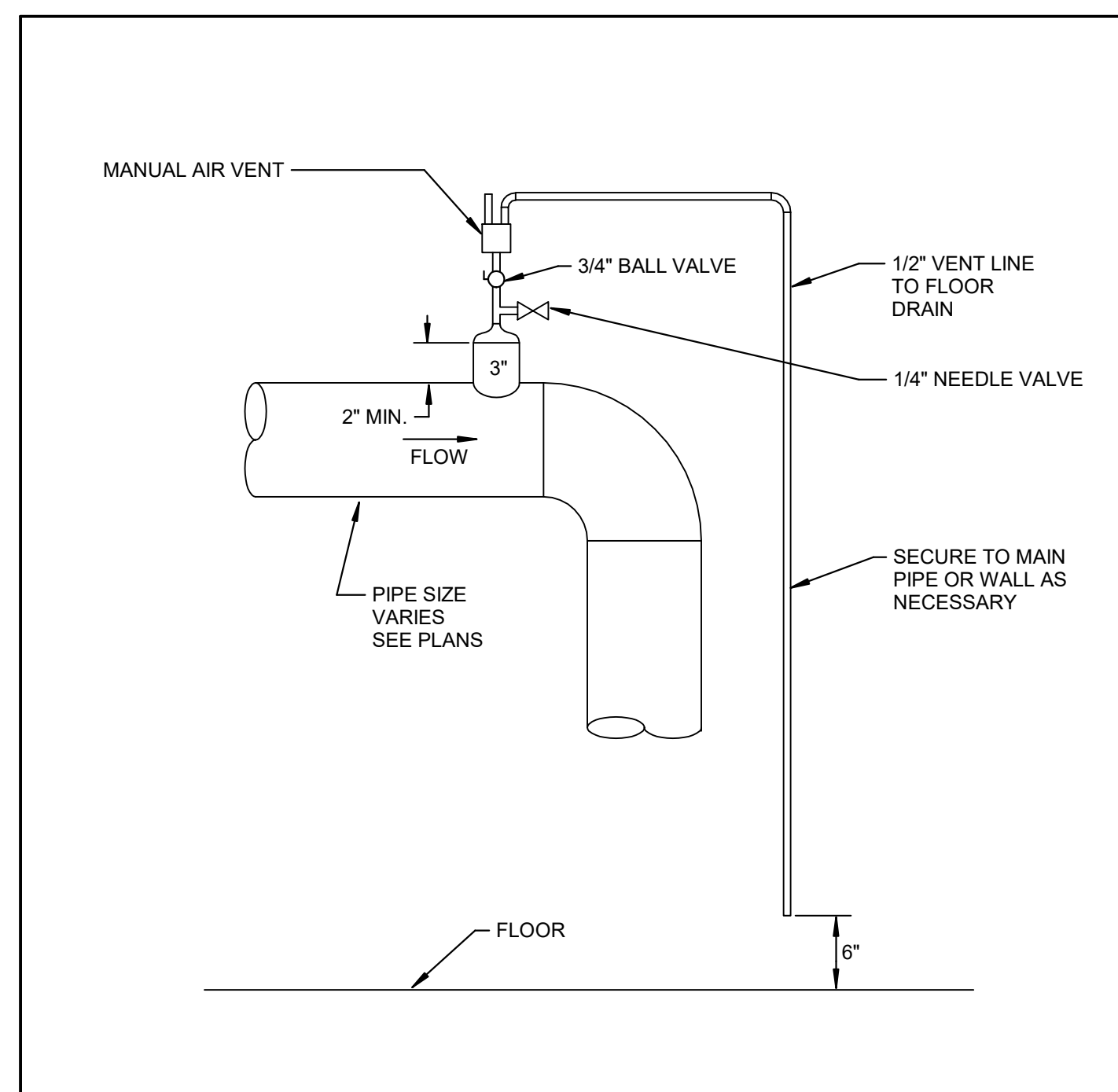
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**SHELL & CORE - MECHANICAL DETAILS**

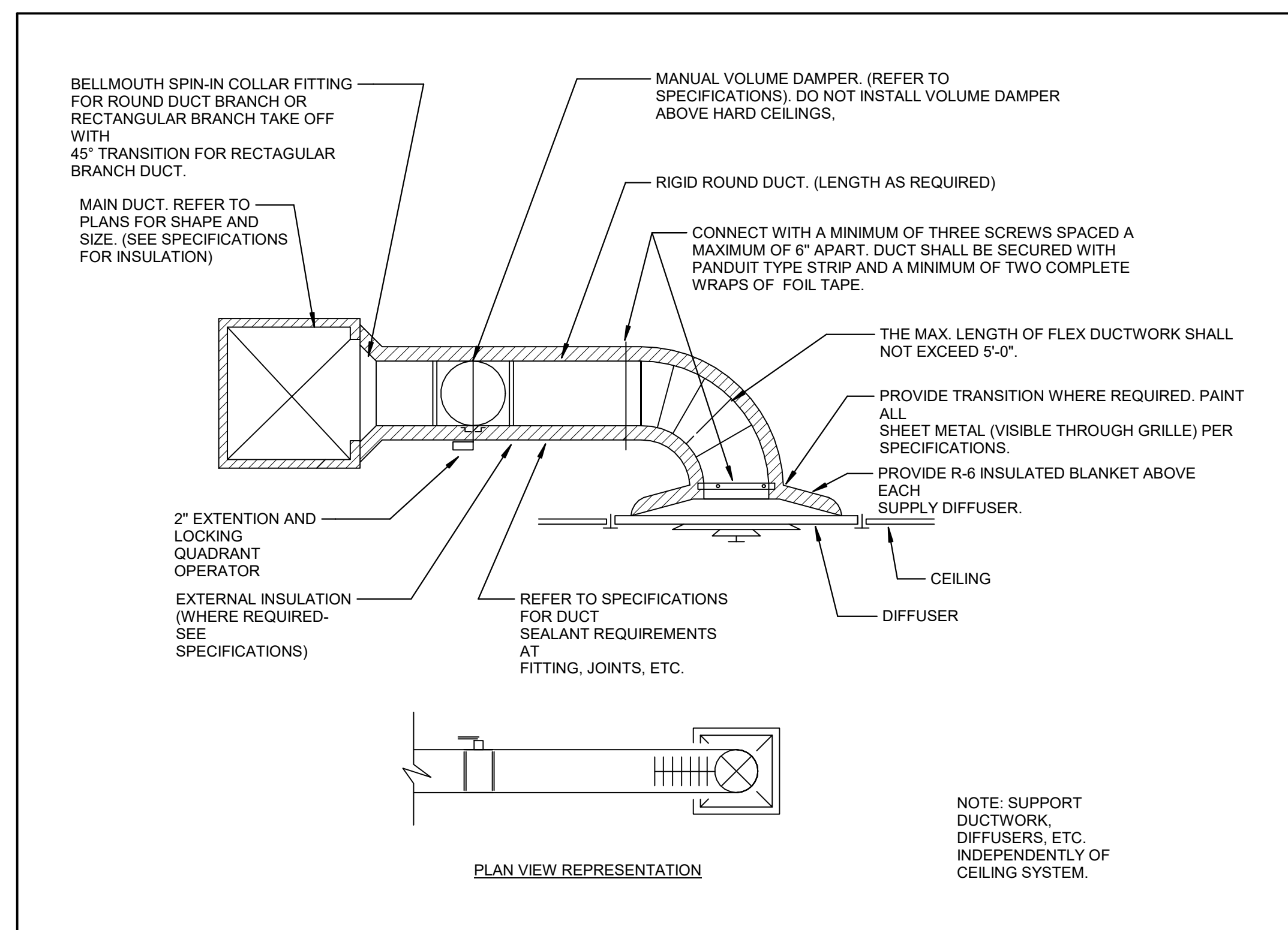
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**M405**

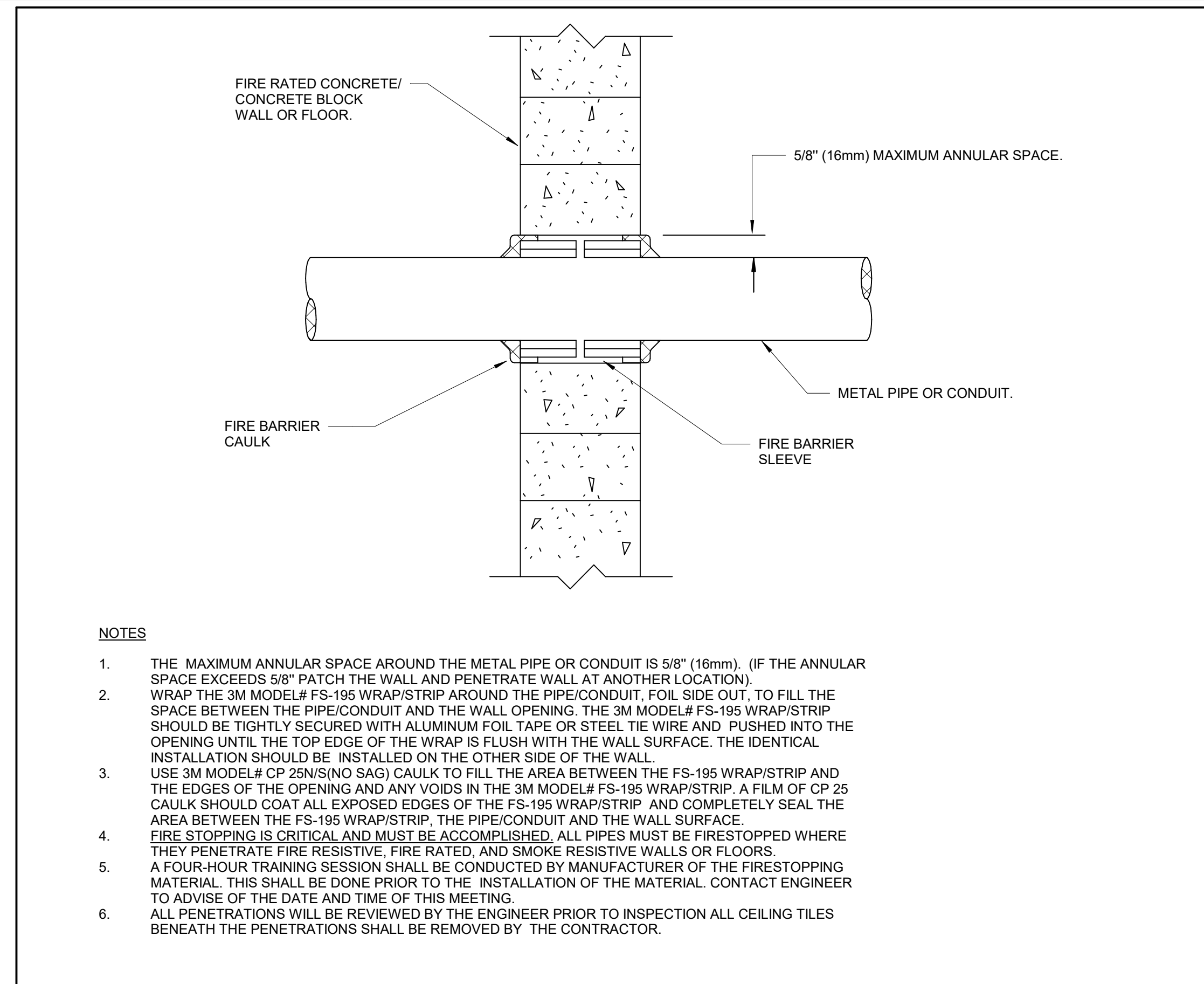
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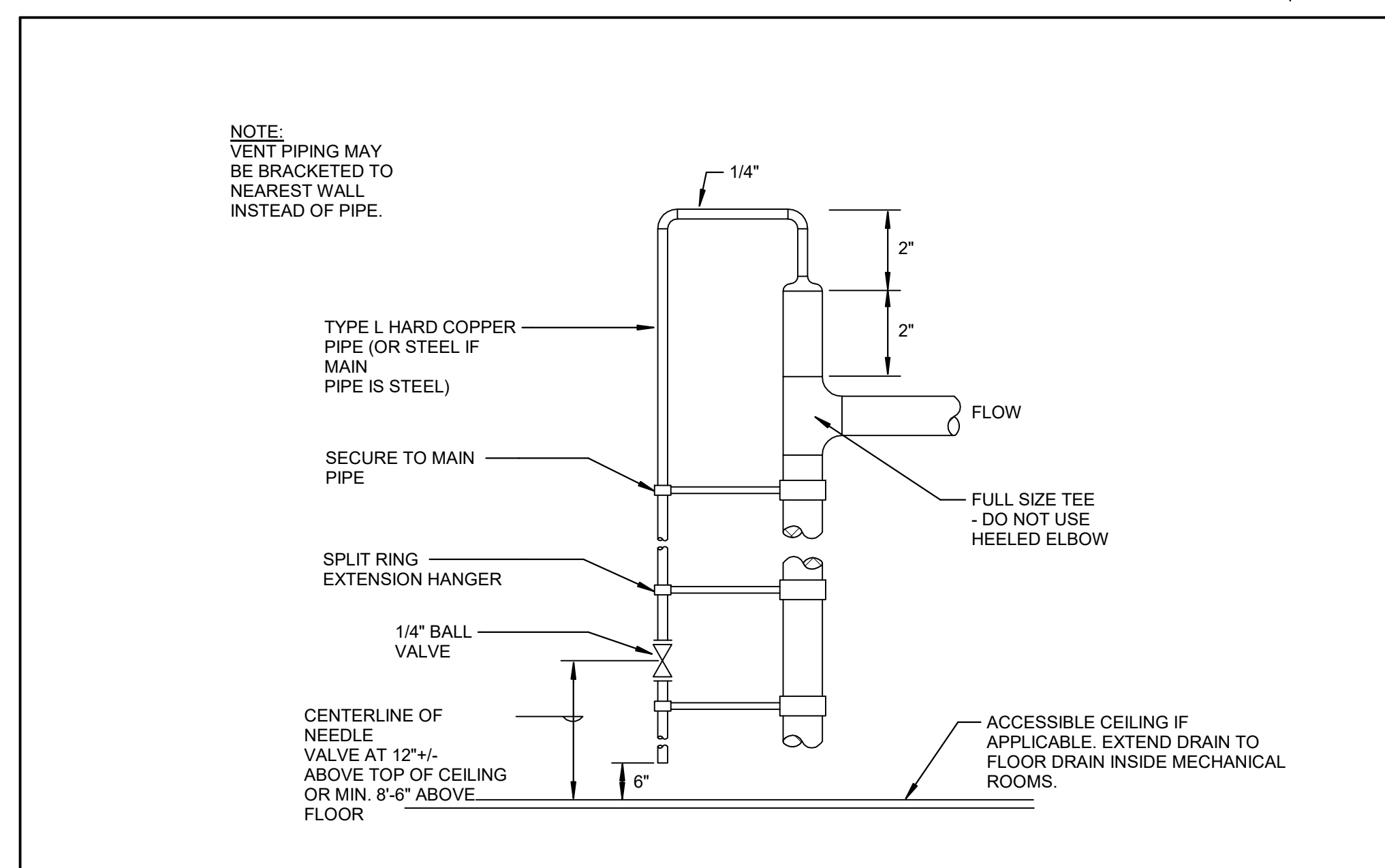
**4** MANUAL AIR VENT DETAIL - PIPES 4" AND LARGER  
SCALE: NONE



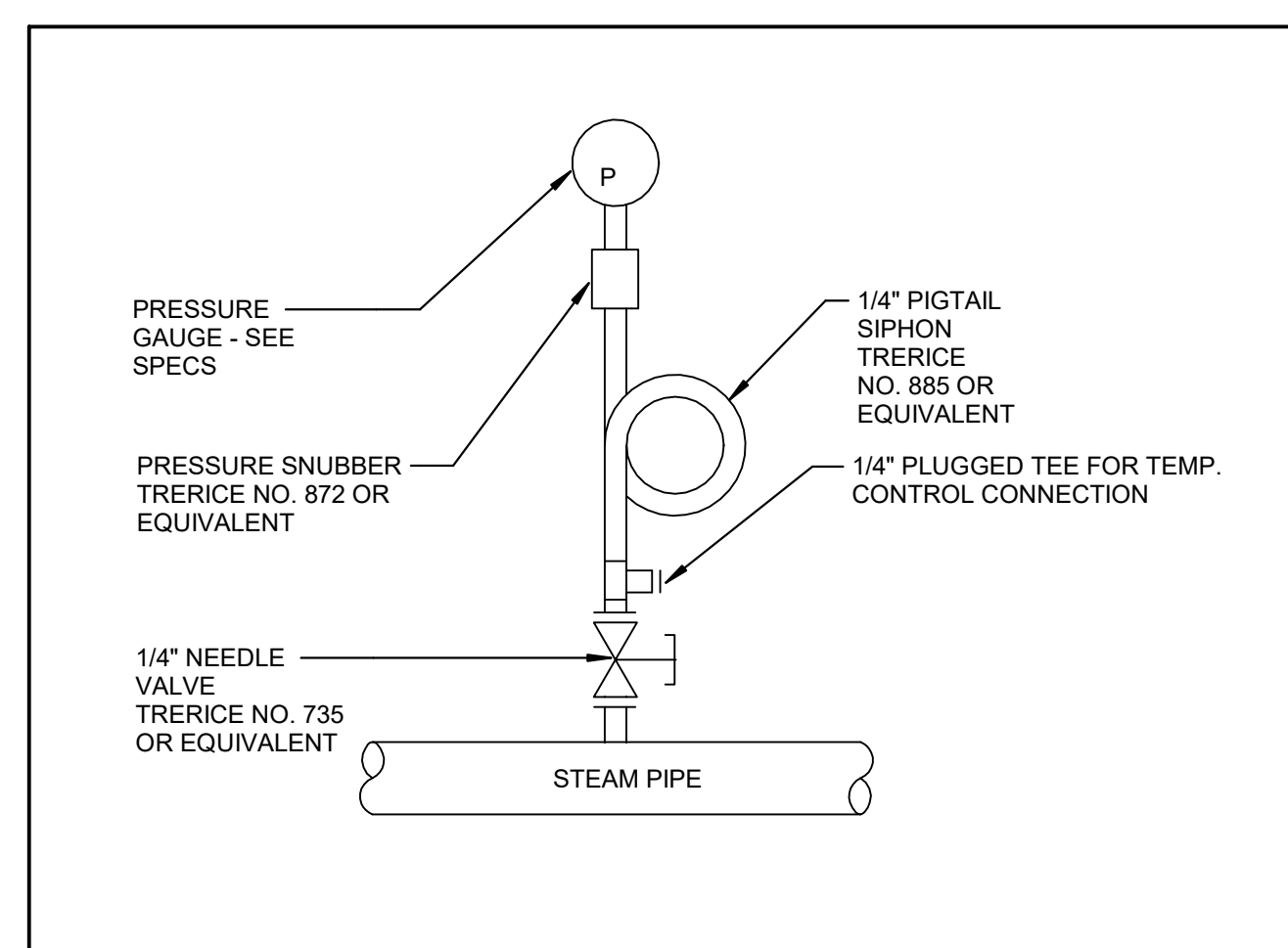
**2** TYPICAL BRANCH DUCT DETAIL (SUPPLY, RETURN, AND EXHAUST)  
SCALE: NONE



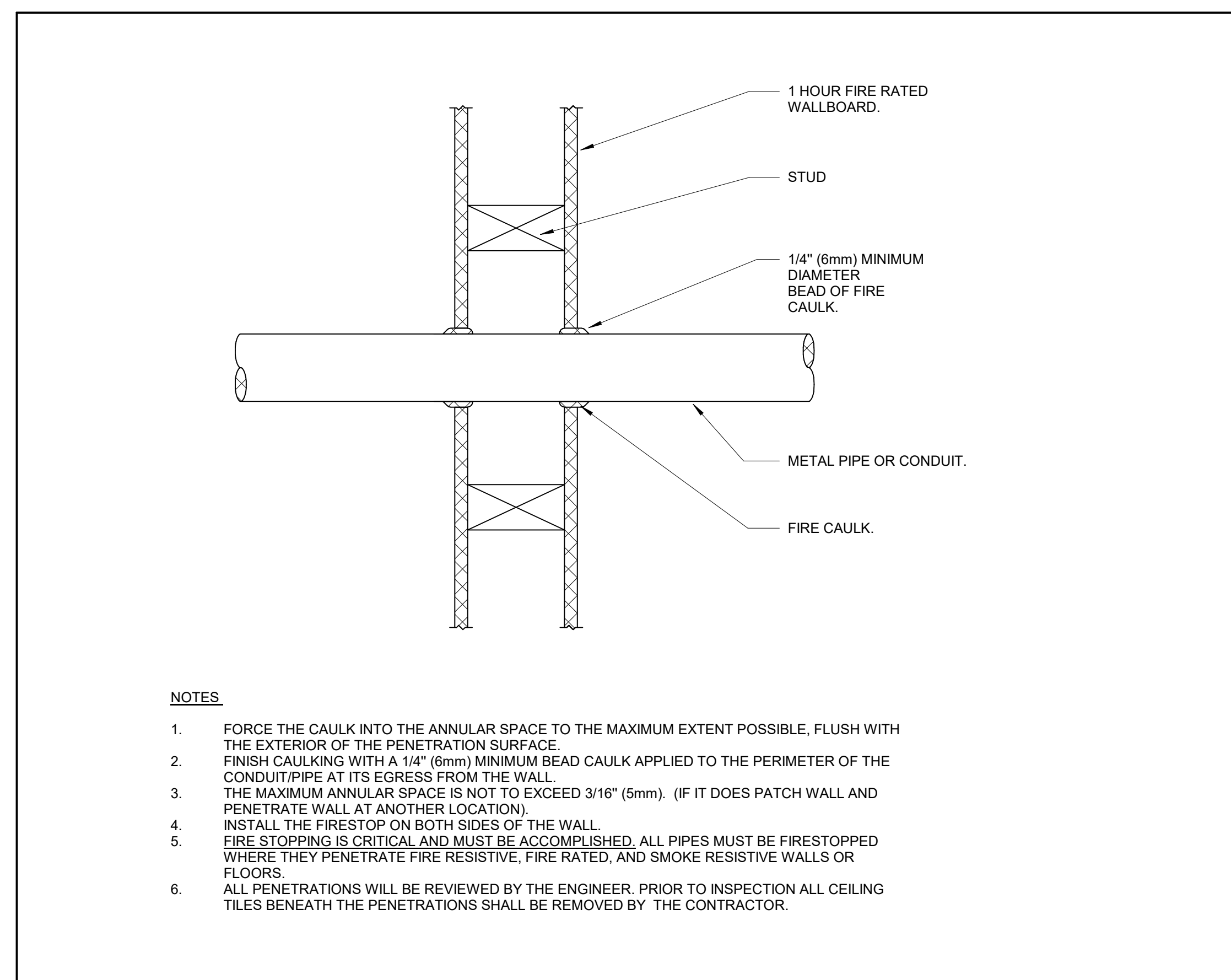
**3** PENETRATION FIRESTOP FOR METAL PIPE/CONDUIT THROUGH A CONCRETE WALL  
SCALE: NONE



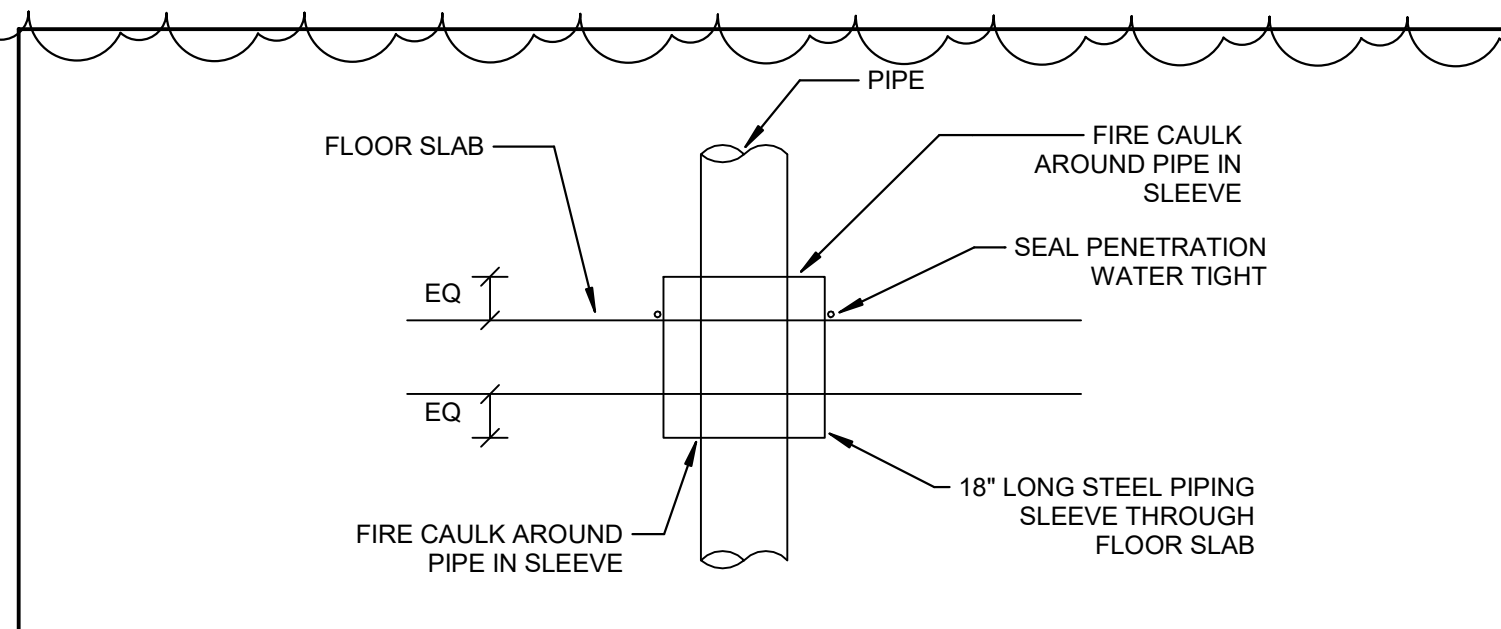
**6** MANUAL AIR VENT DETAIL - PIPES 3" AND SMALLER  
SCALE: NONE



**8** STEAM PRESSURE GAUGE INSTALLATION  
SCALE: NONE



**1** PENETRATION FIRESTOP FOR METAL PIPE/CONDUIT THROUGH ONE HOUR WALL  
SCALE: NONE



**7** PIPE SLEEVE THROUGH FLOOR DETAIL  
SCALE: NONE

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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**CDM Smith**

**PIVOTAL**  
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**UK**  
HEALTHCARE

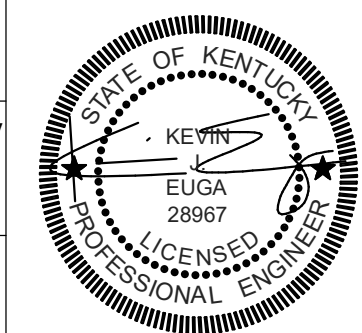
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Drawn By  
**KAS**  
Checked By  
**SAC**  
Client Number  
514  
Project Number  
6926



DRAWING TITLE

SHELL & CORE - MECHANICAL DETAILS

SHEET NO.  
**M407**

ISSUANCES

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**

Checked By  
**SAC**

Client Number  
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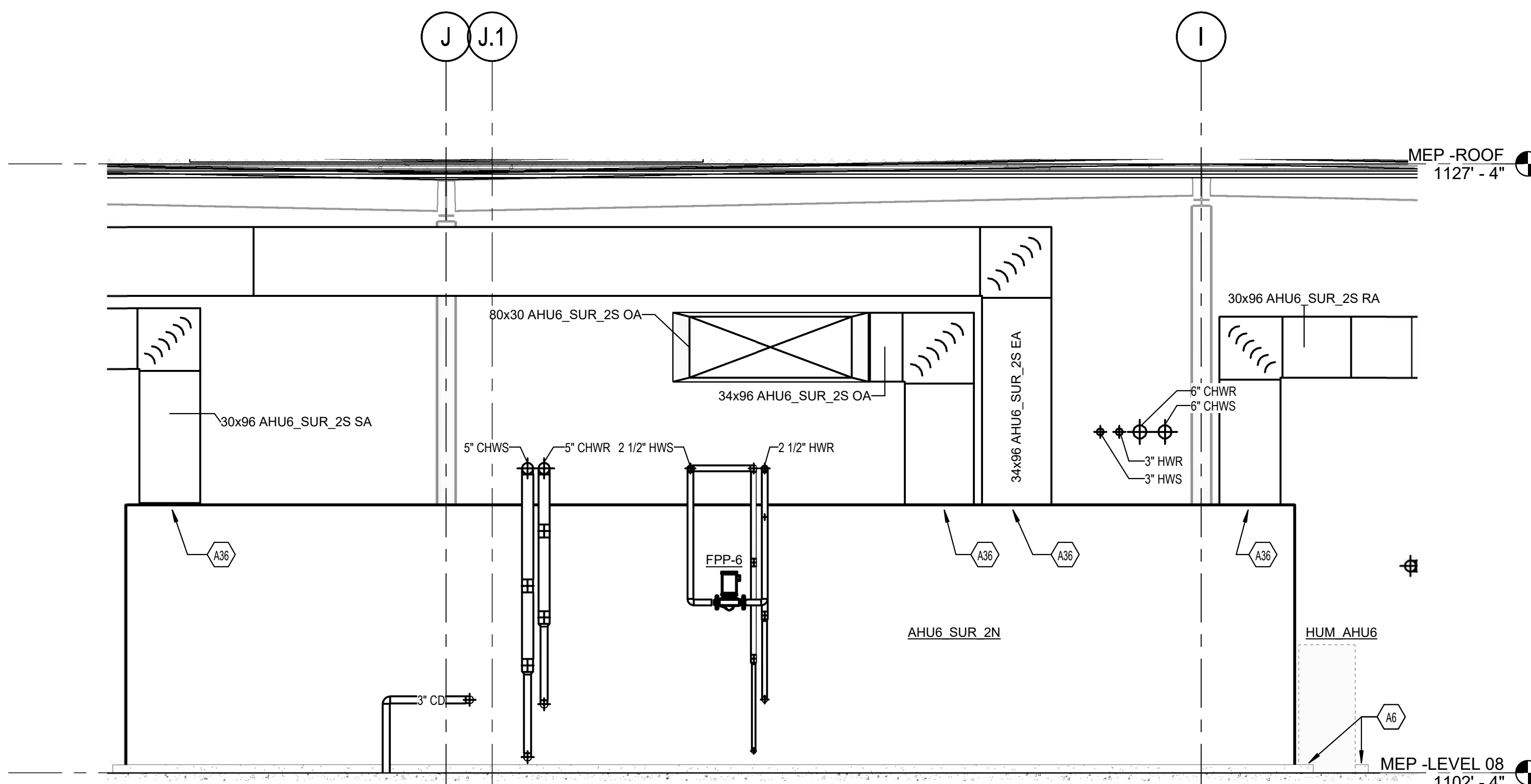
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**SHELL & CORE -  
MECHANICAL  
SECTIONS**

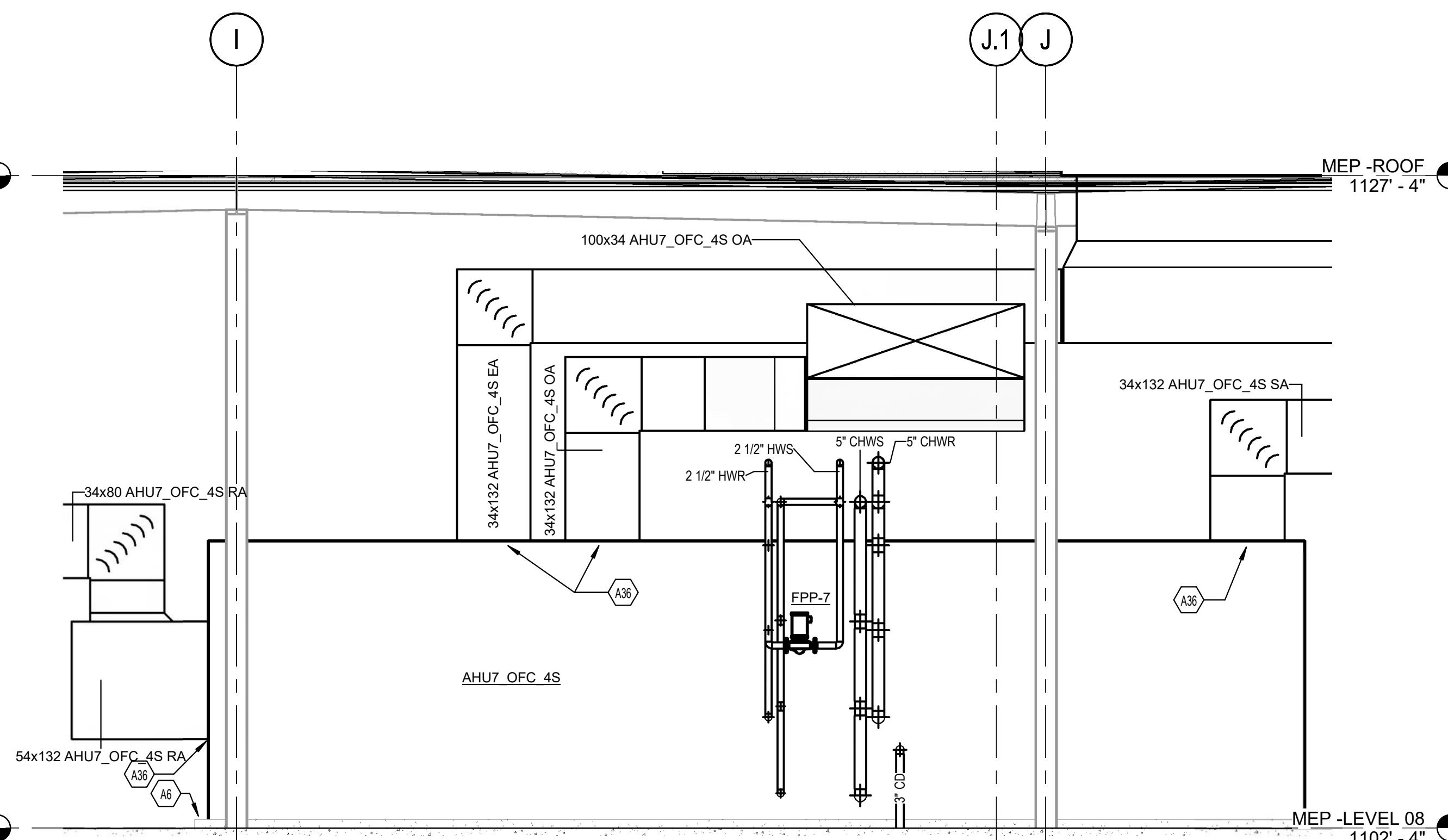
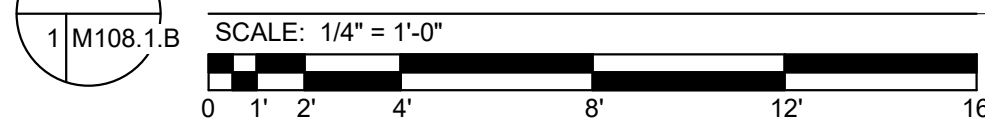
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**M503**

TAGGED NOTES

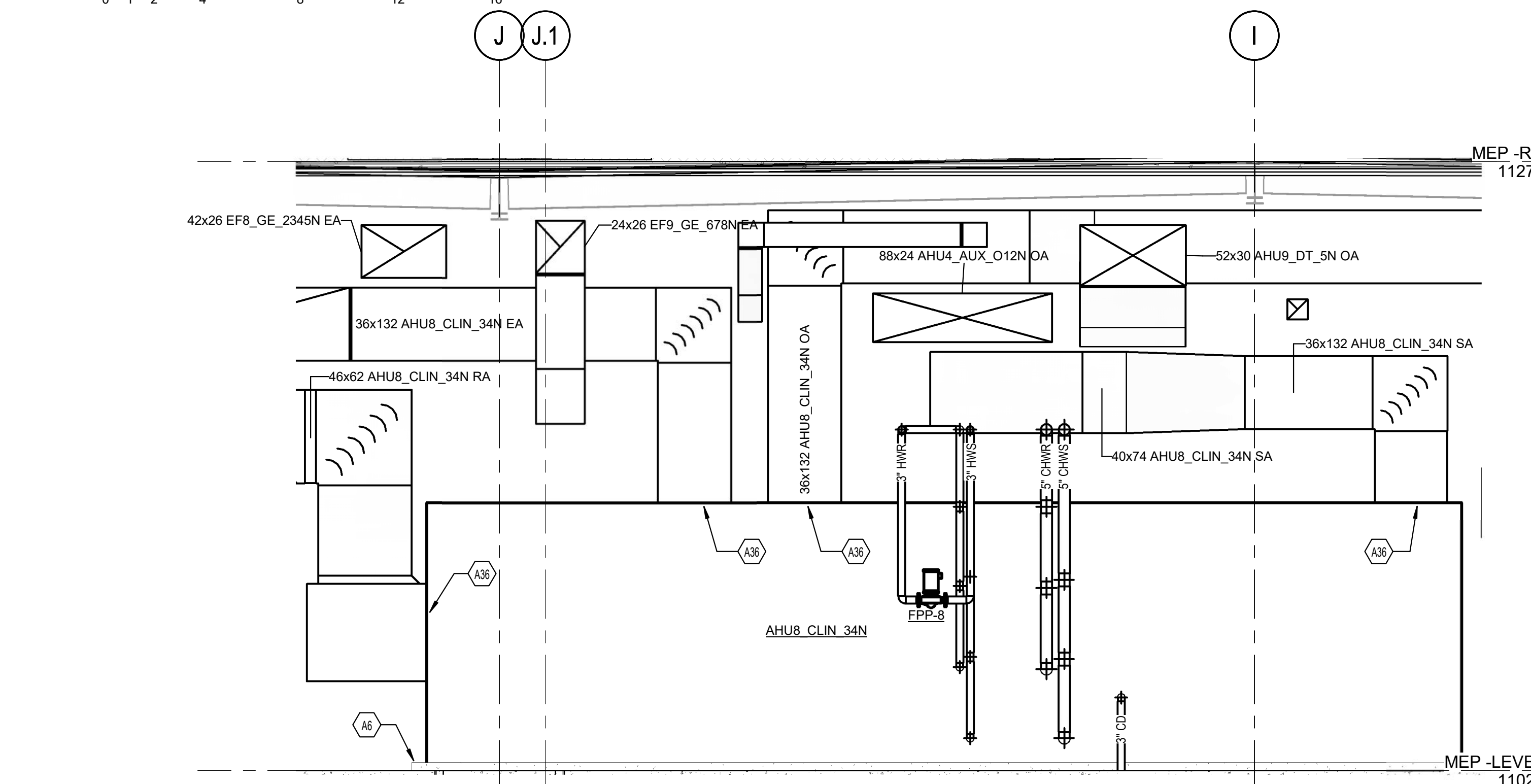
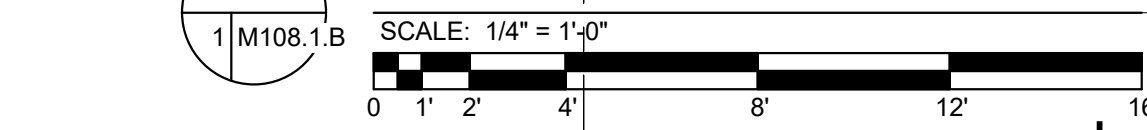
- A6 INSTALL NEW AIR HANDLING UNIT ON 4" HOUSEKEEPING PAD.
- A17 14" BOILER FLUE GAS EXHAUST OUTLET. CONTRACTOR SHALL INSTALL PER MANUFACTURERS REQUIREMENTS AS HIGH AS POSSIBLE.
- A18 12" BOILER COMBUSTION AIR INLET. CONTRACTOR SHALL INSTALL PER MANUFACTURERS REQUIREMENTS. MAINTAIN MINIMUM 40" VERTICAL CLEARANCE FROM BOILER FLUE GAS EXHAUST AND 100" HORIZONTAL CLEARANCE FROM BOILER FLUE GAS EXHAUST.
- A36 CONTRACTOR SHALL MATCH DUCTWORK CONNECTION WITH MANUFACTURE PROVIDED PLENUM OPENING.
- A51 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 148" W X 50" H ACTIVE LOUVER SECTION FOR AHU2\_DT\_2S RELIEF AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 117" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A53 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 154" W X 52" H ACTIVE LOUVER SECTION FOR AHU1\_DT\_0S RELIEF AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 115" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.
- A57 LOUVER SPECIFIED AND PROVIDED BY THE ARCHITECT. INSTALL 148" W X 50" H ACTIVE LOUVER SECTION FOR AHU2\_DT\_2S RELIEF AIR. LOUVER TO BE MIN. 50% FREE AREA. INSTALL 126" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR LOUVER SPECIFICATIONS AND DETAILS.



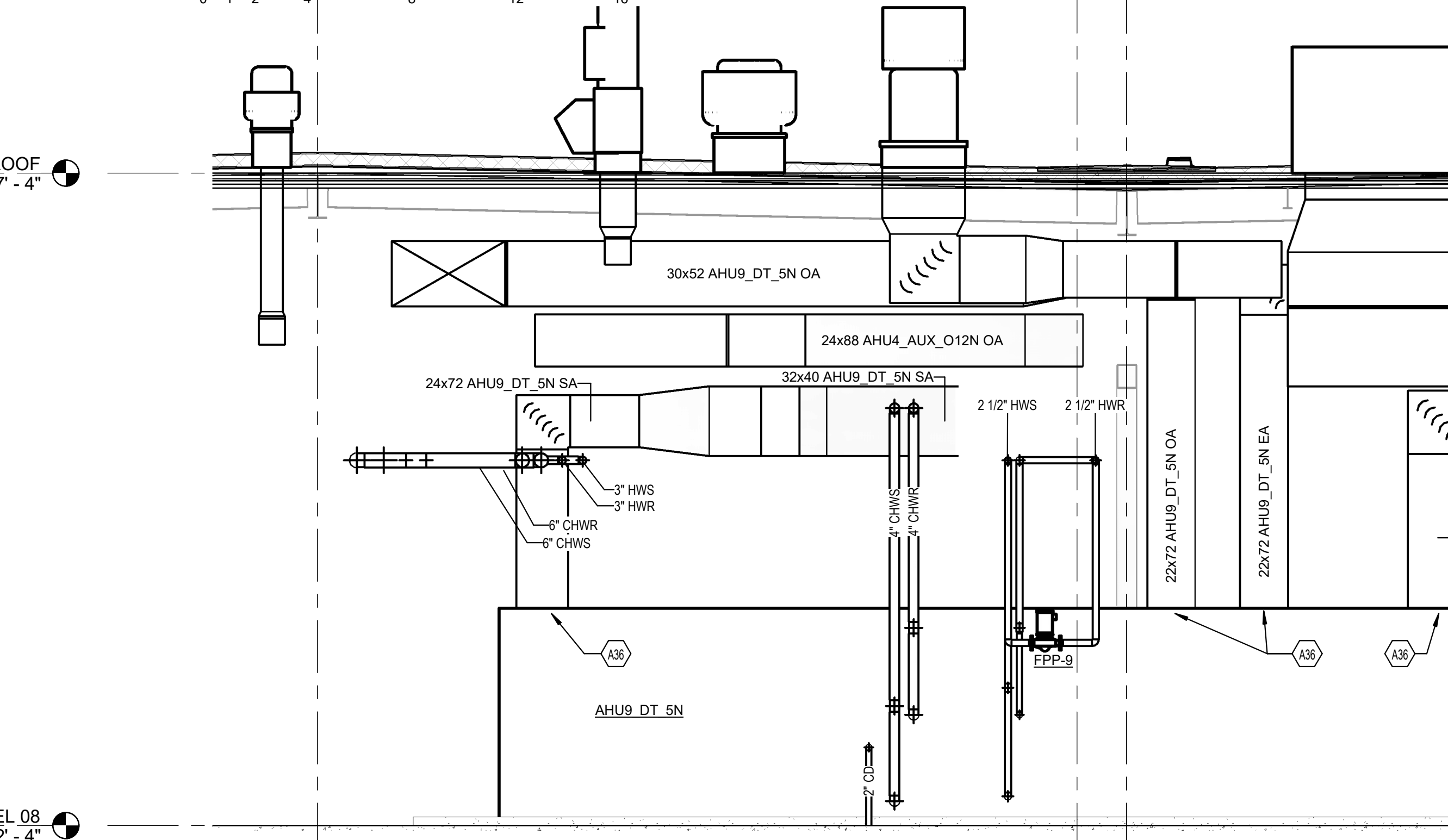
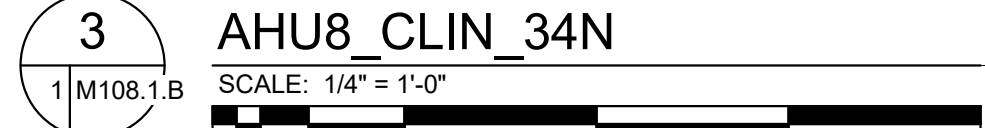
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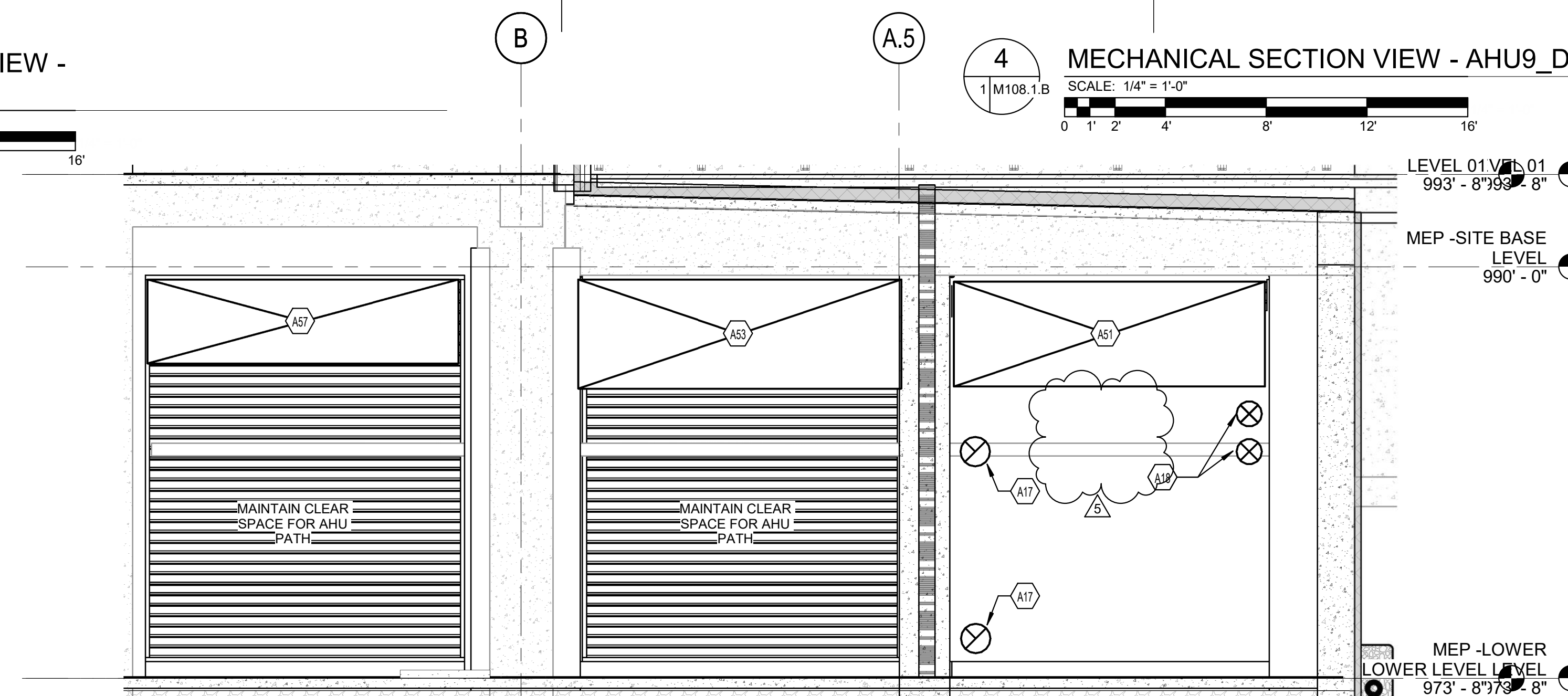
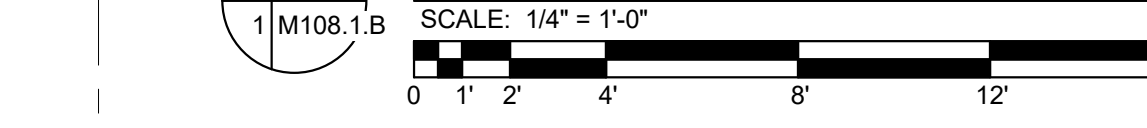
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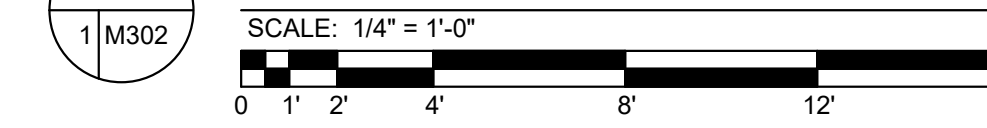
3 MECHANICAL SECTION VIEW - AHU8\_CLIN\_34N



4 MECHANICAL SECTION VIEW - AHU9\_DT\_5N



5 CSA00F MECH/PLUMBING - AREAWAY SECTION VIEW



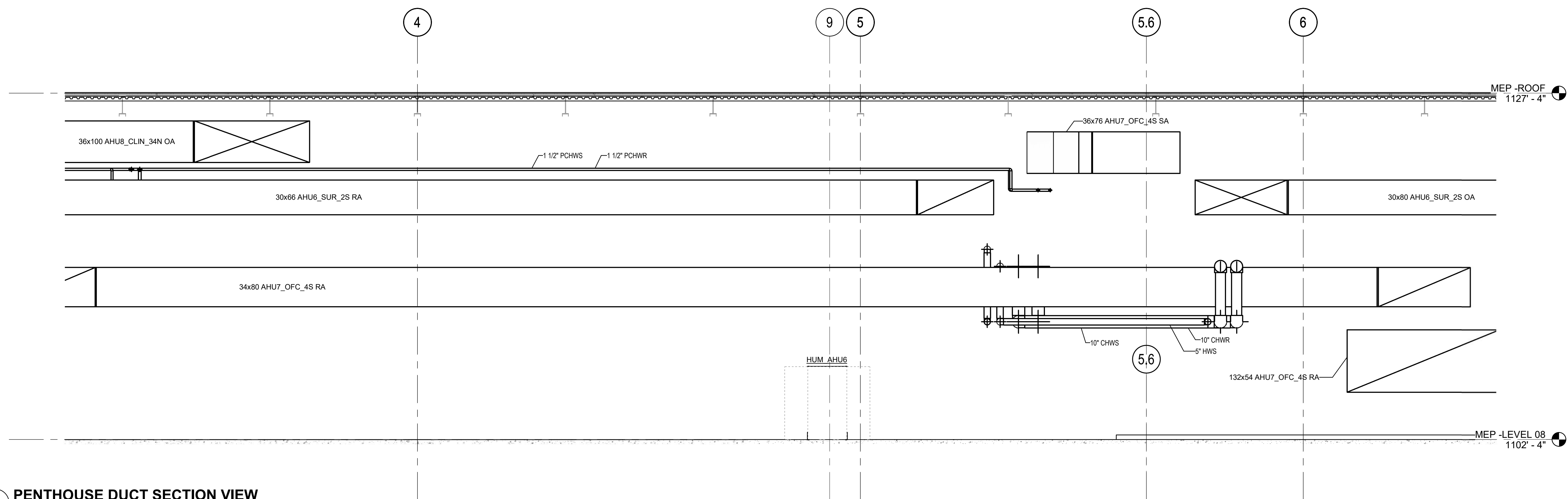
**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

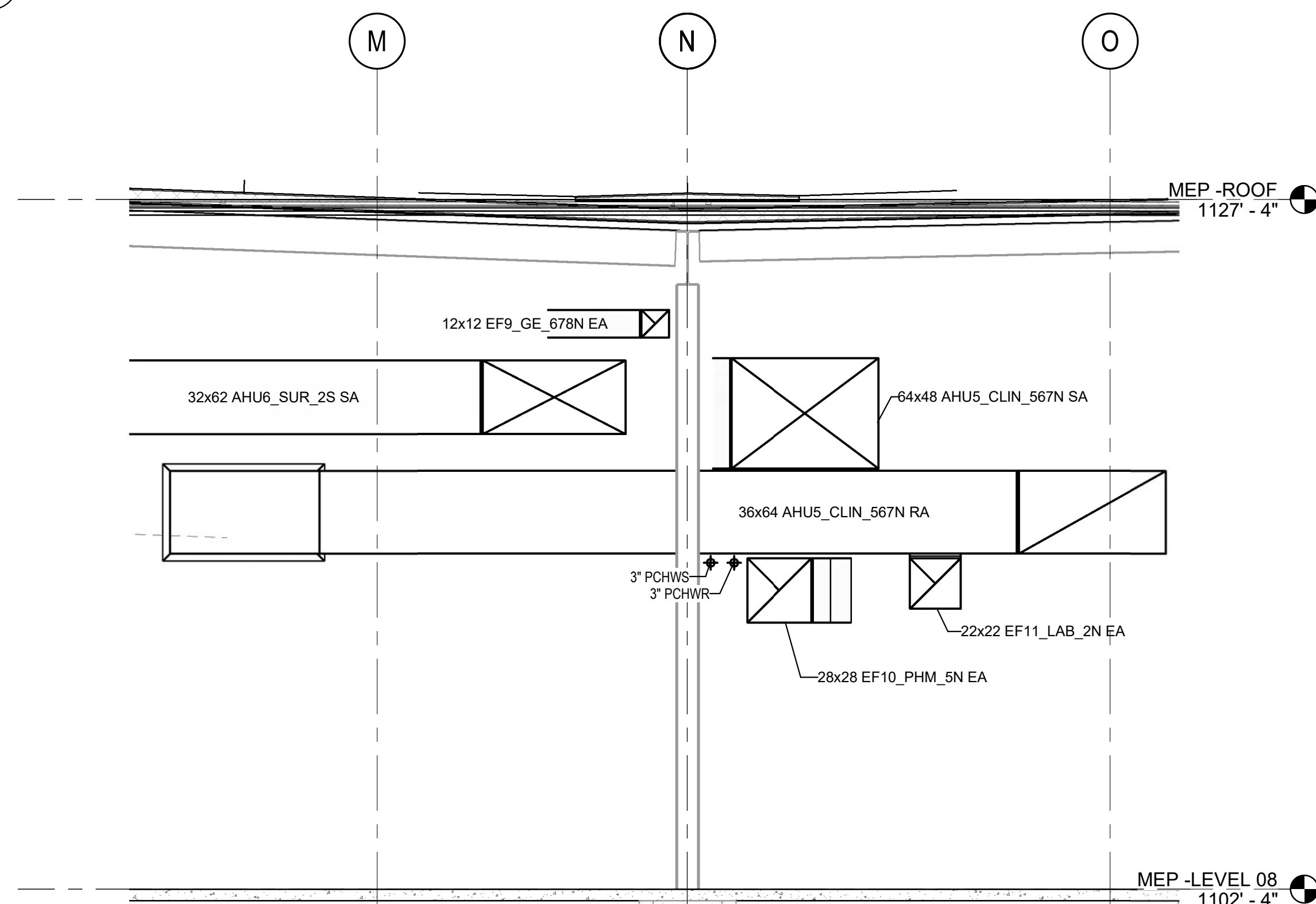
Drawn By	Author
Checked By	Checker
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL  
SECTIONS**

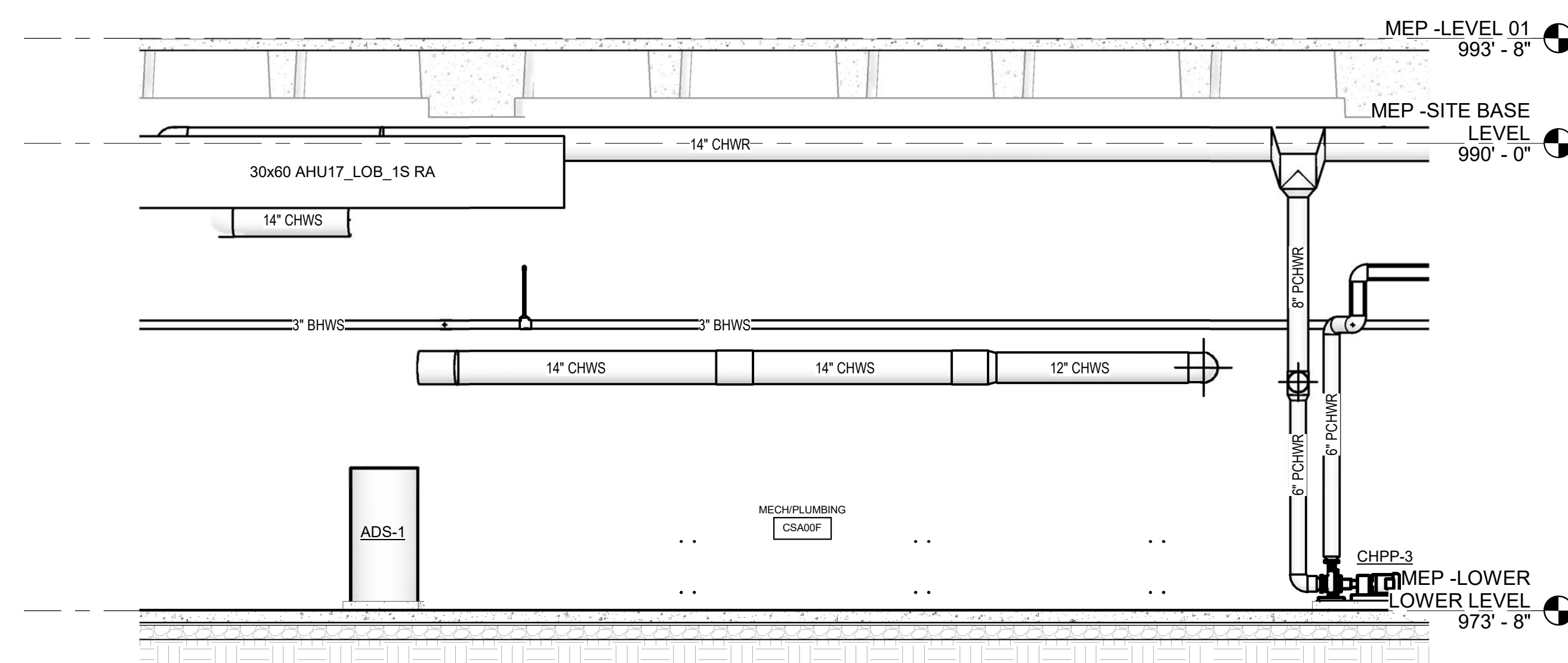
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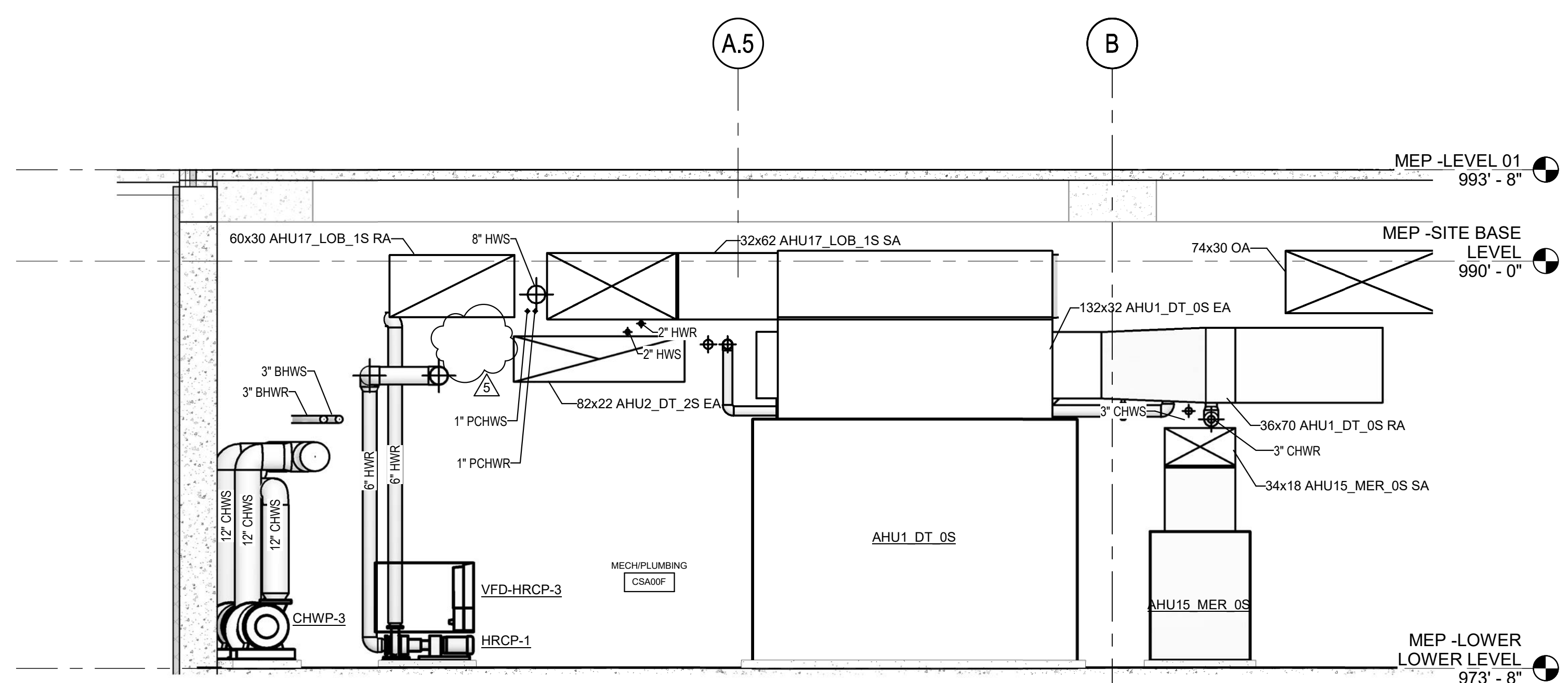
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M507  
**PENTHOUSE DUCT SECTION VIEW**  
1/4" = 1'-0"



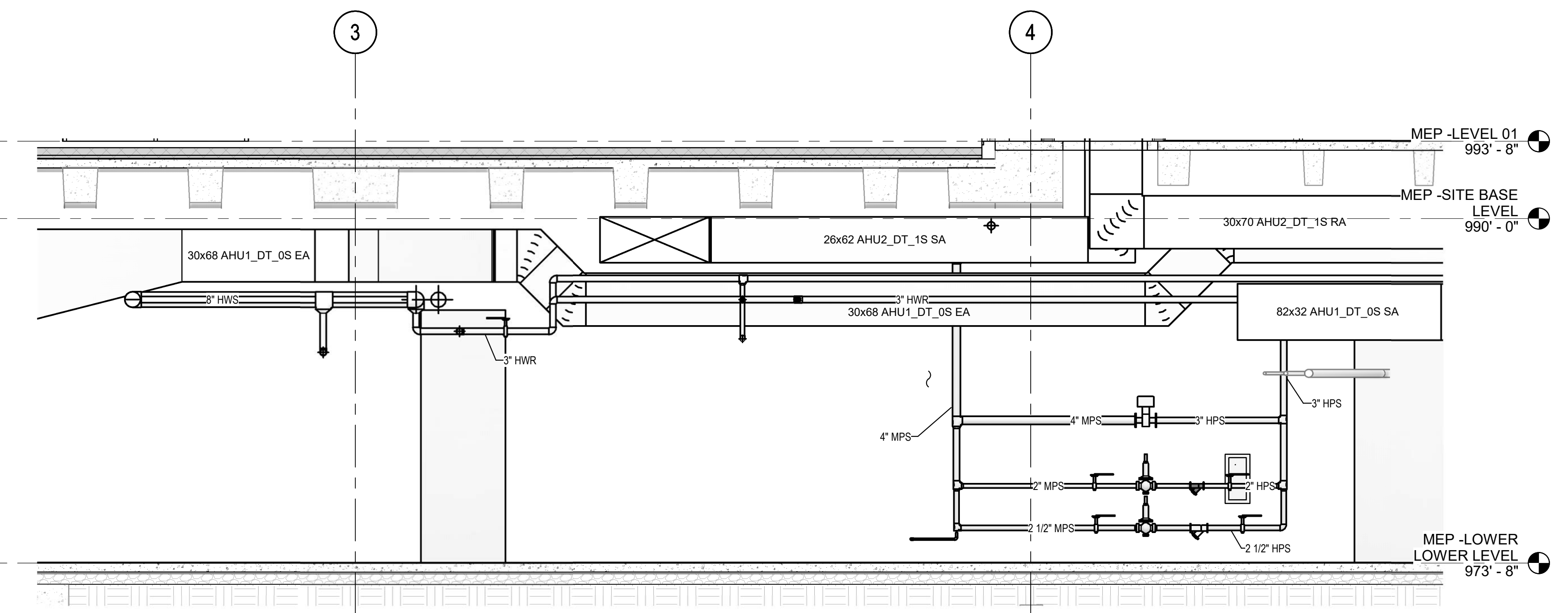
**2**  
M507  
**NORTH PENTHOUSE SECTION VIEW**  
1/4" = 1'-0"



**3**  
M507  
**LOWER LEVEL PIPING SECTION VIEW**  
1/4" = 1'-0"

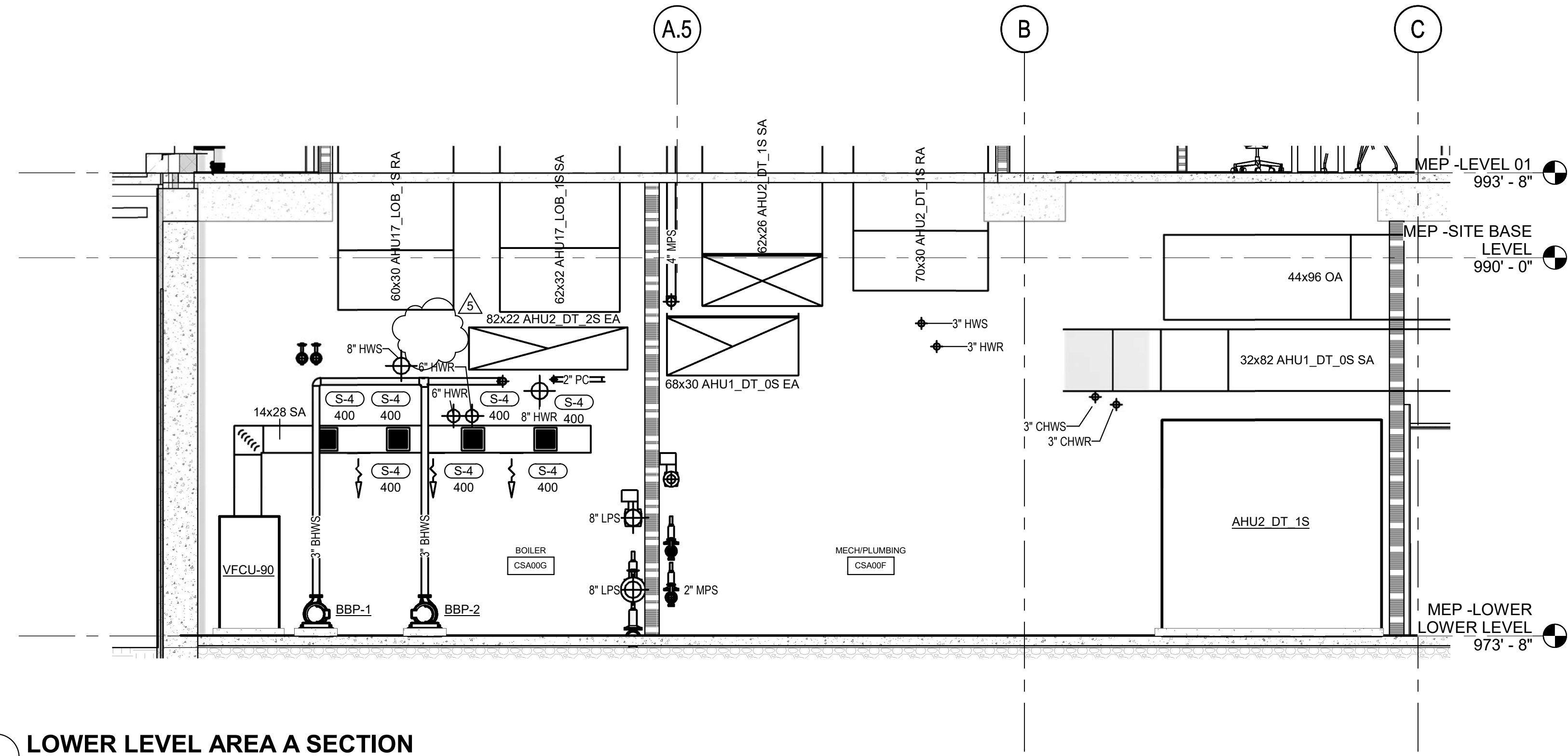


**4**  
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**LOWER LEVEL SECTION VIEW**  
1/4" = 1'-0"

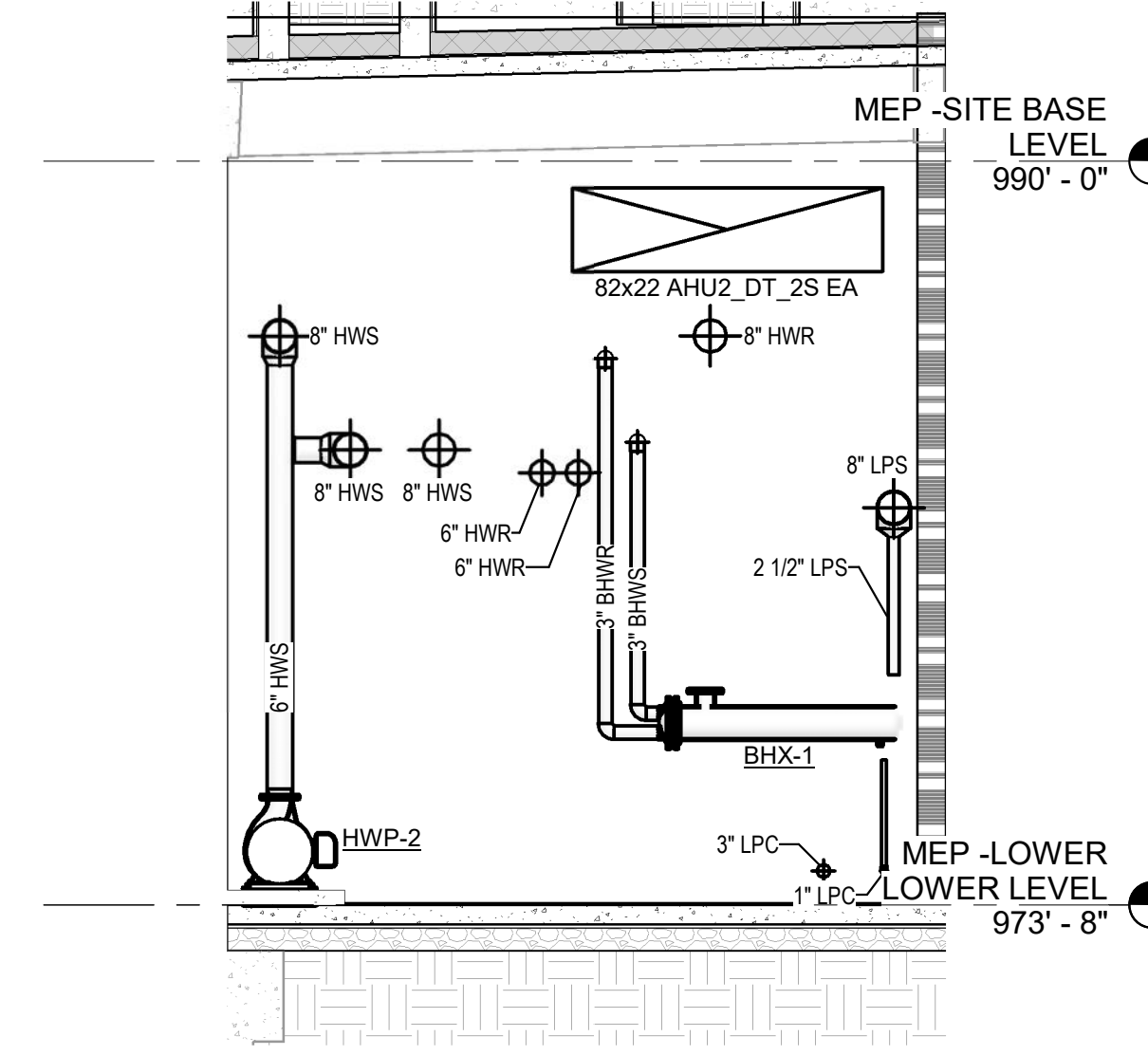


**5**  
M507  
**LOWER LEVEL AREA B SECTION VIEW**  
1/4" = 1'-0"





1 LOWER LEVEL AREA A SECTION  
 M508 1/4" = 1'-0"



2 LOWER LEVEL MECHANICAL ROOM SECTION  
 M508 1/4" = 1'-0"



**CHAMPLIN**  
 ARCHITECTURE  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**

**AEI** Affiliated  
 Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 | DESIGN | ENGINEERING

**WALSH**  
 CONSULTING GROUP



**CDM Smith**

**PIVOTAL**  
 lighting design



**Cancer Treatment  
 Center + Advanced  
 Ambulatory Center**

1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By

Author

Checked By

Checker

Client  
 Number  
 514

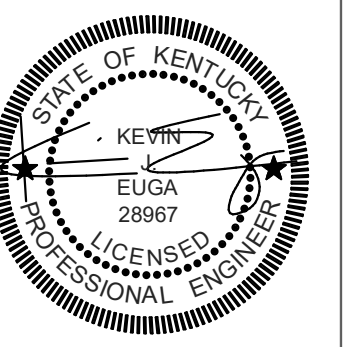
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DRAWING  
 TITLE

SHELL & CORE -  
 MECHANICAL  
 SECTIONS

SHEET NO.

M508



**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By **KAS**

Checked By **SAC**

Client Number 514

Project Number 6926

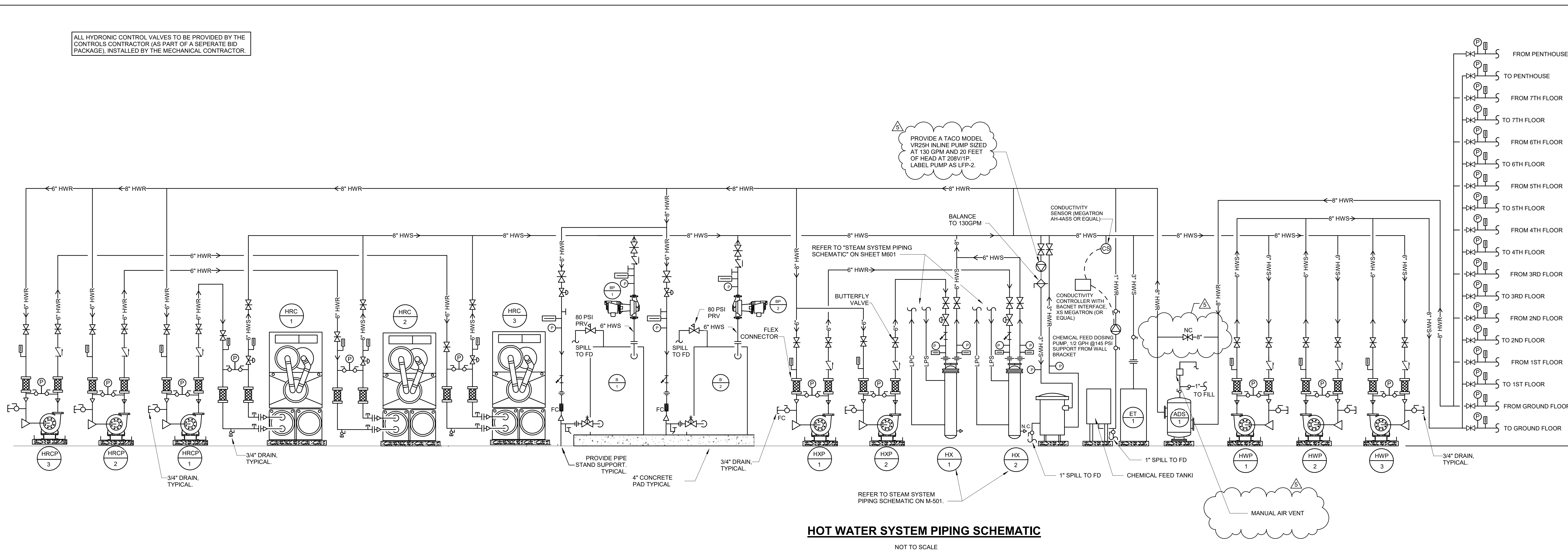
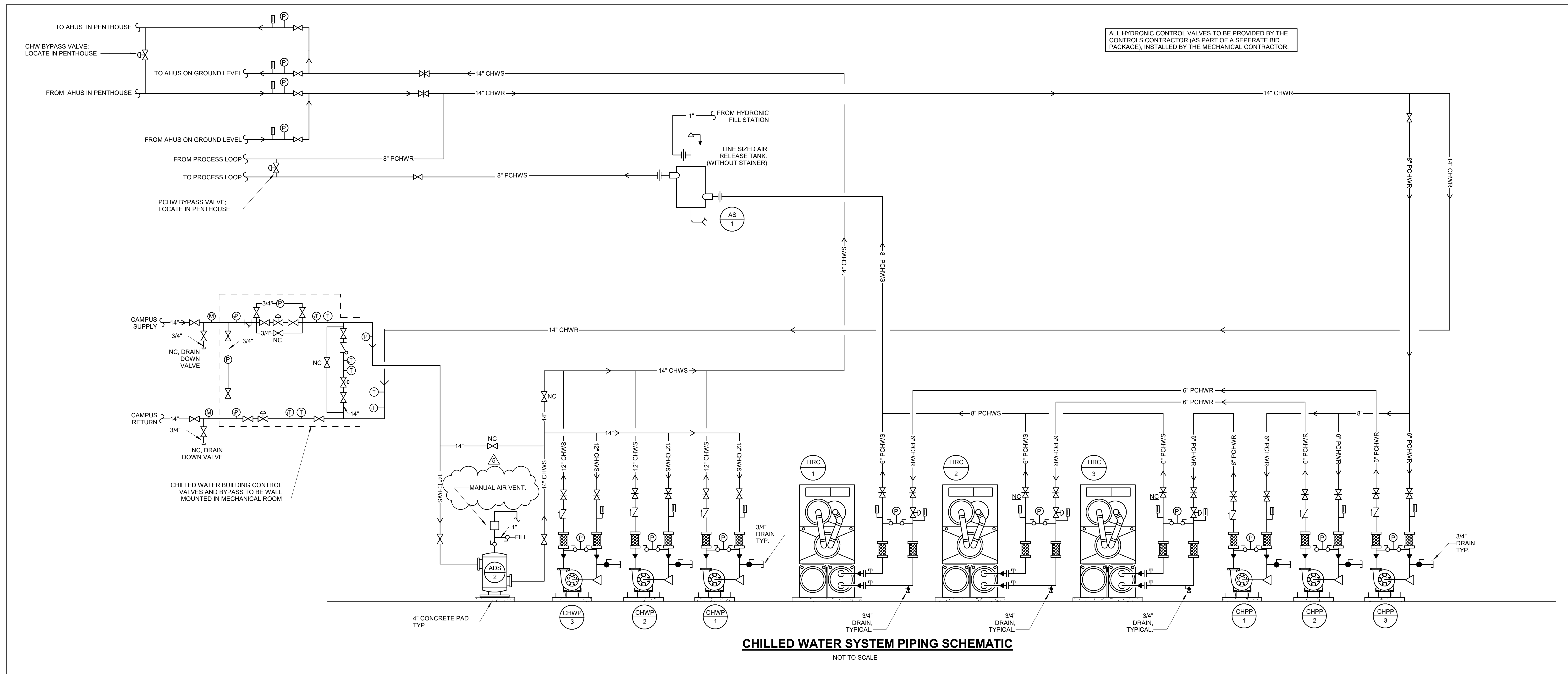
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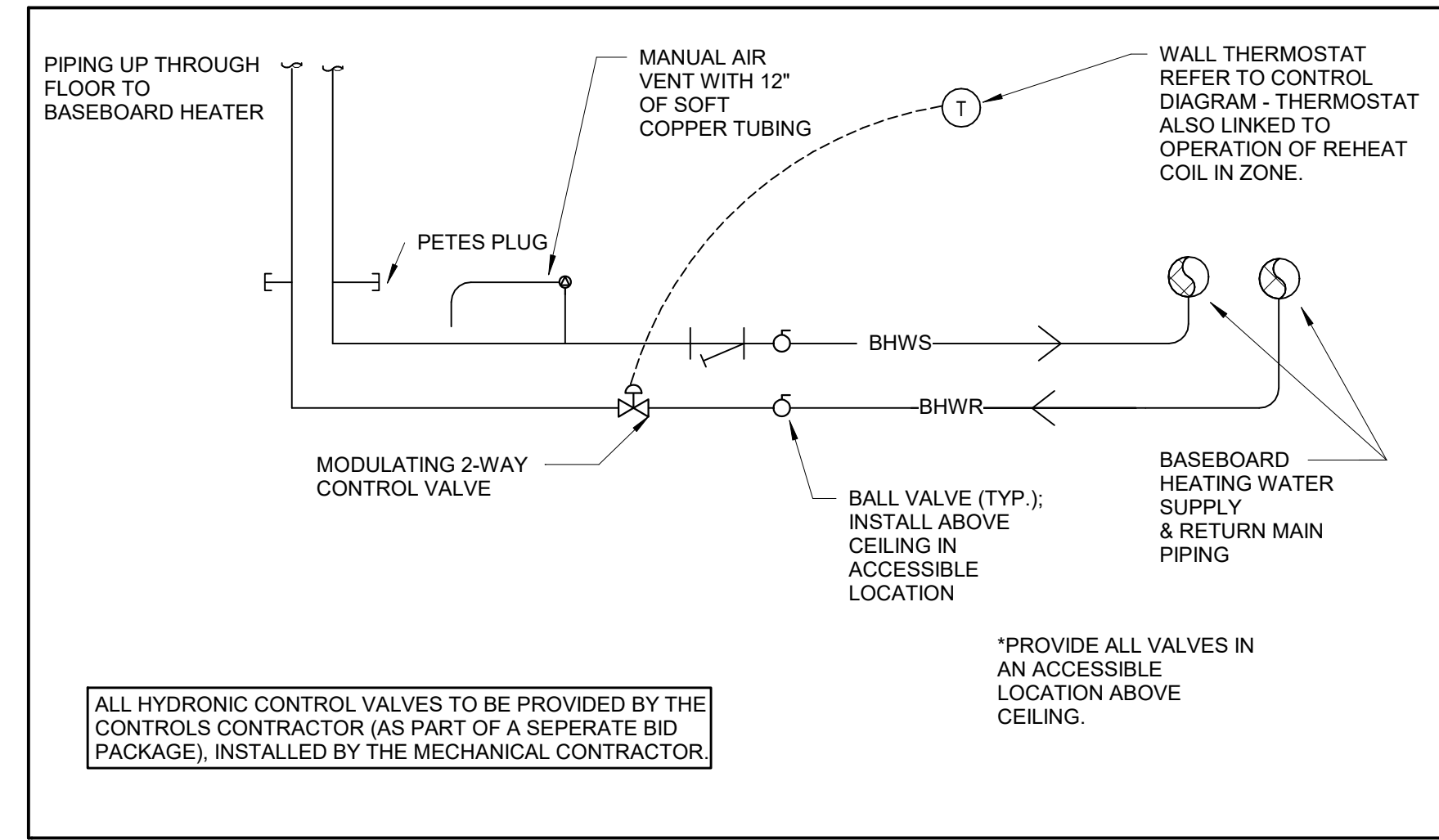
**SHELL & CORE -  
MECHANICAL PIPING  
SCHEMATIC**

SHEET NO.

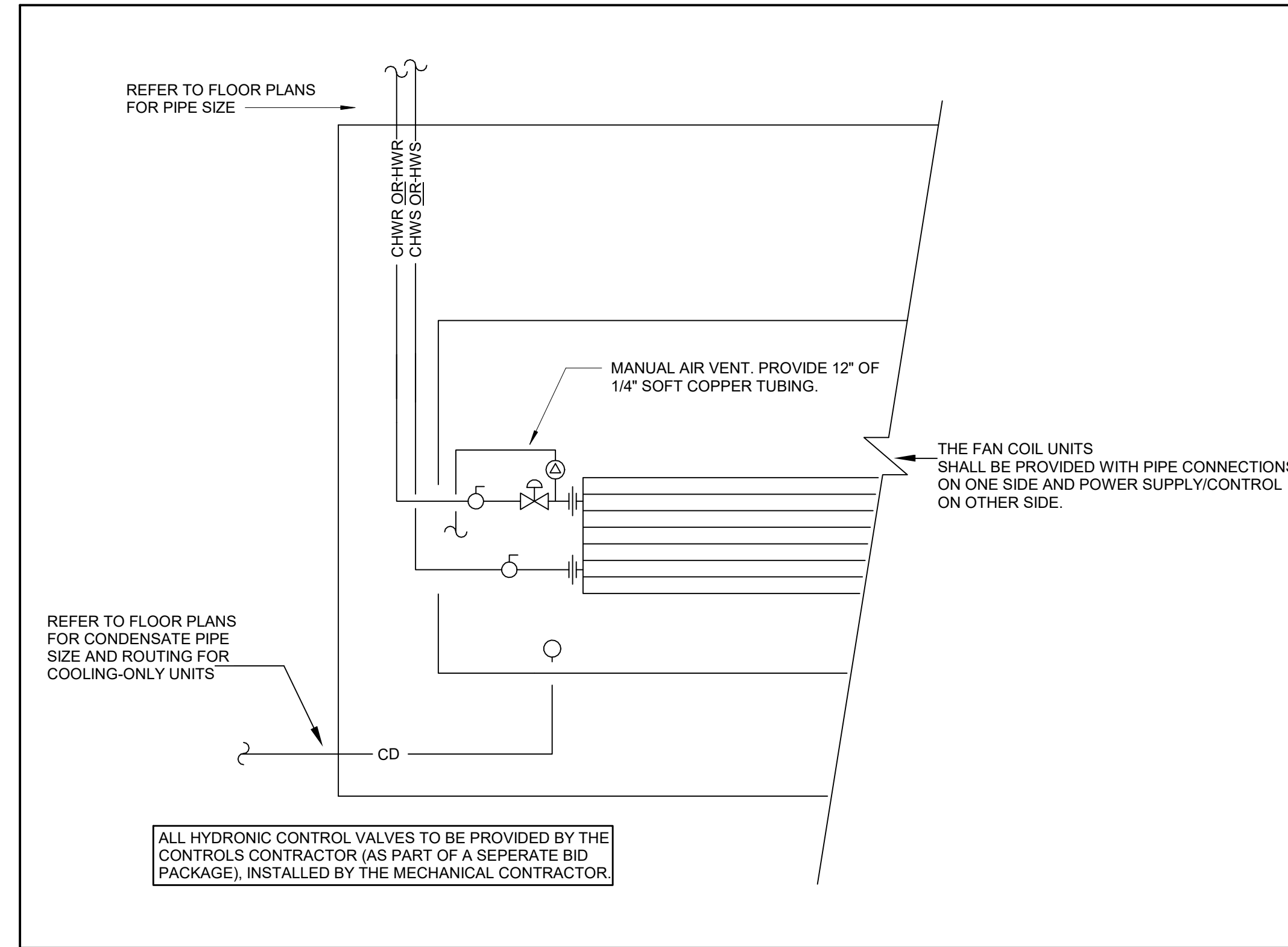
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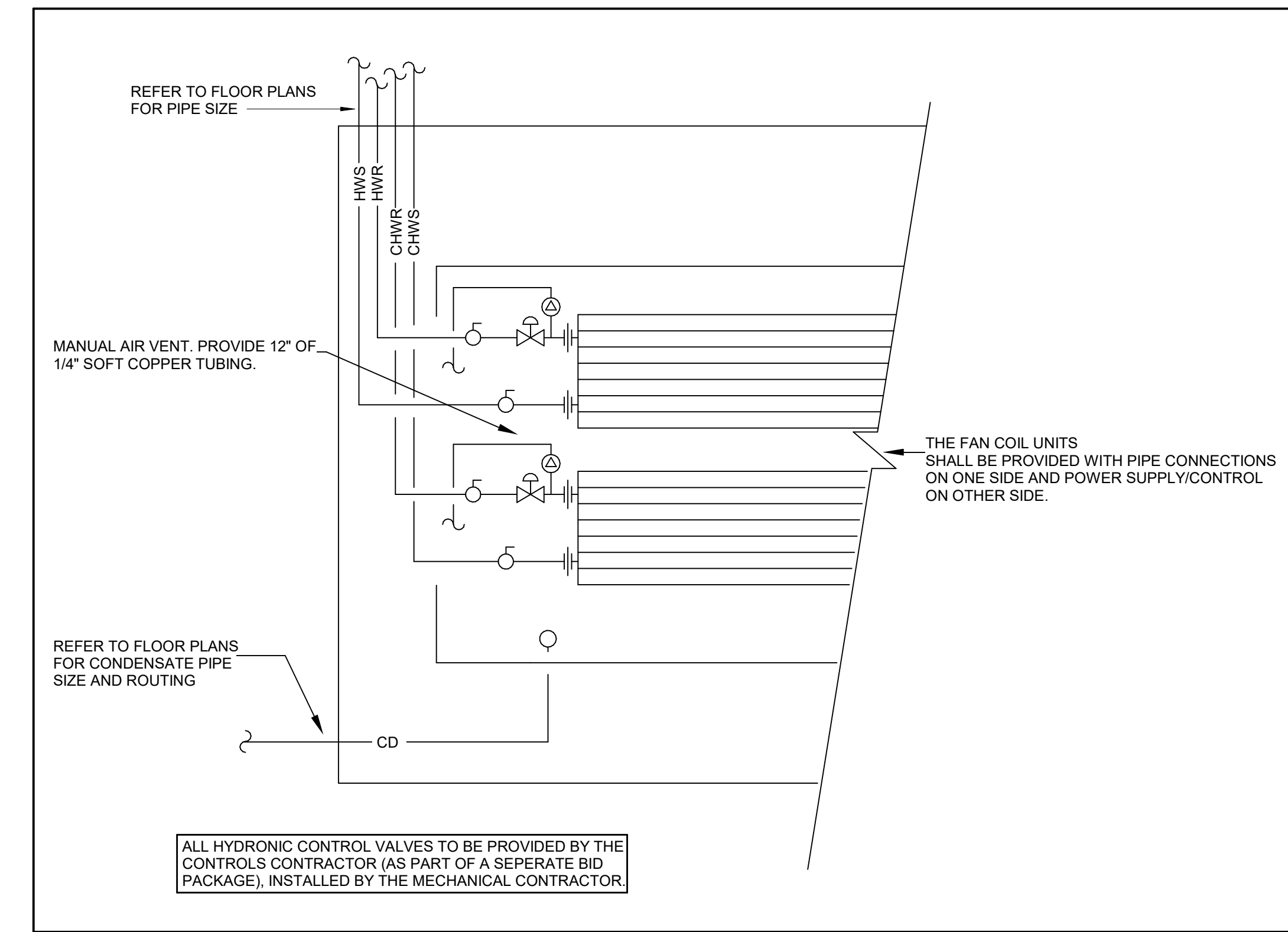




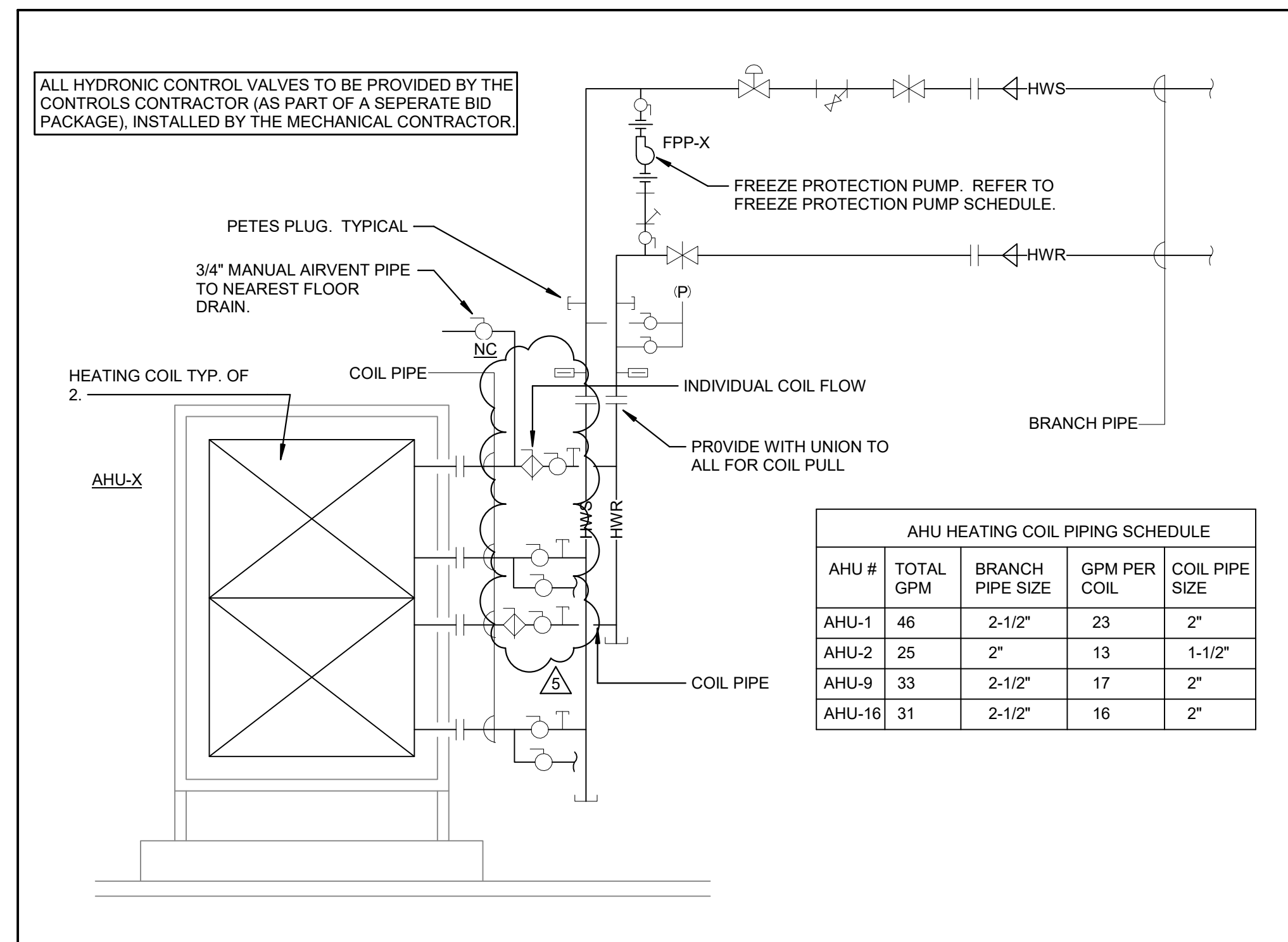
8 BASEBOARD HEATER PIPING SCHEMATIC  
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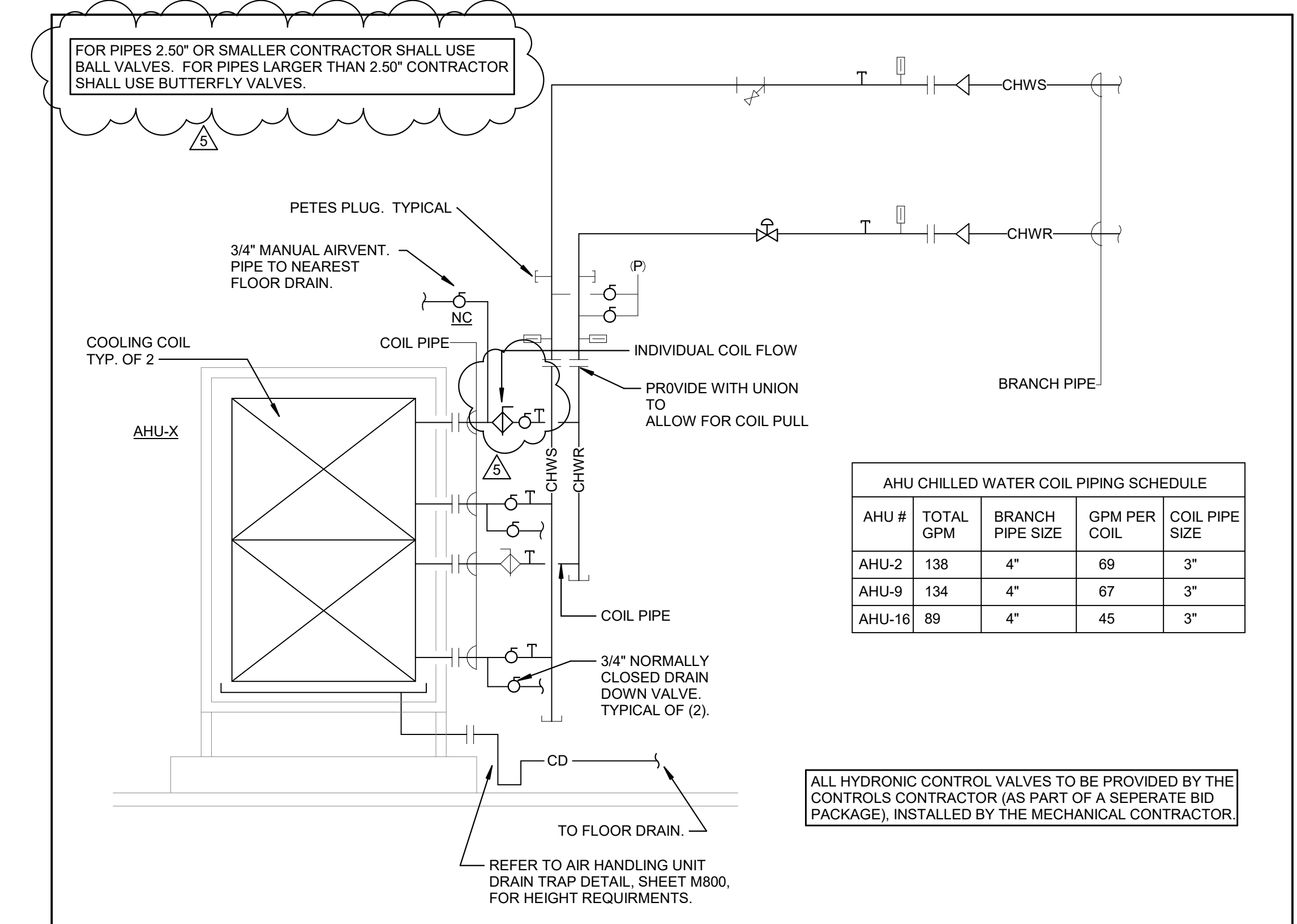
7 2-PIPE FAN COIL PIPING SCHEMATIC  
SCALE: NONE



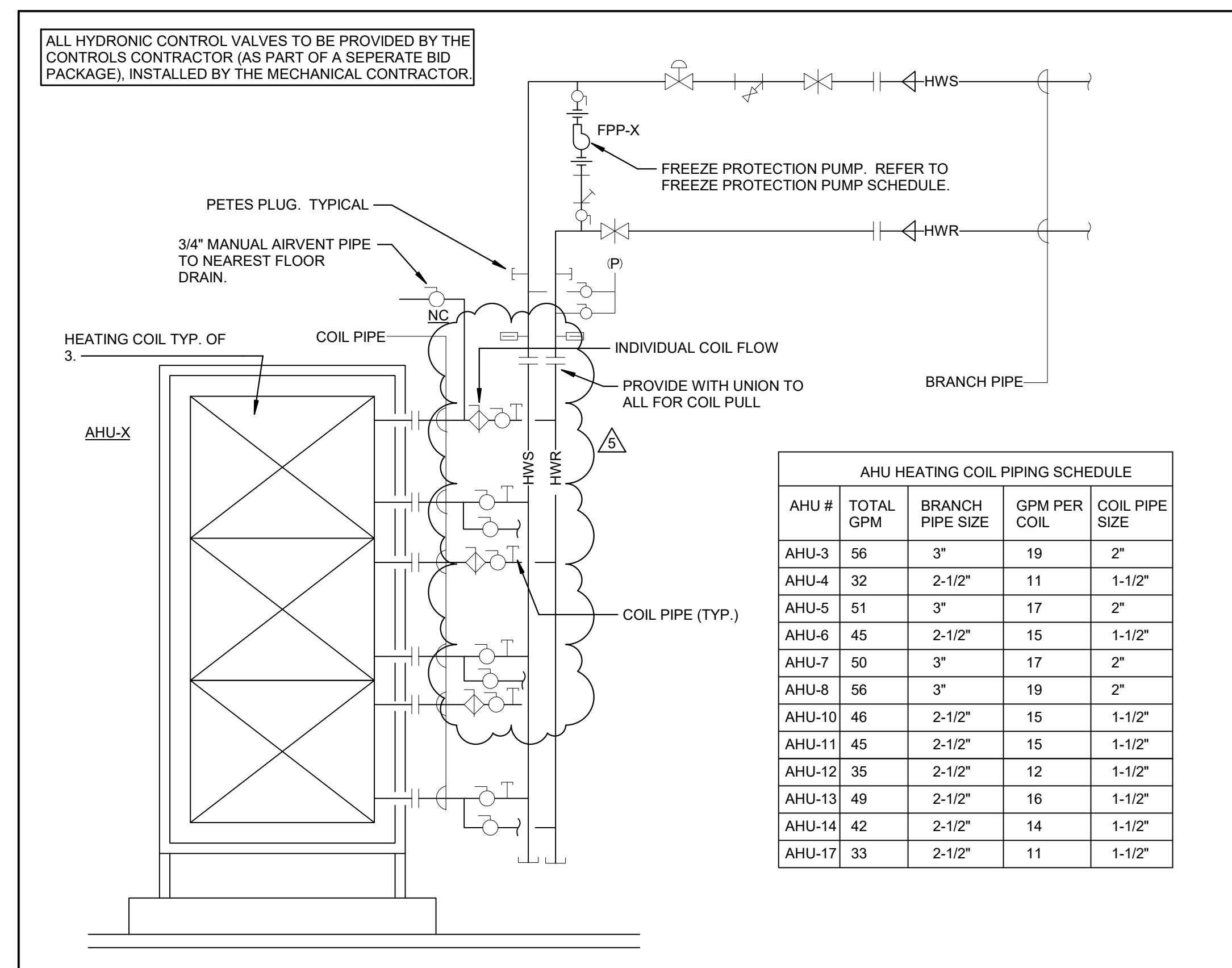
6 4-PIPE FAN COIL PIPING SCHEMATIC  
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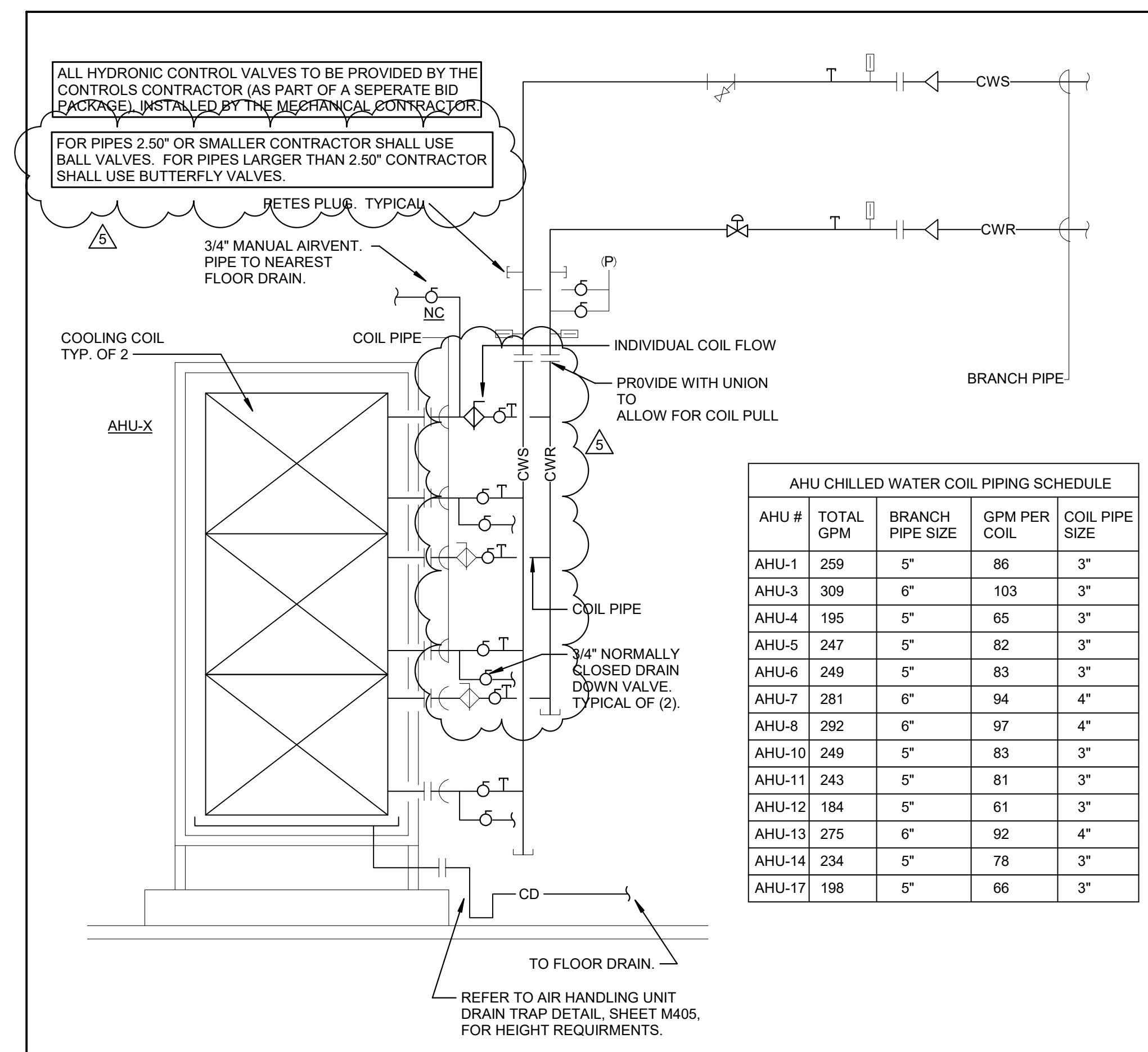
1 HOT WATER COIL PIPING SCHEMATIC - 2 COIL  
SCALE: NONE



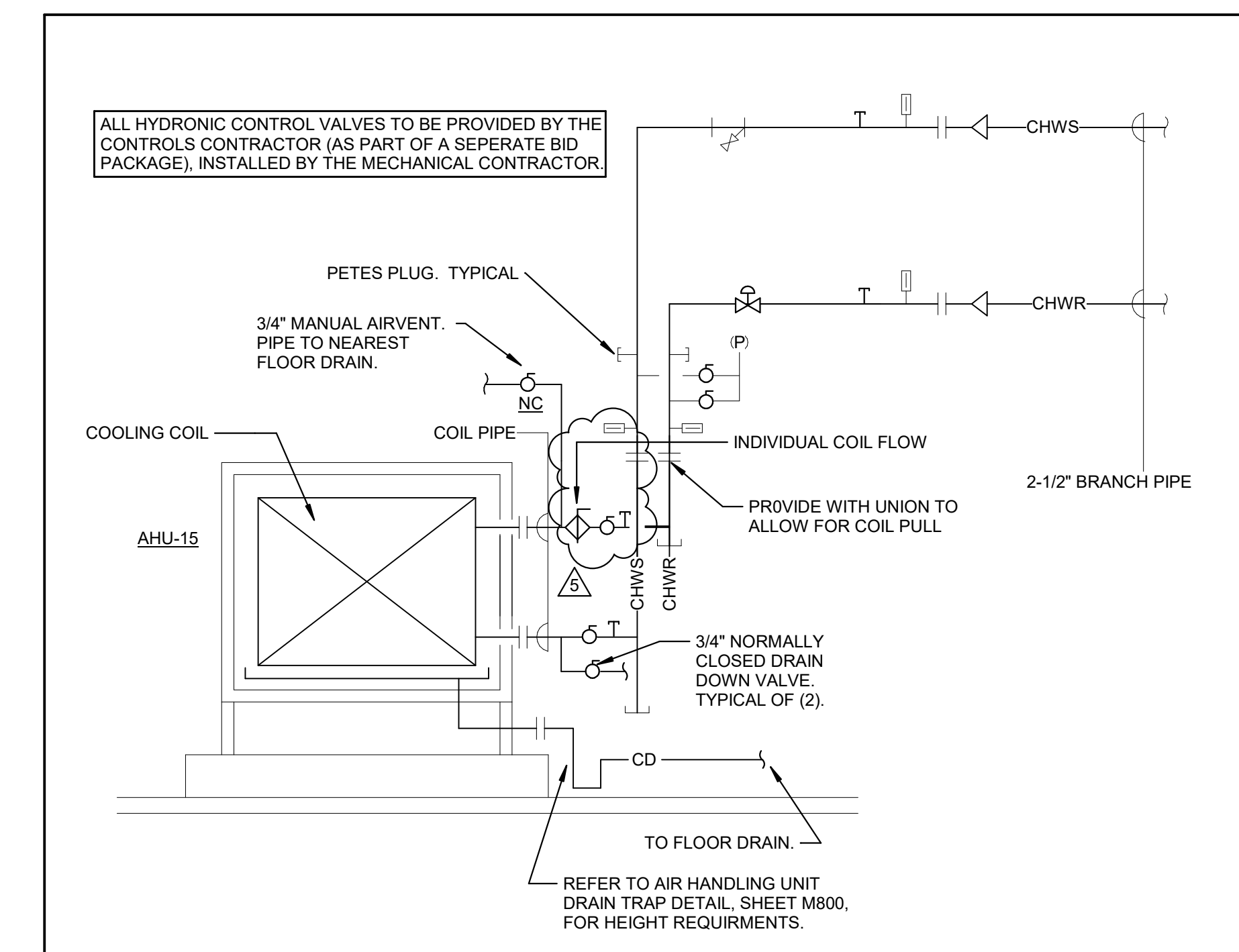
3 CHILLED WATER COIL PIPING SCHEMATIC - 2 COIL  
SCALE: NONE



2 HOT WATER COIL PIPING SCHEMATIC - 3 COIL  
SCALE: NONE



4 CHILLED WATER COIL PIPING SCHEMATIC - 3 COIL  
SCALE: NONE



5 AHU-15 CHILLED WATER COIL PIPING SCHEMATIC  
SCALE: NONE

ISSUANCES

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KAS**  
Checked By  
**SAC**  
Client Number  
514  
Project Number  
6926

DRAWING TITLE  
**SHELL & CORE -  
MECHANICAL PIPING  
SCHEMATIC**

SHEET NO.  
**M603**

**ISSUANCES**

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By

KAS

Checked By

SAC

Client Number

514

Project Number

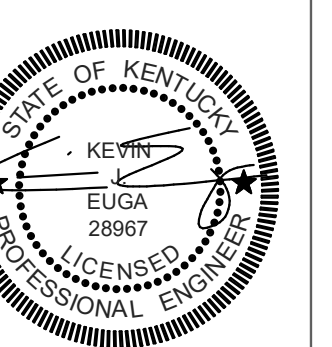
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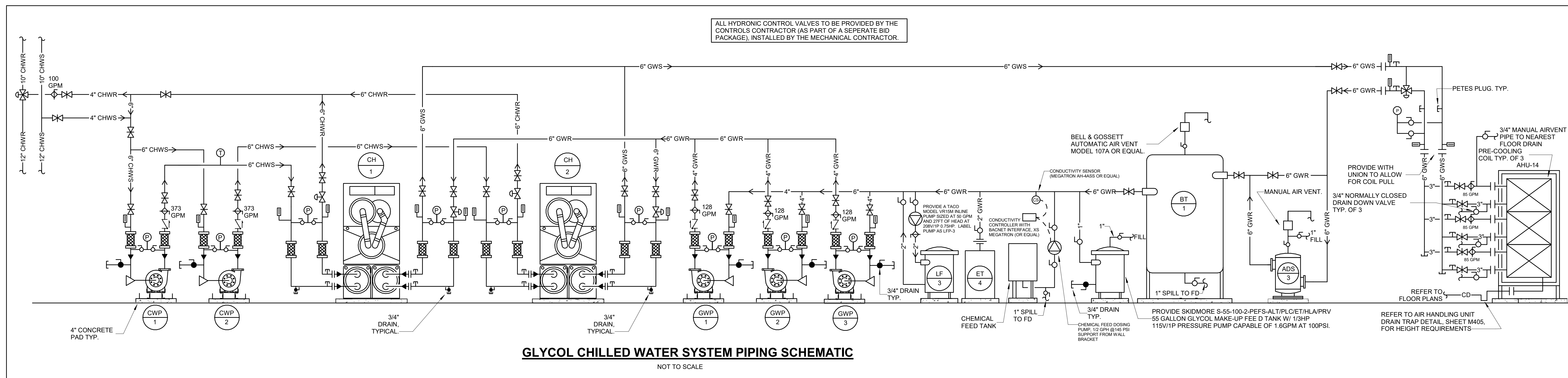
SHELL & CORE -  
MECHANICAL PIPING  
SCHEMATIC

SHEET NO.

M604



ALL HYDRONIC CONTROL VALVES TO BE PROVIDED BY THE  
CONTROLS CONTRACTOR (AS PART OF A SEPARATE BID  
PACKAGE), INSTALLED BY THE MECHANICAL CONTRACTOR.



**GLYCOL CHILLED WATER SYSTEM PIPING SCHEMATIC**

NOT TO SCALE





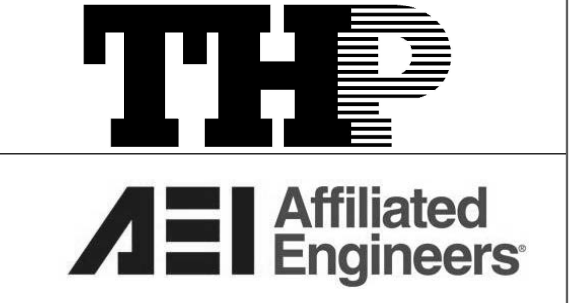
C&S - CHILLER - WATER COOLED SCHEDULE																											
MARK	MANUFACTURER	MODEL #	TYPE	SERVICE	DIMENSIONS (IN)				WEIGHT (LBS)	COMPRESSOR					EVAPORATOR						REMARKS						
					LENGTH	WIDTH	HEIGHT	COOLING CAPACITY (MBH)		VOLTAGE	PHASE	MCA	MOCP	NPLV	FLUID TYPE	EWV (°F)	LWT (°F)	GPM	FLUID PD (FT HD)	FOULING FACTOR		FLUID TYPE	EWV (°F)	LWT (°F)	GPM	FLUID PD (FT HD)	FOULING FACTOR
CH-1	YORK	YVWACCBBXJE0121SA	WATER COOLED SCREW	GLYCOL WATER LOOP	140	55	73	8907	1576.0	460 V	3	148 A	250	0.4871	20% PROPYLENE GLYCOL	47	35	272	5.48	0.0001	WATER	70	80	373	10.70	0.00025	ALL
CH-2	YORK	YVWACCBBXJE0121SA	WATER COOLED SCREW	GLYCOL WATER LOOP	140	55	73	8907	1576.0	460 V	3	148 A	250	0.4871	20% PROPYLENE GLYCOL	47	35	272	5.48	0.0001	WATER	70	80	373	10.70	0.00025	ALL

- REMARKS:
- PROVIDE SINGLE POINT POWER CONNECTION AND FACTORY MOUNTED DISCONNECT
  - PROVIDE VIBRATION ISOLATORS
  - PROVIDE FLOW SWITCH AND FACTORY MOUNTED CONTROL PANEL. PROVIDE ALL EQUIPMENT/PROGRAMMING NECESSARY TO INTEGRATE CONTROLS INTO BUILDING AUTOMATION SYSTEM.
  - PROVIDE MINIMUM 25% CAPACITY TURNDOWN.
  - PROVIDE 65 KVA SCOR RATING.
  - PROVIDE PRESSURE RELIEF VALVE.
  - SOUND DATA AT 100% LOAD: 76dB @ 63 HZ, 86 LPA

### C&S - BUFFER TANK SCHEDULE

MARK	MANUFACTURER	MODEL #	SERVICE	PHYSICAL SIZE (IN)		TANK VOLUME (GALS)	WEIGHT (POUNDS)	REMARKS
				HEIGHT	DIAMETER			
BT-1	TACO	BTH0450F	GLYCOL WATER SYSTEM	72	48	450.0	1080.00	ALL

- REMARKS:
- PROVIDE PRE-INSULATED BUFFER TANK.
  - PROVIDE WITH RELIEF PORT, INSPECTION OPENING, DRAIN AND BOTTOM 6" INLET/OUTLET CONNECTION FLANGE.



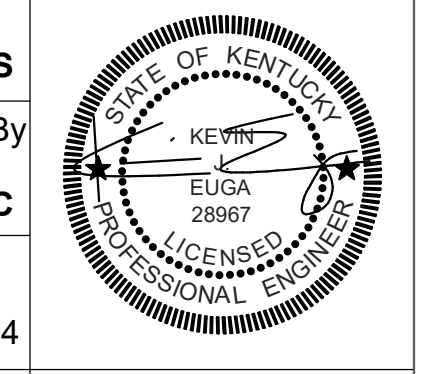
**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

#### ISSUANCES

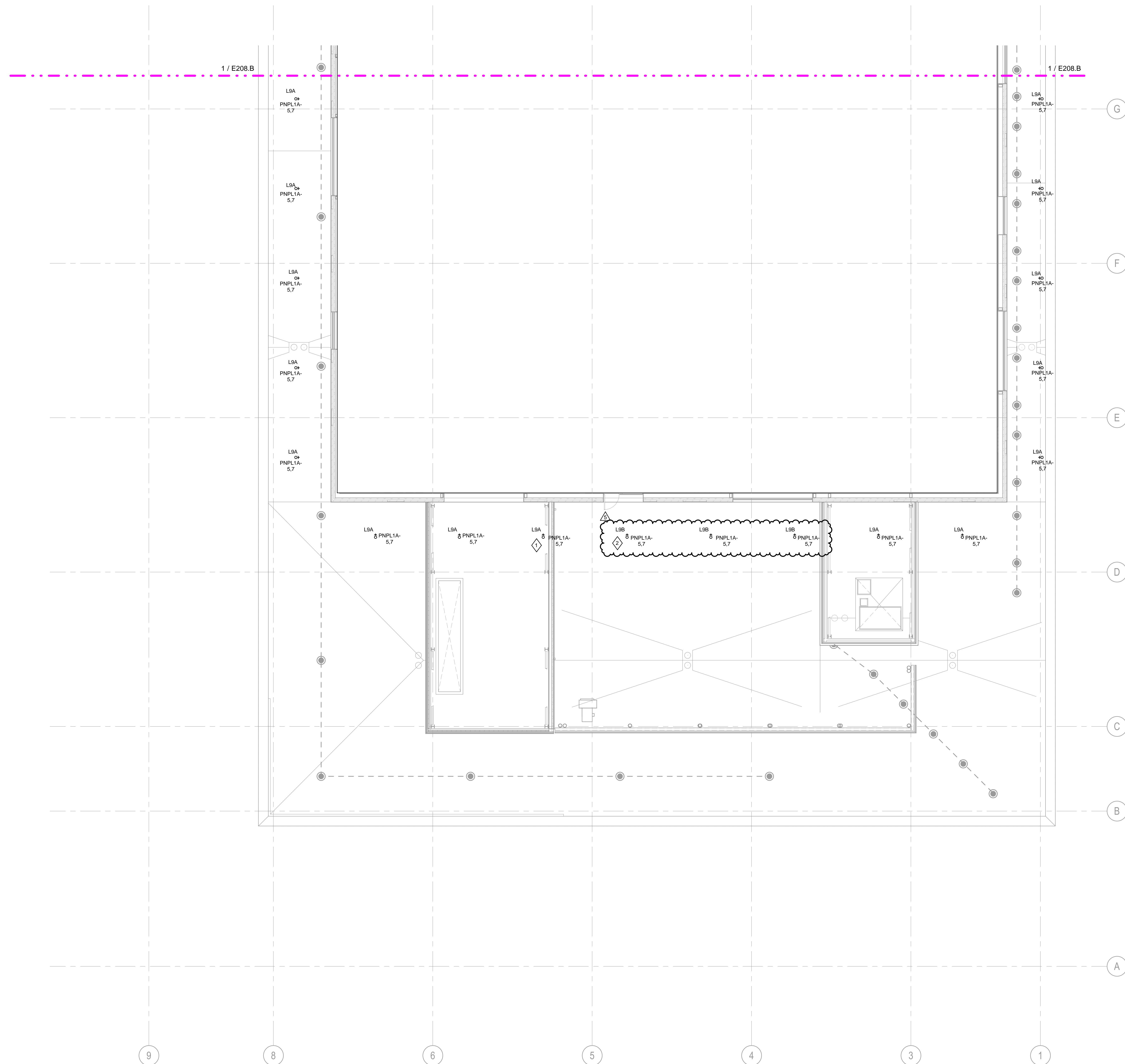
No.	Description	Date
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KAS</b>
Checked By	<b>SAC</b>
Client Number	514
Project Number	6926



DRAWING TITLE  
**SHELL & CORE - MECHANICAL SCHEDULES**

SHEET NO.  
**M702**

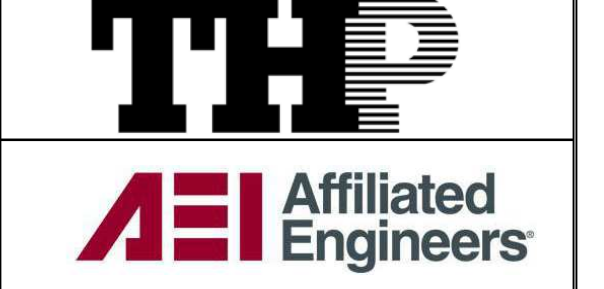


**LIGHTING GENERAL NOTES**

1. LIGHTING FIXTURES SHOWN ARE FOR CIRCUITING AND SWITCHING INFORMATION ONLY. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR ACTUAL FIXTURE LOCATIONS.
2. SEE SHEET E900 SERIES OF DRAWINGS FOR LIGHTING FIXTURE SCHEDULES AND LIGHTING CONTROL SCHEDULES.
3. ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
4. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
5. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
6. OCCUPANCY/VACANCY SENSORS SHALL CONTROL ALL LUMINAIRES IN ROOM WHICH THEY ARE INSTALLED. OCCUPANCY/VACANCY SENSORS SHALL BE LINKED WHEN MORE THAN ONE SENSOR IS INDICATED IN A ROOM. PROVIDE ADDITIONAL RELAYS TO CONTROL EACH CIRCUIT SERVING THE SPACE.
7. EGRESS LIGHTING SHALL BE UNSWITCHED UNLESS NOTED OTHERWISE. PROVIDE UL-924 LISTED DEVICE FOR EACH SWITCHED/DIMMED CIRCUIT FOR LIGHTING ON EMERGENCY POWER.
8. WALL MOUNTED EXIT LIGHTS SHOWN ABOVE DOORS SHALL BE CENTERED AND 1'-0" ABOVE DOOR FRAME TO BOTTOM OF EXIT LIGHT.
9. MINIMUM #10 AWG IS TO BE USED FOR ALL 120V LIGHTING CIRCUITS OVER 75'-0" RUN TO REDUCE VOLTAGE DROP. MAXIMUM ALLOWABLE VOLTAGE DROP FROM PANEL TO FINAL DEVICE SHALL BE 3%. INCREASE CONDUCTOR SIZE AS NECESSARY TO MEET VOLTAGE DROP REQUIREMENTS.
10. ALL SINGLE-PHASE CIRCUITS INCLUDING LIGHTING TO HAVE DEDICATED NEUTRALS. NO SHARED NEUTRALS ALLOWED.
11. ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
12. CONTRACTOR SHALL PROVIDE TRAINING, COMMISSIONING AND PROGRAMMING OF LIGHTING CONTROL SYSTEM BY AUTHORIZED MANUFACTURER'S REPRESENTATIVE. OWNER, ENGINEER, AND ARCHITECT SHALL BE NOTIFIED OF PROGRAMMING DATE AND TIME TWO WEEKS PRIOR.
13. LIGHTING IN ELEVATOR/SUPPORT SPACES:
  - A. PROVIDE ELEVATOR PIT LIGHT AND SWITCH. BOXES AND DEVICES SHALL BE NEMA 4 AND WEATHERPROOF. COORDINATE LOCATION WITH ELEVATOR SHOP DRAWINGS. LIGHT SWITCH SHALL BE LOCATED SO AS TO BE READILY ACCESSIBLE FROM PIT ACCESS DOOR. PROVIDE CIRCUITING FROM SAME CIRCUIT AS RECEPTACLE IN ELEVATOR PIT. MOUNT LUMINAIRE VERTICALLY. PROVIDE ADDITIONAL LUMINAIRES AS REQUIRED TO PROVIDE 19 FOOTCANDLES AT PIT FLOOR.
  - B. COORDINATE LOCATION OF LIGHTING AND SWITCHING WITH APPROVED ELEVATOR SHOP DRAWINGS. LIGHT SWITCH SHALL BE LOCATED SO AS TO BE READILY ACCESSIBLE FROM PIT ACCESS DOOR. PROVIDE CIRCUITING FROM SAME CIRCUIT AS RECEPTACLE IN ELEVATOR PIT. MOUNT LUMINAIRE VERTICALLY. LUMINAIRES SHALL BE LOCATED AFTER REVIEW OF APPROVED ELEVATOR SHOP DRAWINGS TO PROVIDE 19 FOOTCANDLES AT WORKING PLATFORM.
  - C. ELEVATOR SHAFT LIGHTS AND SWITCH. COORDINATE LOCATION WITH APPROVED ELEVATOR SHOP DRAWINGS. LIGHT SWITCH SHALL BE LOCATED SO AS TO BE READILY ACCESSIBLE FROM ELEVATOR ACCESS DOOR. PROVIDE CIRCUITING FROM SAME CIRCUIT AS RECEPTACLE IN ELEVATOR PIT. MOUNT LUMINAIRE VERTICALLY. LUMINAIRES SHALL BE LOCATED AFTER REVIEW OF APPROVED ELEVATOR SHOP DRAWINGS TO PROVIDE 19 FOOTCANDLES AT WORKING PLATFORM AND SPACE ABOVE ELEVATOR CAR.
14. ALL WIRING SHALL BE ROUTED TO CONTRACTOR PROVIDED PULL BOX ADJACENT TO SOURCE PANEL FOR CONNECTION TO FUTURE (FIT-OUT) LIGHTING CONTROL SYSTEM. PROVIDE 15' OF SLACK FOR EACH CIRCUIT.

**SHEET NOTES**

1. PROVIDE WEIGHTED BASE AND SURFACE CONDUIT FOR SURFACE ROOF MOUNT TYPE L9A LUMINAIRE, TYP.
2. PROVIDE WEIGHTED BASE STANCHION MOUNTING AND SURFACE CONDUIT FOR SURFACE ROOF MOUNT TYPE L9B LUMINAIRE, TYP. FIXTURES TO BE MOUNTED AS SAME ELEVATION AS ADJACENT FIXTURES ON TOP OF MECHANICAL DOGHOUSE.



**Cancer Treatment Center + Advanced Ambulatory Center**

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**ISSUANCES**

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1	C&S 80% CD	03/05/24
2	BP08 - FO 100% DD	04/04/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

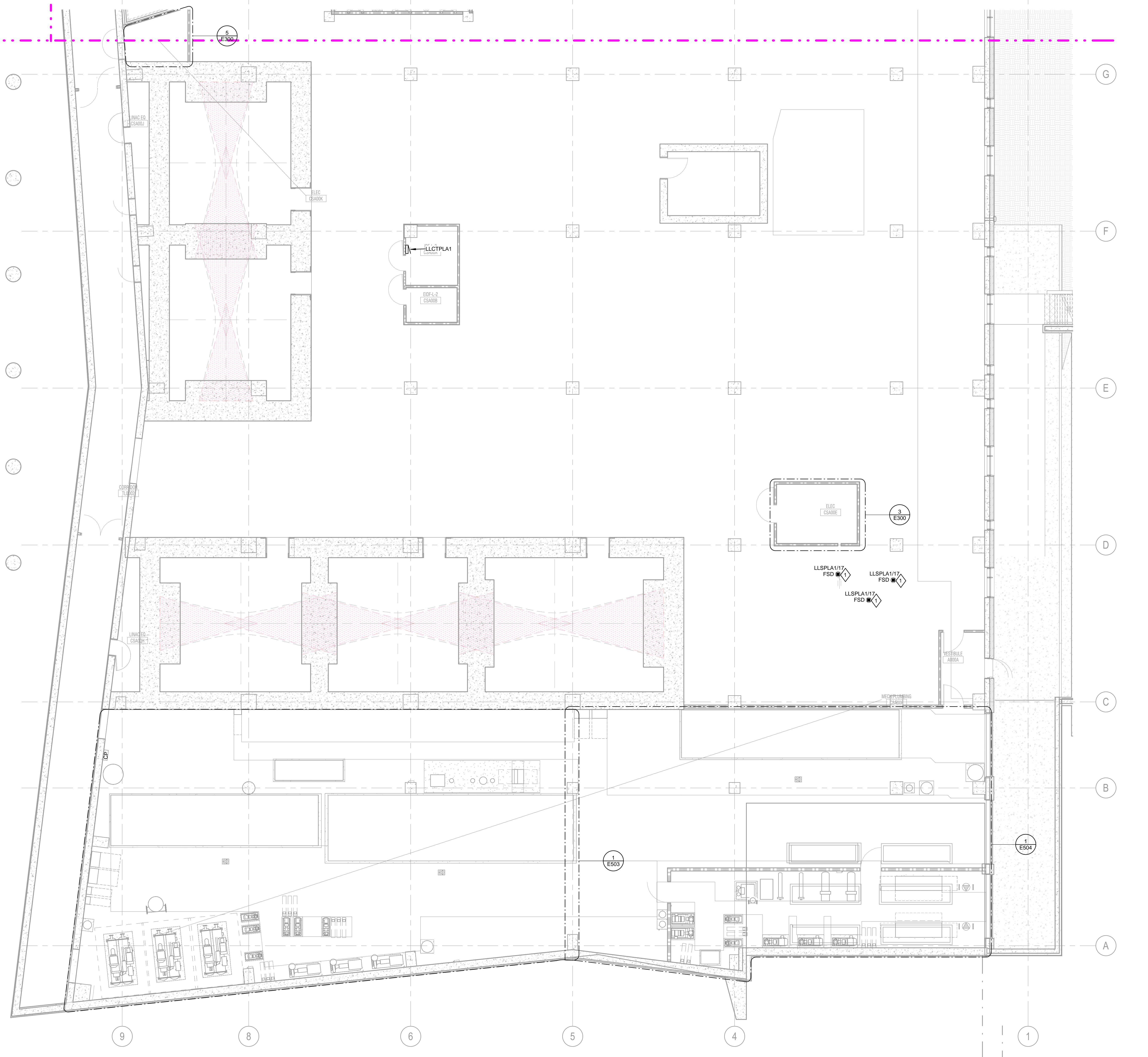

Drawn By	KN
Checked By	SK, AS
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE LIGHTING PLAN - LEVEL 08 - AREA A**

SHEET NO.  
**E208.A**



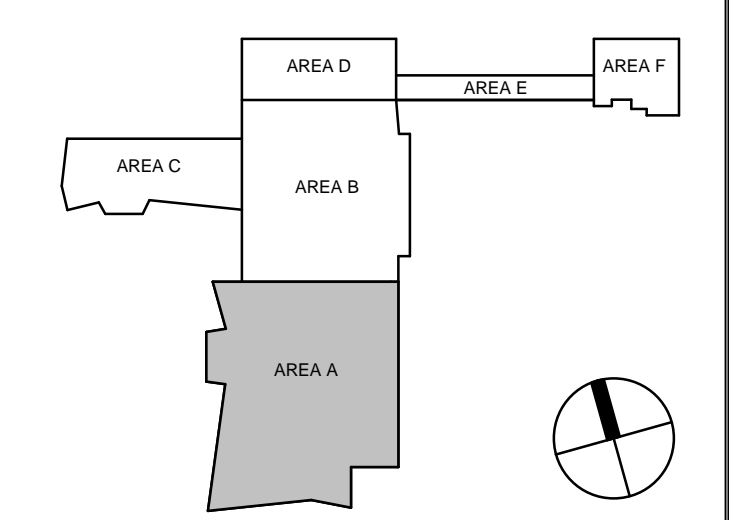
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**1** SHELL & CORE POWER PLAN - LEVEL 00 - AREA A  
SCALE: 1/8" = 1'-0"

- POWER GENERAL NOTES**
1. ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
  2. CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
  3. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
  4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
  5. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND ROCCENT MIGRATION THROUGH AND AROUND RACEWAYS.
  6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
  7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
  8. ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB, PRIOR TO START OF CONSTRUCTION.
  9. ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
  10. PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
  11. PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
  12. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
  13. PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 26413 'LIGHTNING PROTECTION FOR STRUCTURES'.
  14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
  15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
  16. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
  17. BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
  18. IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
  19. ALL GROUND RODS ARE TO BE 3/4"x1/2" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
  20. PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
  21. COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
  22. ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
  23. REFER TO SHEET E710, 'GROUNDING RISER DIAGRAM' FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
  24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
  25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
  26. PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO 'M' AND 'P' SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
  27. PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
  28. ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

- SHEET NOTES**
1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**CHAMPLIN**  
ARCHITECTURE

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
Affiliated  
Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
LANDSCAPE ARCHITECTURE  
CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM**  
Smith

**PIVOTAL**  
lighting design

**UK**  
HEALTHCARE

**Cancer Treatment  
Center + Advanced  
Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

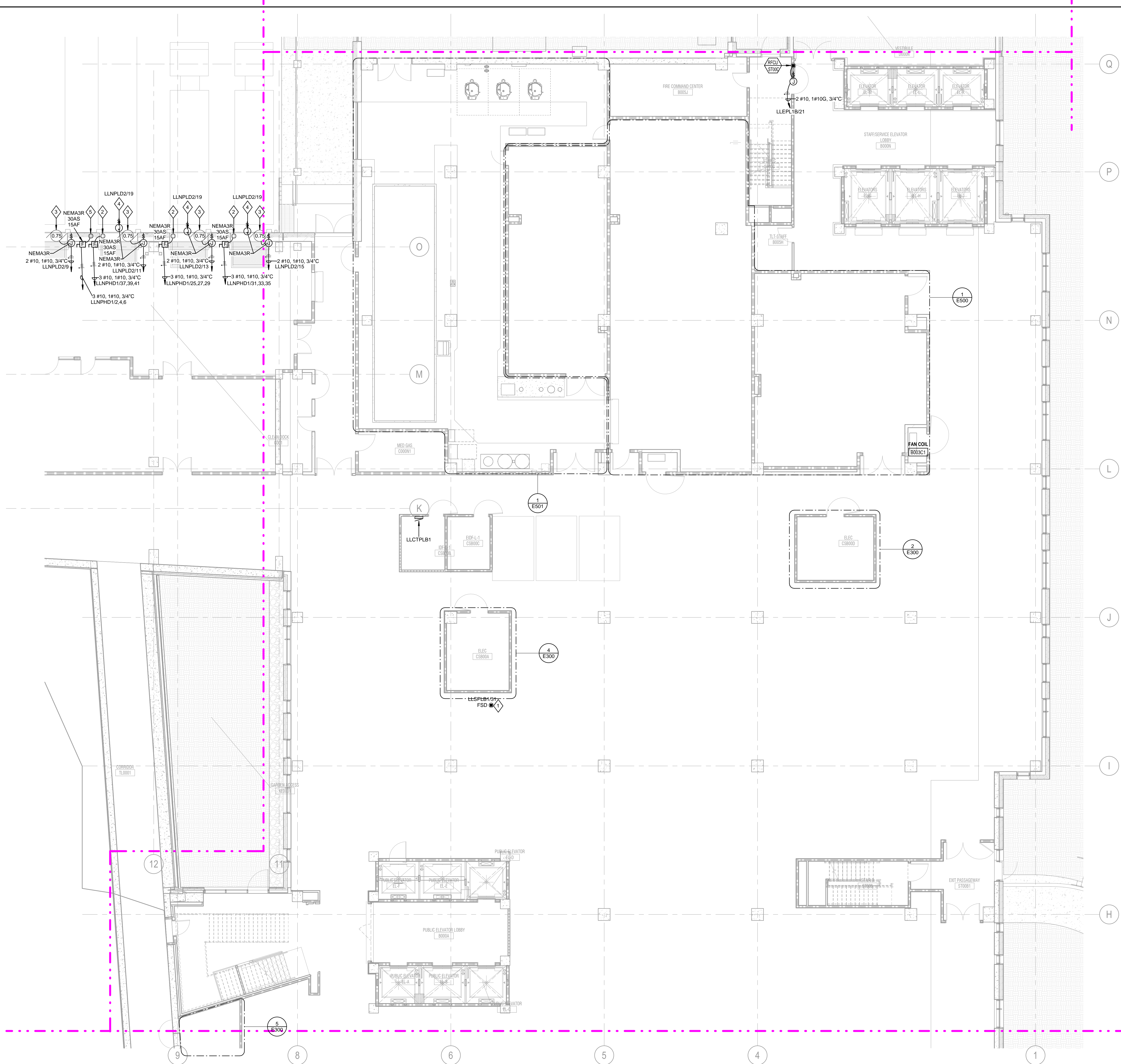
No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KN</b>
Checked By	<b>SK, AS</b>
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE  
POWER PLAN - LEVEL  
00 - AREA A**

SHEET NO  
**E300.A**

5/28/2024 2:51:54 PM



**POWER GENERAL NOTES**

- ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
- CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
- VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
- EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
- SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
- COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
- ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB, PRIOR TO START OF CONSTRUCTION.
- ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
- PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAO) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
- PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
- PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 284113 "LIGHTNING PROTECTION FOR STRUCTURES".
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
- HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
- PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
- BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
- IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
- ALL GROUND RODS ARE TO BE 3/4"x10" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
- PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
- COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
- ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
- REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
- BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
- REFER TO AUDIO/VISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
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- PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
- ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

**SHEET NOTES**

- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.
- PROVIDE 480V/3PH, 15A CONNECTION WITH DISCONNECT SWITCH TO MOTORIZED DOCK LEVELER. VERIFY MOUNTING LOCATION WITH ARCHITECT.
- PROVIDE 120V, 20A CONNECTION WITH DISCONNECT SWITCH TO MOTORIZED OVERHEAD GARAGE DOORS. PROVIDE CONNECTION TO CONTROL MODULE MOUNTED ON WALL NEXT TO DOOR. VERIFY MOUNTING LOCATION WITH ARCHITECT.
- PROVIDE 120V, 20A NORMAL CONNECTION TO DOCK-LOK. REFER TO DETAIL SHEET 810.1 FOR WIRING DIAGRAMS AND DETAILS.
- PROVIDE 480V/3PH, 30A NORMAL CONNECTION TO DOCK LIFT. COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT PROVIDER.

CHAMPLIN  
ARCHITECTURE  
720 EAST PETER ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

HGA  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

THP  
AEI Affiliated Engineers

CMTA

OLIN

CARMAN LANDSCAPE ARCHITECTURE  
CIVIL ENGINEERING

WALSH CONSULTING GROUP

bell engineering

CDM Smith

PIVOTAL lighting design

UK HEALTHCARE

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By <b>KN</b>
Checked By <b>SK, AS</b>
Client Number 514
Project Number 6926

DRAWING TITLE  
SHELL & CORE  
POWER PLAN - LEVEL  
00 - AREA B  
SHEET NO.  
**E300.B**

**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24


Drawn By	KN
Checked By	SK, AS
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 00 - AREA C**

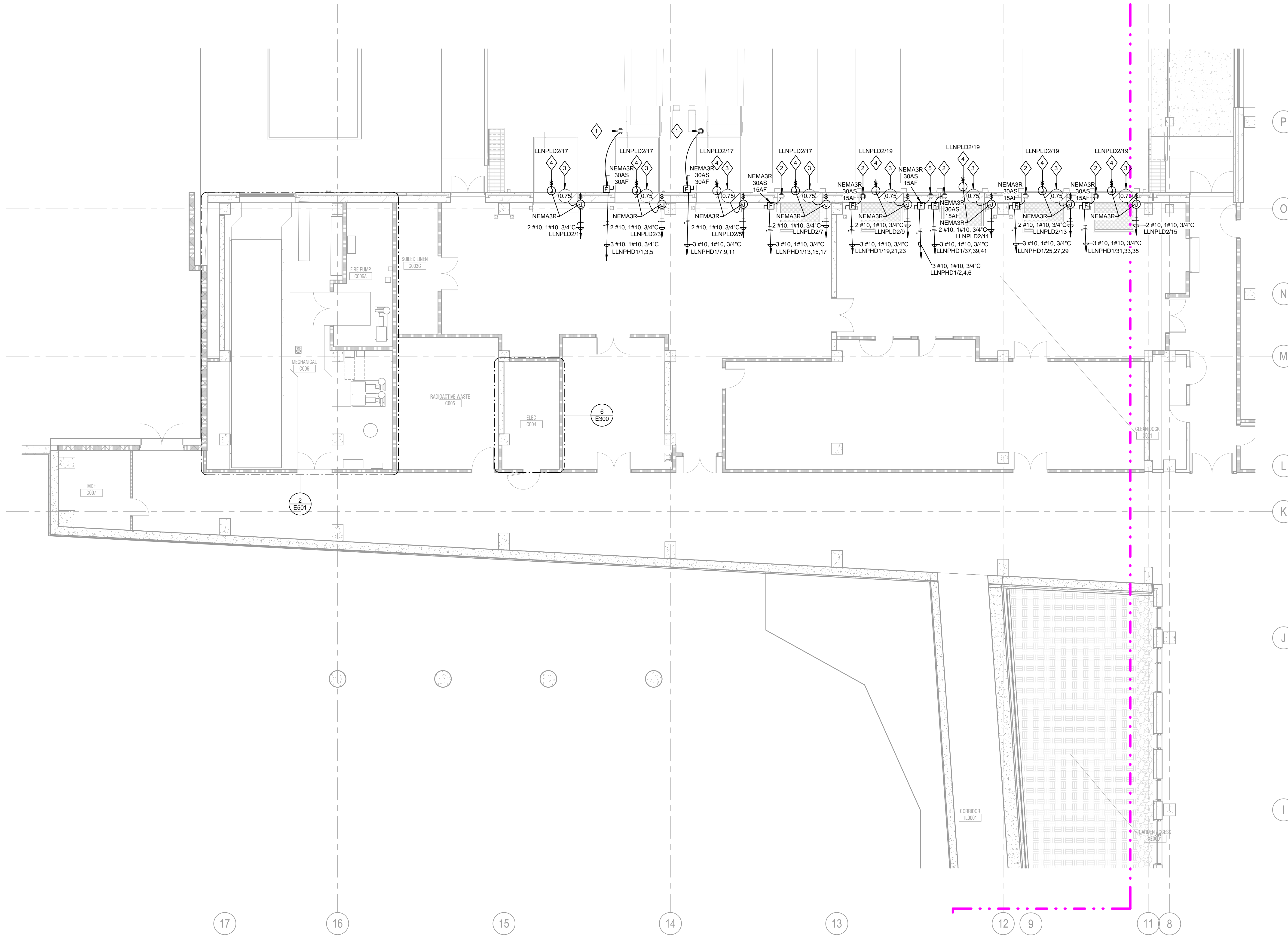
SHEET NO.  
**E300.C**

**POWER GENERAL NOTES**

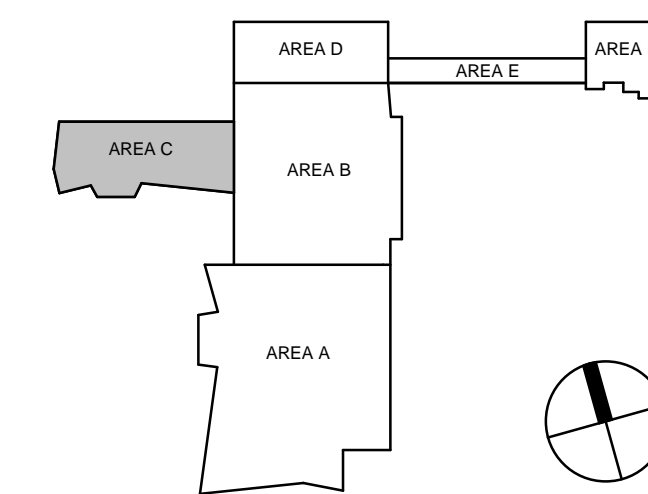
- ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
- CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
- VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
- EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
- SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
- COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
- ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB, PRIOR TO START OF CONSTRUCTION.
- ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
- PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NACP) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
- PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
- PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 264113 "LIGHTNING PROTECTION FOR STRUCTURES".
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
- HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
- PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
- BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
- IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
- ALL GROUND RODS ARE TO BE 3/4"X10' COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
- PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
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- REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
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- ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

**SHEET NOTES**

- PROVIDE 480V/3PH NORMAL POWER CONNECTION TO TRASH COMPACTOR. COORDINATE EXACT REQUIREMENTS WITH COMPACTOR PROVIDER PRIOR TO ROUGH-IN.
- PROVIDE 480V/3PH, 15A CONNECTION WITH DISCONNECT SWITCH TO MOTORIZED DOCK LEVELER. VERIFY MOUNTING LOCATION WITH ARCHITECT.
- PROVIDE 120V, 20A CONNECTION WITH DISCONNECT SWITCH TO MOTORIZED OVERHEAD GARAGE DOORS. PROVIDE CONNECTION TO CONTROL MODULE MOUNTED ON WALL NEXT TO DOOR. VERIFY MOUNTING LOCATION WITH ARCHITECT.
- PROVIDE 120V, 20A NORMAL CONNECTION TO DOCK-LOK. REFER TO DETAIL SHEET 810.1 FOR WIRING DIAGRAMS AND DETAILS.
- PROVIDE 480V/3PH, 30A NORMAL CONNECTION TO DOCK LIFT. COORDINATE EXACT REQUIREMENTS WITH EQUIPMENT PROVIDER.



**1 SHELL & CORE POWER PLAN - LEVEL 00 - AREA C**  
SCALE: 1/8" = 1'-0"



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 KJN



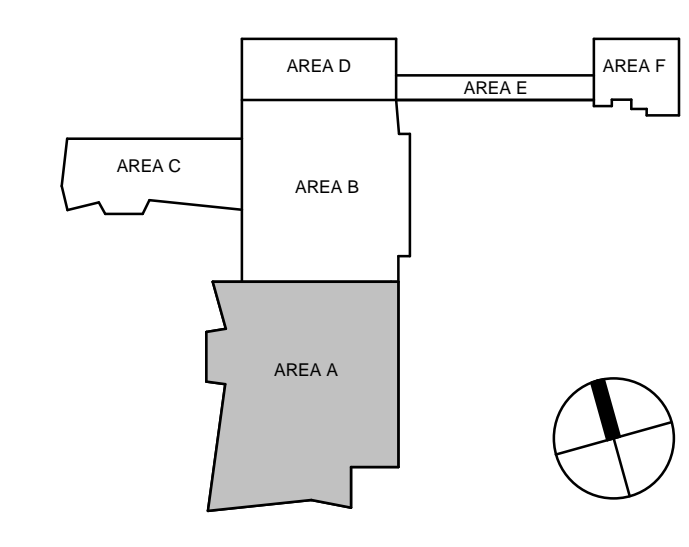
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- EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
- SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND ROCKET MIGRATION THROUGH AND AROUND RACEWAYS.
- COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
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- PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
- PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
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- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
- HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
- PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
- BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
- IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
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**SHEET NOTES**

- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.

**1 SHELL & CORE POWER PLAN - LEVEL 01 - AREA A**  
 SCALE: 1/8" = 1'-0"



**CHAMPLIN ARCHITECTURE**  
 720 EAST PETER ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP** Affiliated Engineers

**CMTA**

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CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By **KN**

Checked By **SK, AS**

Client Number **514**

Project Number **6926**

DRAWING TITLE

**SHELL & CORE POWER PLAN - LEVEL 01 - AREA A**

SHEET NO.

**E301.A**

**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24


Drawn By **KN**

Checked By **SK, AS**

Client Number **514**

Project Number **6926**

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 01 - AREA B**

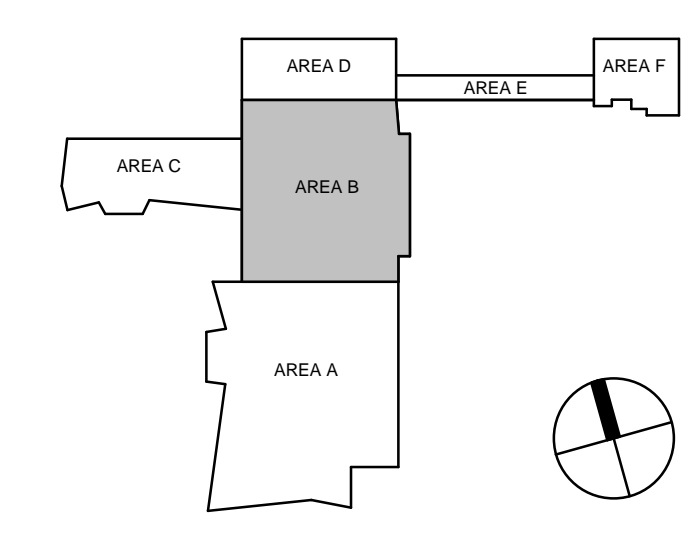
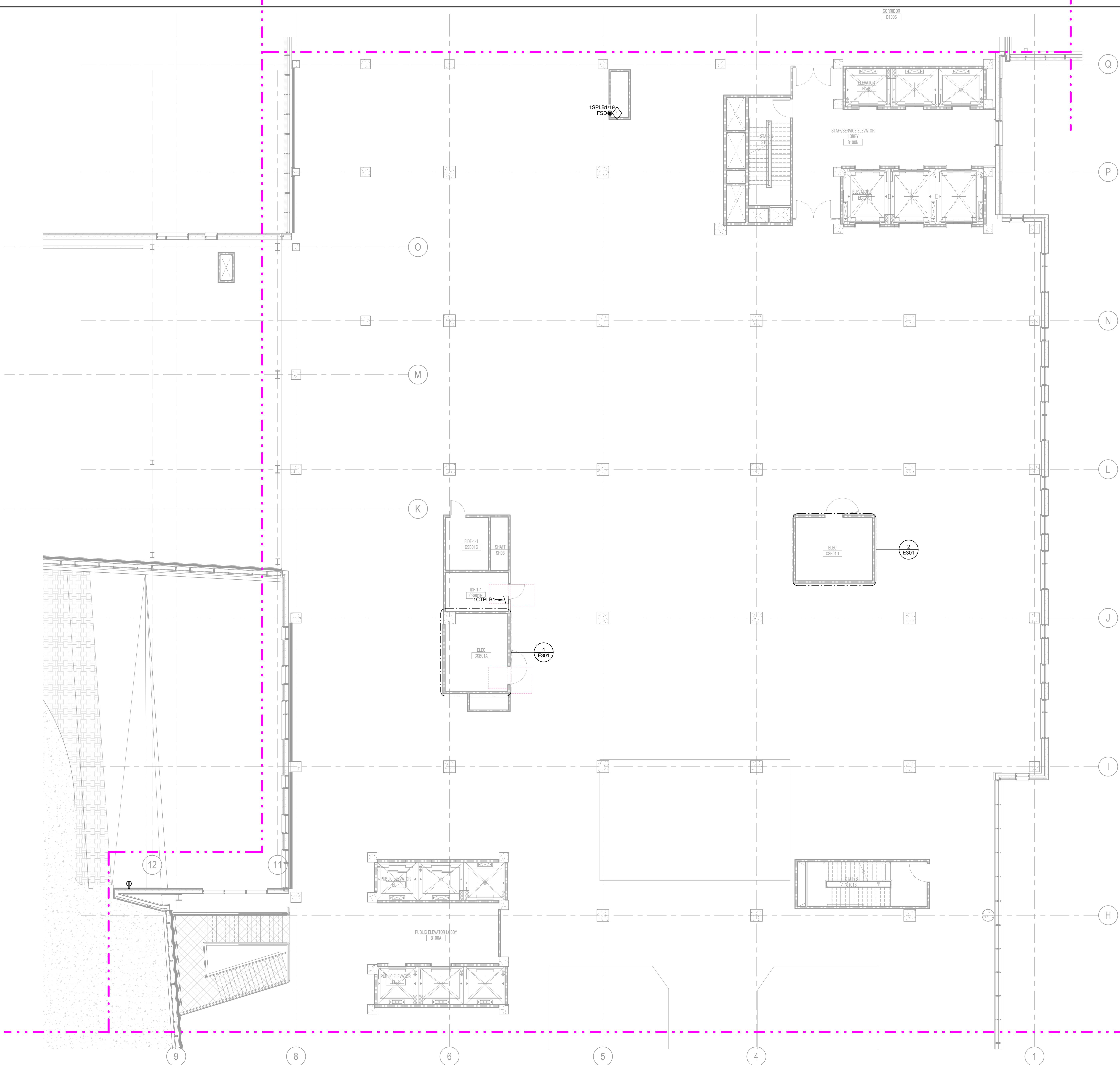
SHEET NO.  
**E301.B**

**POWER GENERAL NOTES**

- ALL IDF & EIDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
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- COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
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- BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
- IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
- ALL GROUND RODS ARE TO BE 3/4"x10" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
- PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
- COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
- ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
- REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
- BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
- REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
- PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO "M" AND "P" SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
- PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
- ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

**SHEET NOTES**

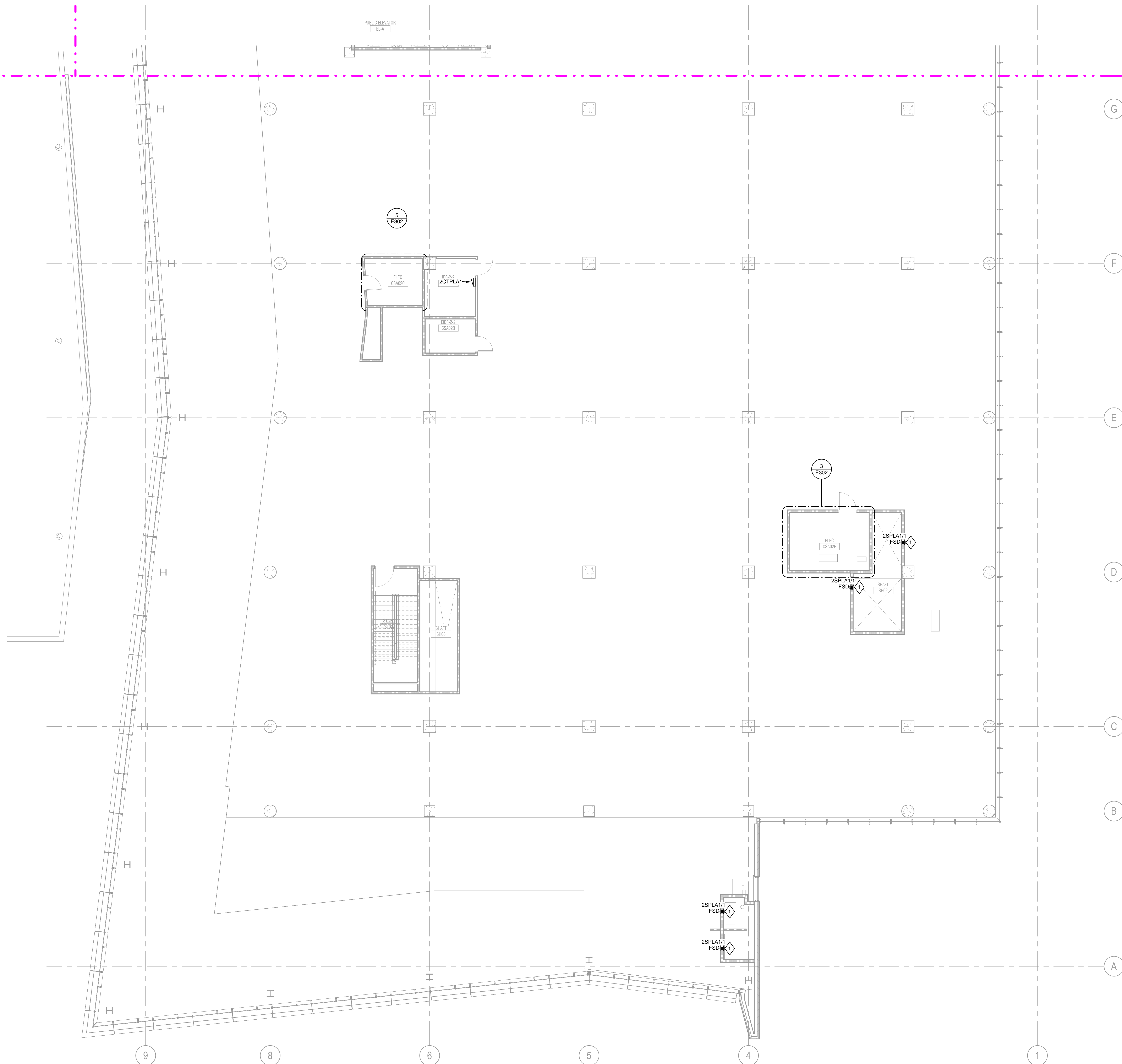
- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**1 SHELL & CORE POWER PLAN - LEVEL 01 - AREA B**  
SCALE: 1/8" = 1'-0"

5/28/2024 2:52:14 PM Autodesk Docs://1446939 - UKHC Cancer Treatment & Advanced Ambulatory Center/E301.B.dwg 5/28/2024 2:52:14 PM

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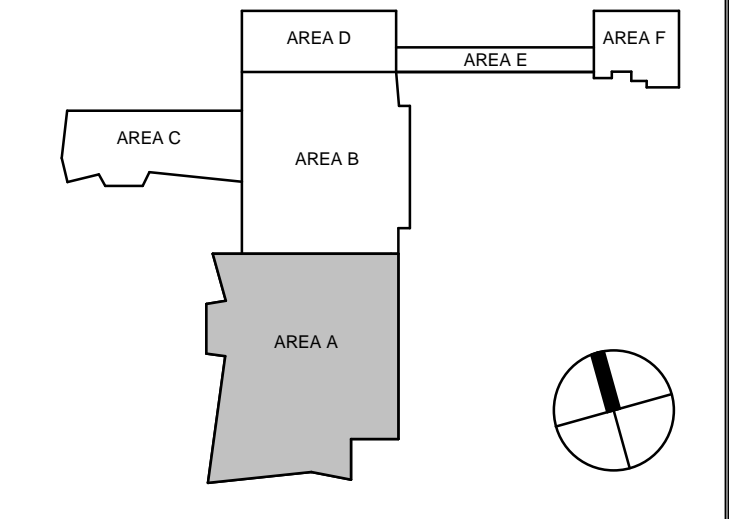


**POWER GENERAL NOTES**

- 1. ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
- 2. CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY, 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
- 3. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
- 4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
- 5. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
- 6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- 7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
- 8. ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB, PRIOR TO START OF CONSTRUCTION.
- 9. ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
- 10. PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
- 11. PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- 12. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
- 13. PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 264113 "LIGHTNING PROTECTION FOR STRUCTURES".
- 14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
- 15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
- 16. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
- 17. BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
- 18. IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
- 19. ALL GROUND RODS ARE TO BE 3/4"x10" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
- 20. PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
- 21. COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
- 22. ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
- 23. REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
- 24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
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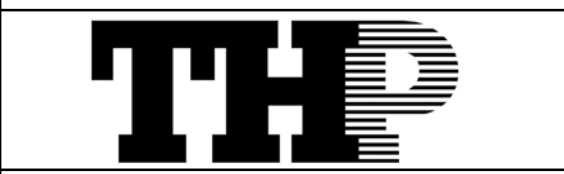
**SHEET NOTES**

- 1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.




**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000



**TIP**  
 Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 CONSULTING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**



**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

No.	Description	Date

Drawn By: **KN**  
 Checked By: **SK, AS**  
 Client Number: **514**  
 Project Number: **6926**

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 02 - AREA A**

SHEET NO. **E302.A**

**1 SHELL & CORE POWER PLAN - LEVEL 02 - AREA A**  
 SCALE: 1/8" = 1'-0"

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5/28/2024 2:52:22 PM Autodesk Docs://1446939 - UKHC Cancer Treatment & Advanced Ambulatory Center/E25/UKC - 5149265.dwg

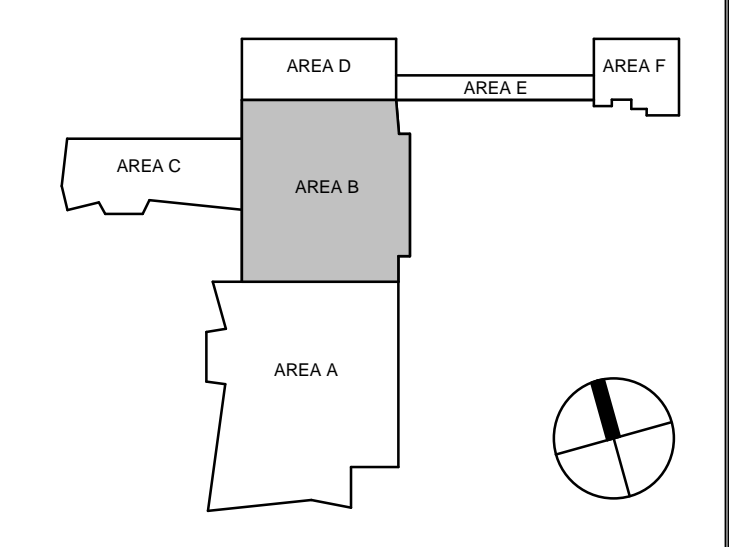


**POWER GENERAL NOTES**

1. ALL IDF & EIDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
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3. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
5. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND PESTICIDE MIGRATION THROUGH AND AROUND RACEWAYS.
6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
8. ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB PRIOR TO START OF CONSTRUCTION.
9. ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
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15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
16. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
17. BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
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24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
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28. ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

**SHEET NOTES**

1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**1 SHELL & CORE POWER PLAN - LEVEL 02 - AREA B**  
SCALE: 1/8" = 1'-0"

**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP Affiliated Engineers**

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**CDM Smith**

**PIVOTAL lighting design**

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

ISSUANCES

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By **KN**  
Checked By **SK, AS**  
Client Number 514  
Project Number 6926  
DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 02 - AREA B**  
SHEET NO.  
**E302.B**

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**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

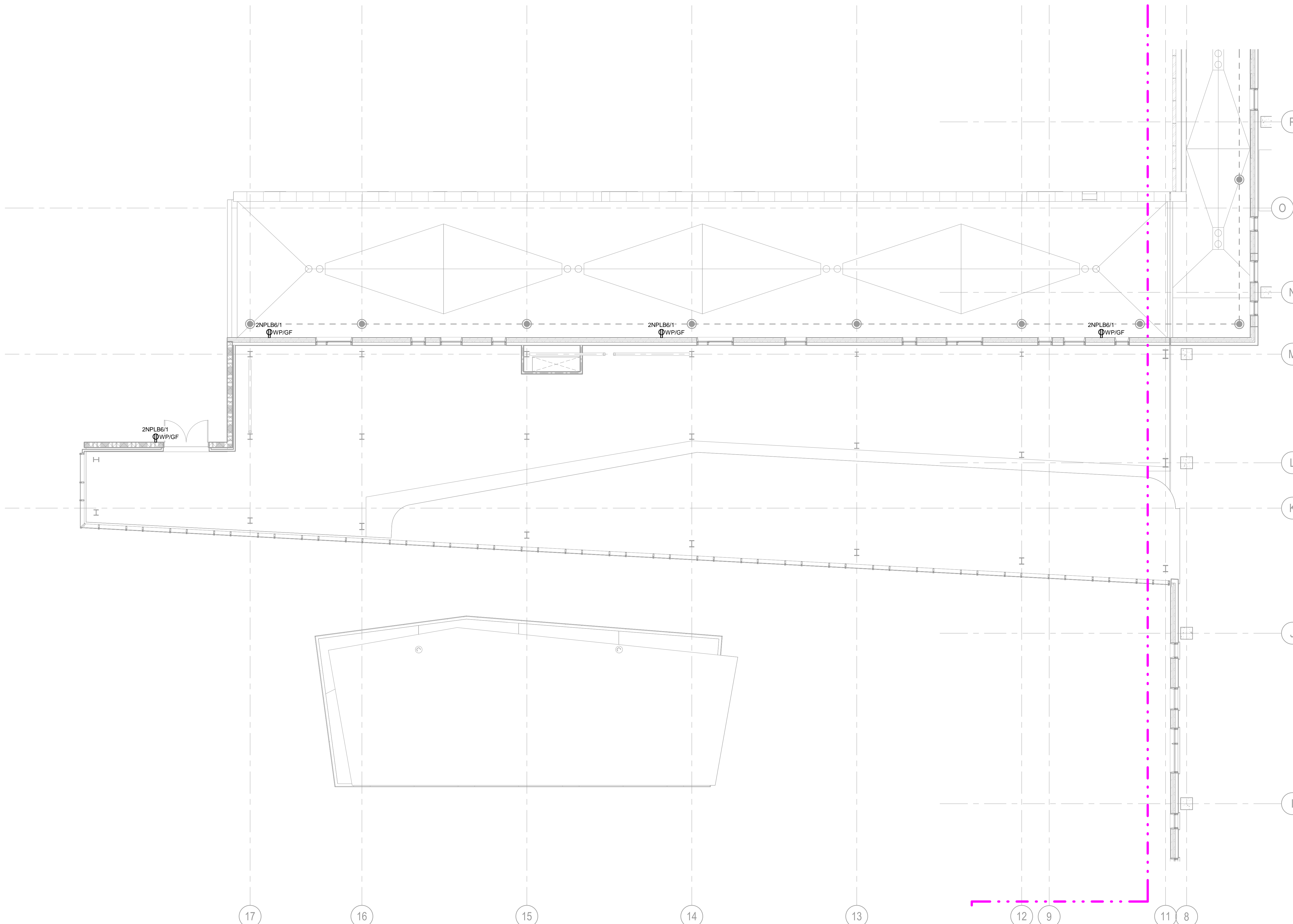

Drawn By <b>KN</b>
Checked By <b>SK, AS</b>
Client Number 514
Project Number 6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 02 - AREA C**

SHEET NO.  
**E302.C**

**POWER GENERAL NOTES**

1. ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
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3. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
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12. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
13. PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 264113 "LIGHTNING PROTECTION FOR STRUCTURES".
14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
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**1 SHELL & CORE POWER PLAN - LEVEL 02 - AREA C**  
SCALE: 1/8" = 1'-0"

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**POWER GENERAL NOTES**

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**CHAMPLIN**  
ARCHITECTURE

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com

THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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**UK HEALTHCARE**

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Lexington, KY 40536  
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**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24


Drawn By

KN

Checked By

SK, AS

Client Number

514

Project Number

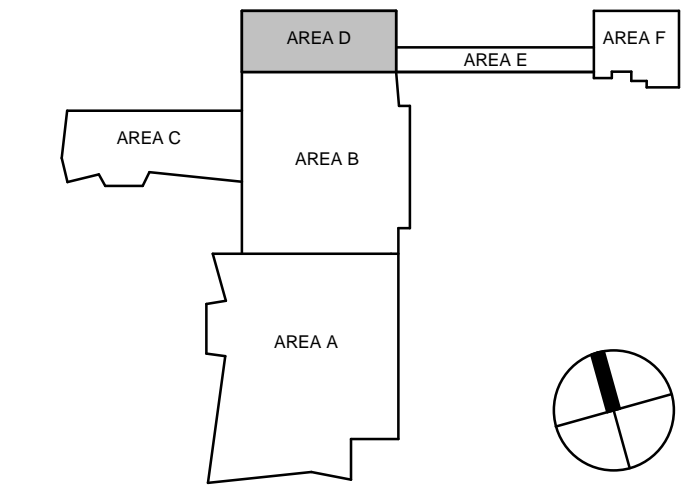
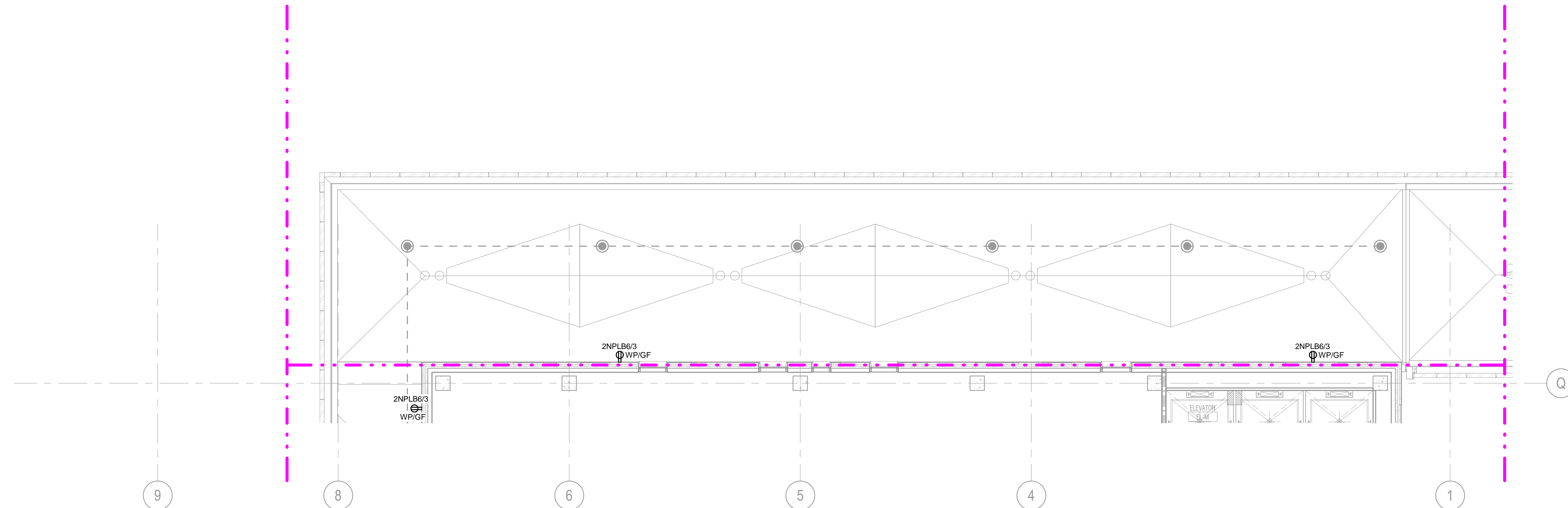
6926

DRAWING TITLE

SHELL & CORE  
POWER PLAN - LEVEL  
02 - AREA D

SHEET NO.

E302.D



**1 SHELL & CORE POWER PLAN - LEVEL 02 - AREA D**  
SCALE: 1/8" = 1'-0"

### POWER GENERAL NOTES

1. ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
2. CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
3. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
5. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
8. ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB, PRIOR TO START OF CONSTRUCTION.
9. ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
10. PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
11. PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
12. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
13. PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 264113 "LIGHTNING PROTECTION FOR STRUCTURES".
14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
16. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
17. BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
18. IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
19. ALL GROUND RODS ARE TO BE 3/4"x10" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
20. PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
21. COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
22. ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
23. REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
26. PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO 'M' AND 'P' SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
27. PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
28. ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**

**AEI Affiliated Engineers**

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
PLANNING  
CIVIL ENGINEERING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL**  
lighting design

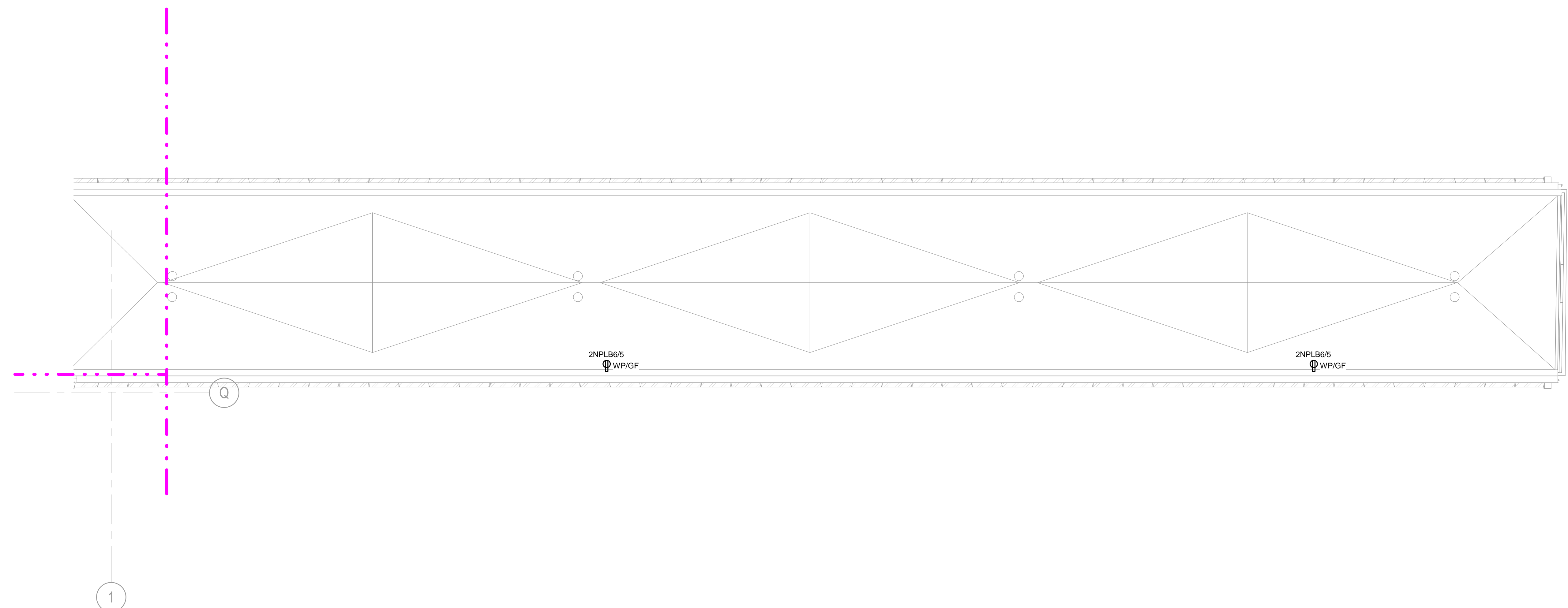


**Cancer Treatment Center + Advanced Ambulatory Center**

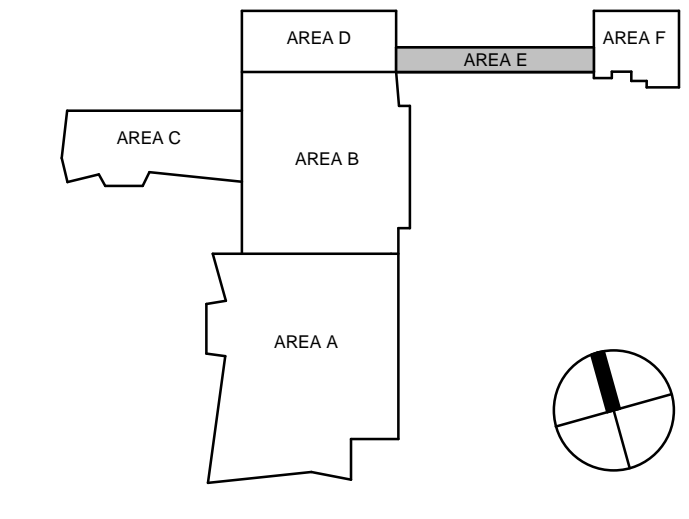
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

### ISSUANCES

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24



**1 SHELL & CORE POWER PLAN - LEVEL 02 - AREA E**  
SCALE: 1/8" = 1'-0"



Drawn By	<b>KN</b>
Checked By	<b>SK, AS</b>
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 02 - AREA E**

SHEET NO.  
**E302.E**



**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By

**KN**

Checked By

**SK, AS**

Client  
Number

514

Project  
Number

6926

DRAWING TITLE

SHELL & CORE  
POWER PLAN - LEVEL  
03 - AREA B

SHEET NO.

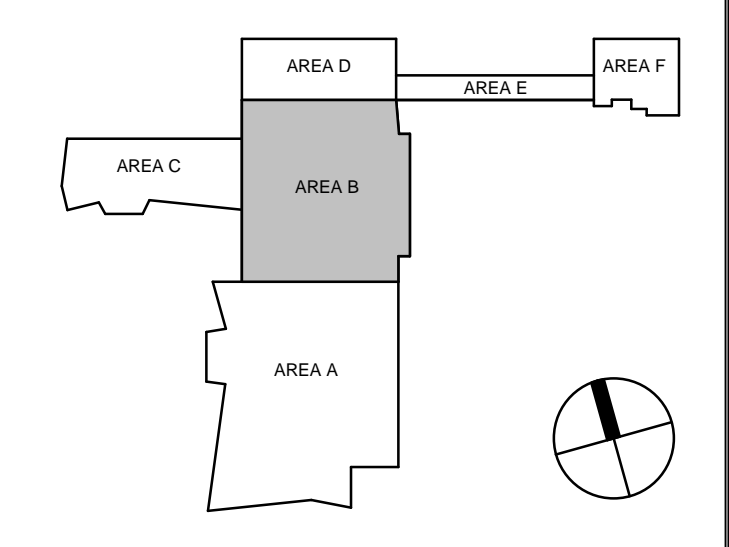
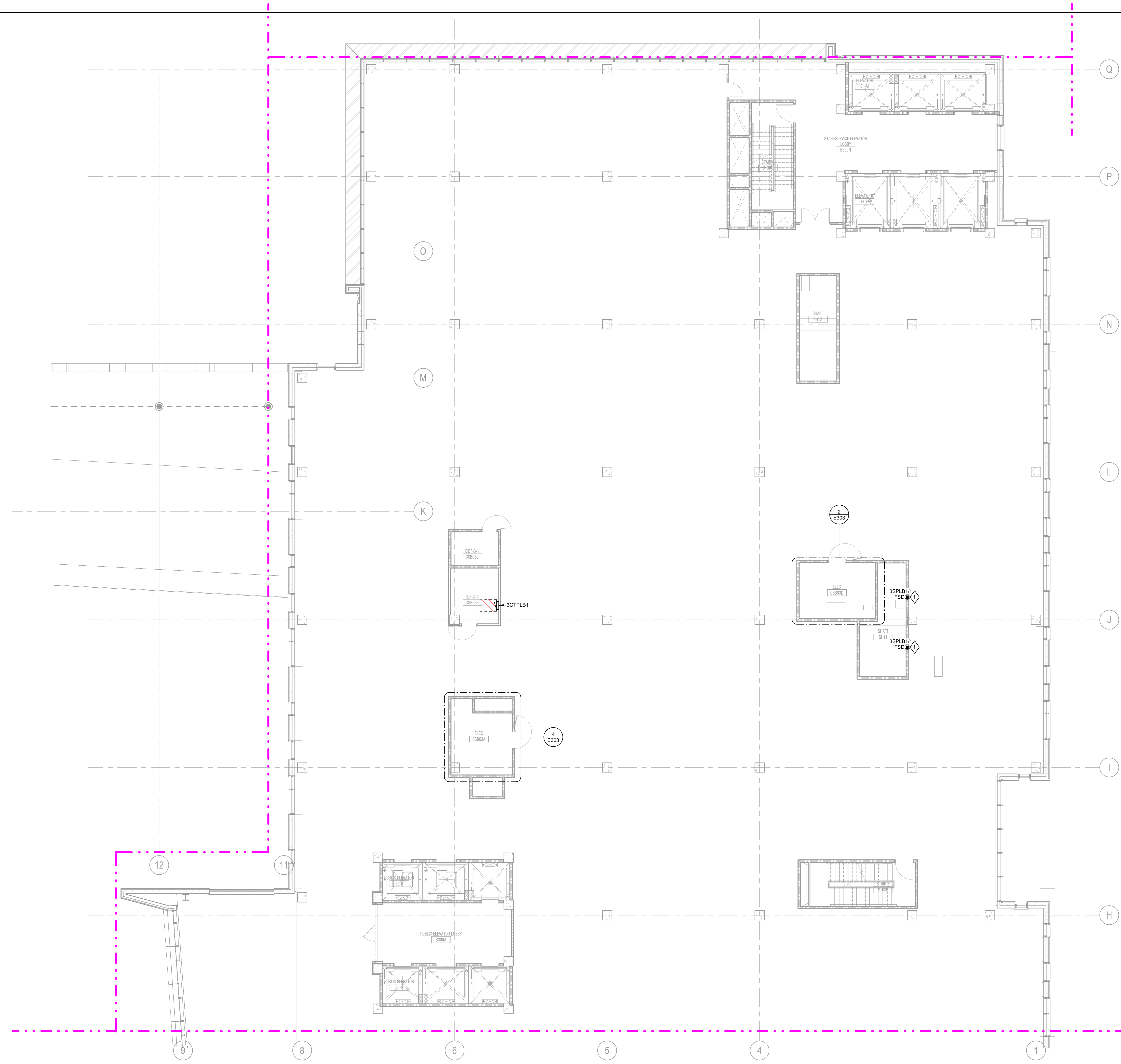
**E303.B**

**POWER GENERAL NOTES**

- ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
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- EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
- SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND PEST MIGRATION THROUGH AND AROUND RACEWAYS.
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**SHEET NOTES**

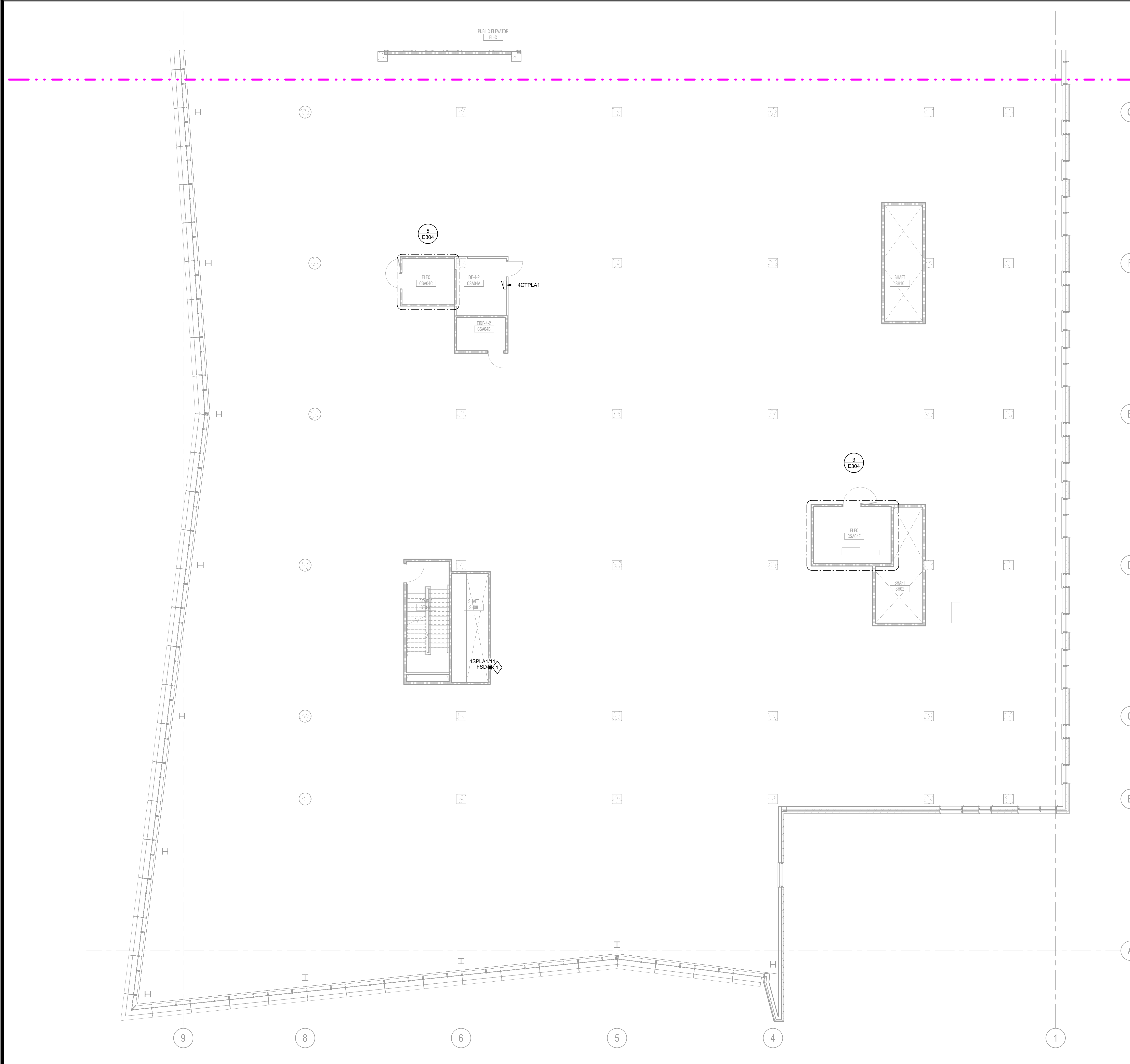
- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**1 SHELL & CORE POWER PLAN - LEVEL 03 - AREA B**  
SCALE: 1/8" = 1'-0"

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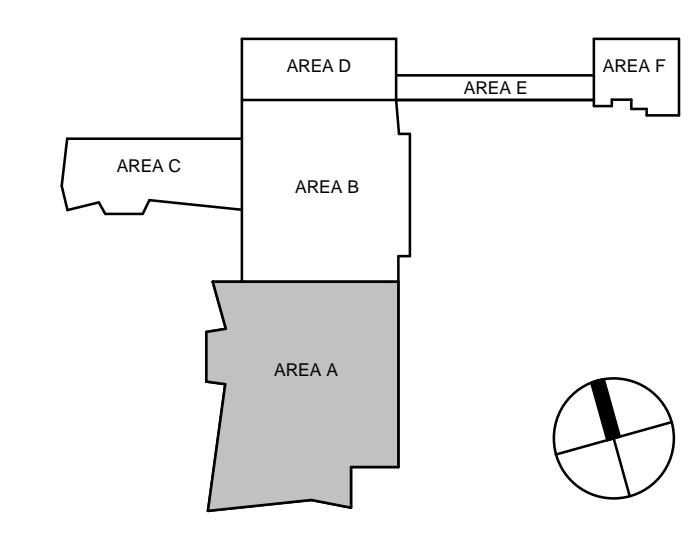
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**SHEET NOTES**

1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.

**1 SHELL & CORE POWER PLAN - LEVEL 04 - AREA A**  
SCALE: 1/8" = 1'-0"



**CHAMPLIN**  
ARCHITECTURE

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP** Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN**

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM**  
Smith

**PIVOTAL**  
lighting design

**UK**  
HEALTHCARE

**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By <b>KN</b>
Checked By <b>SK, AS</b>
Client Number <b>514</b>
Project Number <b>6926</b>
DRAWING TITLE <b>SHELL &amp; CORE POWER PLAN - LEVEL 04 - AREA A</b>
SHEET NO. <b>E304.A</b>

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**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By <b>KN</b>
Checked By <b>SK, AS</b>
Client Number 514
Project Number 6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 04 - AREA B**

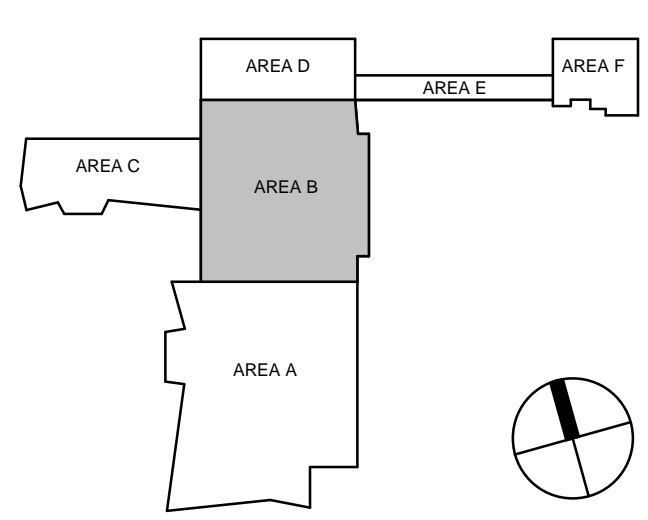
SHEET NO.  
**E304.B**

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**SHEET NOTES**

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**1 SHELL & CORE POWER PLAN - LEVEL 04 - AREA B**  
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10. PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NACP) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
11. PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
12. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
13. PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 264113 "LIGHTNING PROTECTION FOR STRUCTURES".
14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
16. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
17. BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
18. IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
19. ALL GROUND RODS ARE TO BE 3/4"x10" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
20. PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
21. COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
22. ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
23. REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
26. PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO "M" AND "P" SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
27. PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
28. ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

**SHEET NOTES**

1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**CHAMPLIN**  
ARCHITECTURE

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

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**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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**THP**

**AEI** Affiliated Engineers

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**CMTA**

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**OLIN**

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**CARMAN** LANDSCAPE ARCHITECTURE  
URBAN PLANNING CIVIL ENGINEERING

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**WALSH**  
CONSULTING GROUP

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**bell**  
engineering

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**CDM Smith**

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**PIVOTAL**  
lighting design

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**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

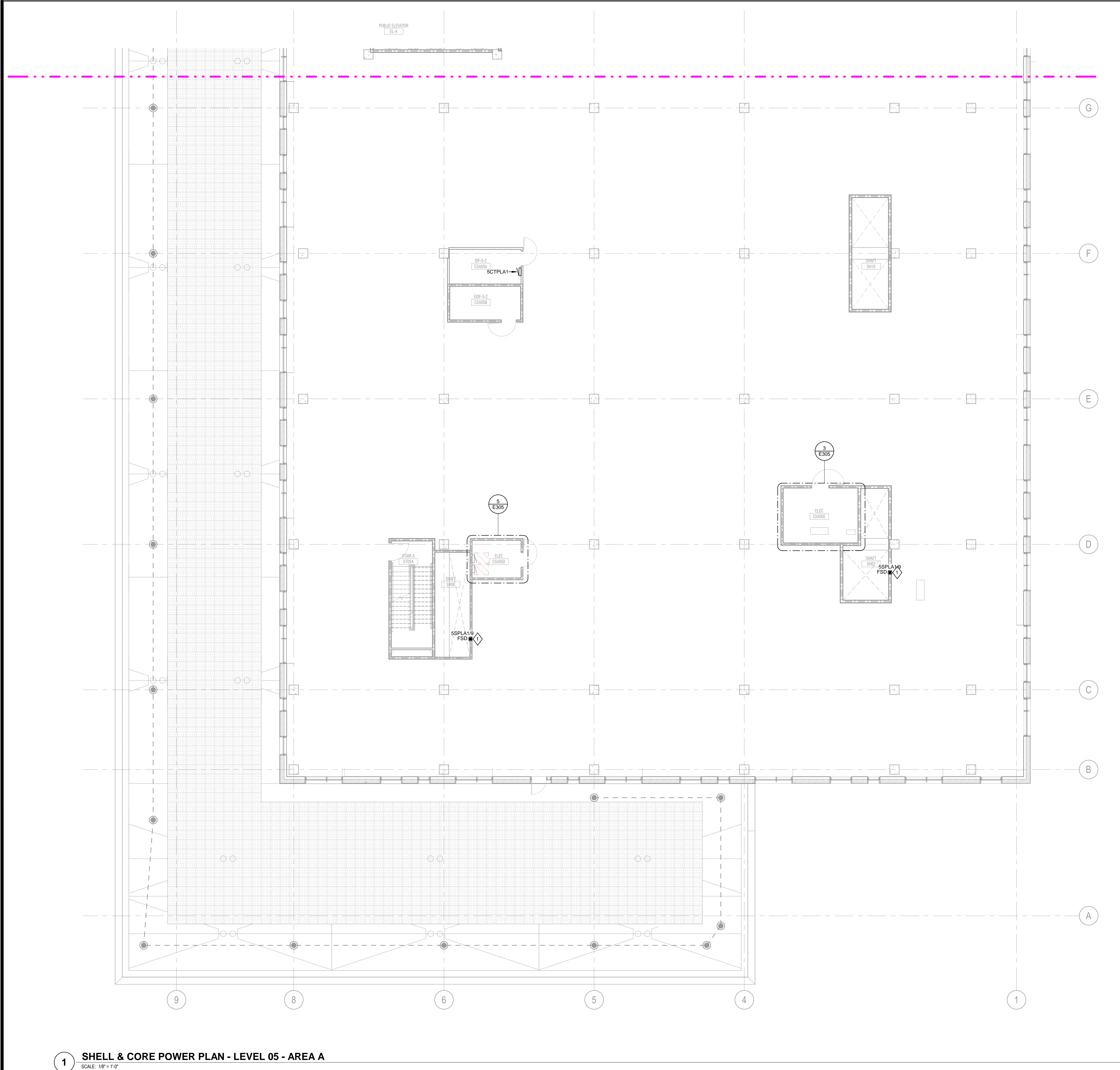
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**ISSUANCES**

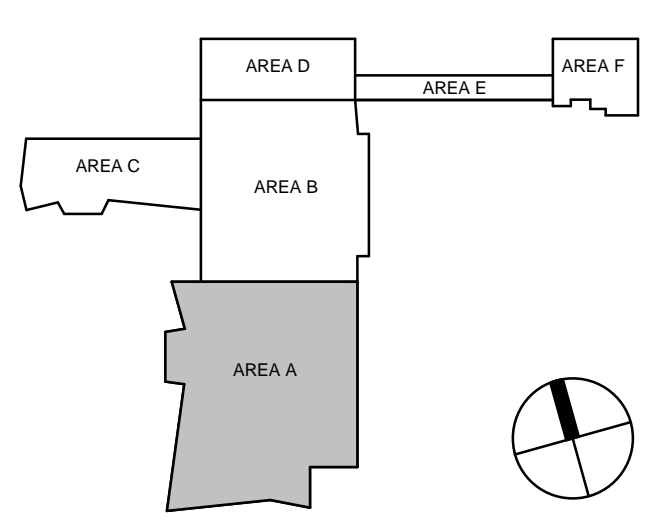
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1	BP-07 ADDENDUM #1	05/28/24

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Drawn By <b>KN</b>	<p>Client Number 514</p> <p>Project Number 6926</p> <p>DRAWING TITLE SHELL &amp; CORE POWER PLAN - LEVEL 05 - AREA A</p> <p>SHEET NO. <b>E305.A</b></p>
Checked By <b>SK, AS</b>	
Client Number 514	
Project Number 6926	
DRAWING TITLE SHELL & CORE POWER PLAN - LEVEL 05 - AREA A	
SHEET NO. <b>E305.A</b>	



**1 SHELL & CORE POWER PLAN - LEVEL 05 - AREA A**  
SCALE: 1/8" = 1'-0"



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**ISSUANCES**

No.	Description	Date
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Drawn By **KN**

Checked By **SK, AS**

Client Number 514

Project Number 6926

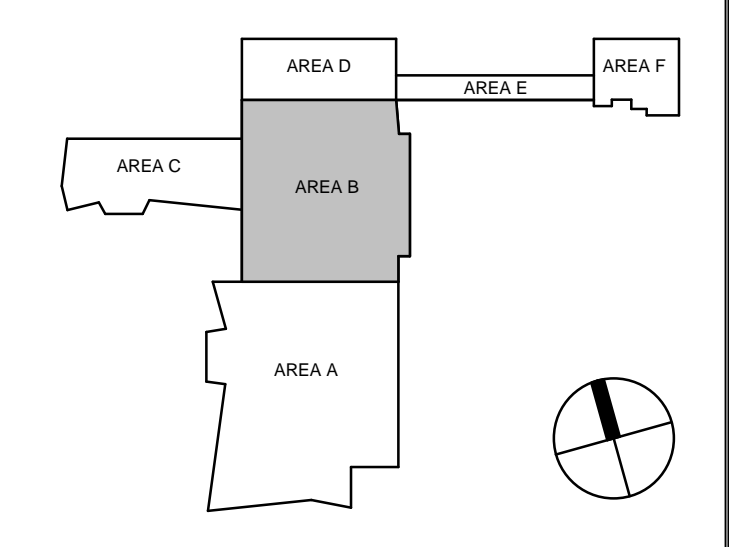
DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 05 - AREA B**

SHEET NO.  
**E305.B**

- POWER GENERAL NOTES**
- ALL IDF & EIOF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
  - CONDUCTOR SIZES ARE BASED ON COPPER THIN/WITHIN IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
  - VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
  - EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
  - SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND PESTICIDE MIGRATION THROUGH AND AROUND RACEWAYS.
  - COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
  - SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
  - ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB, PRIOR TO START OF CONSTRUCTION.
  - ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
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  - PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
  - COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
  - PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 26413 "LIGHTNING PROTECTION FOR STRUCTURES".
  - REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
  - HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
  - PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
  - BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
  - IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
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  - ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
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**SHEET NOTES**

- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



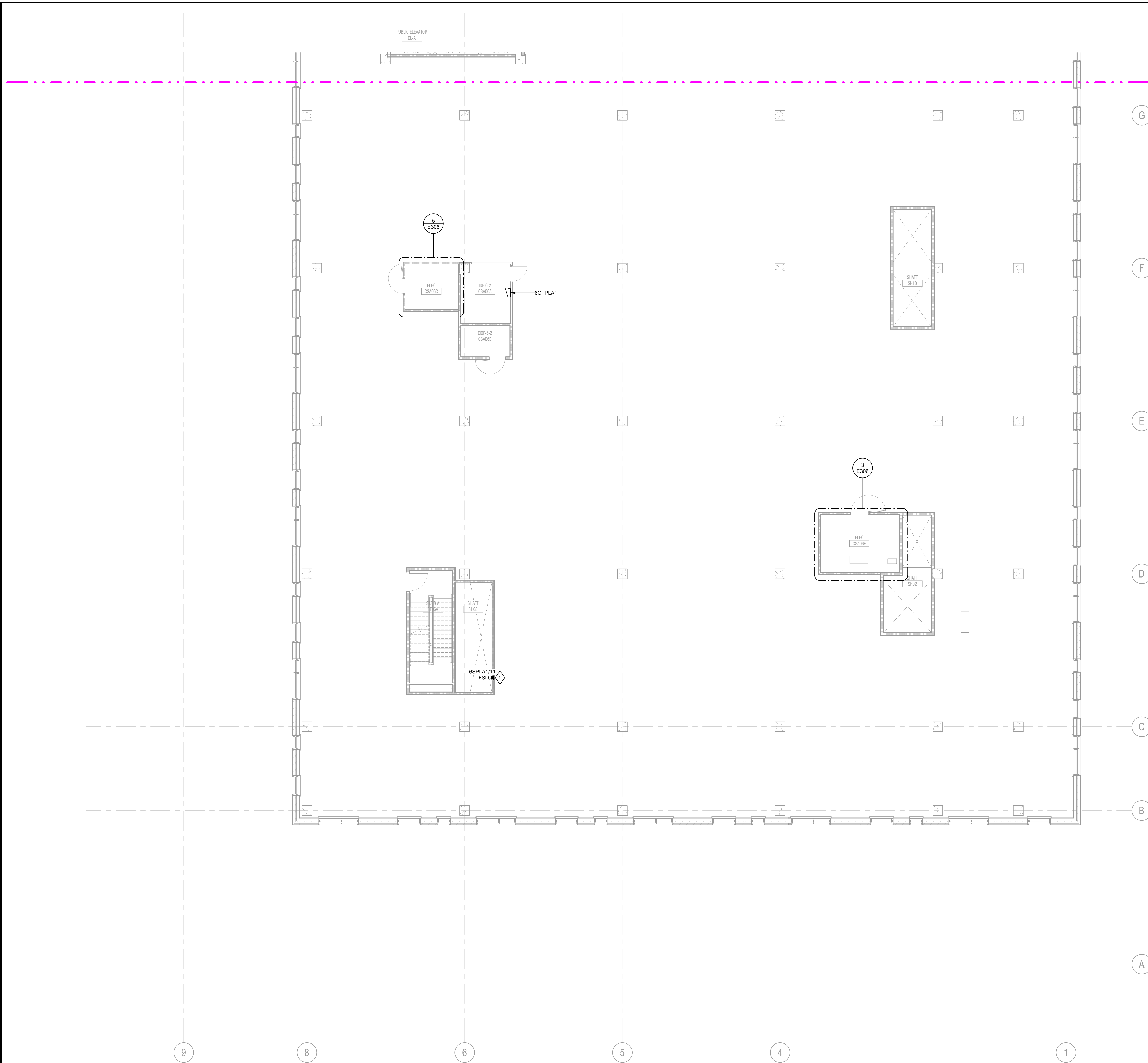
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SCALE: 1/8" = 1'-0"

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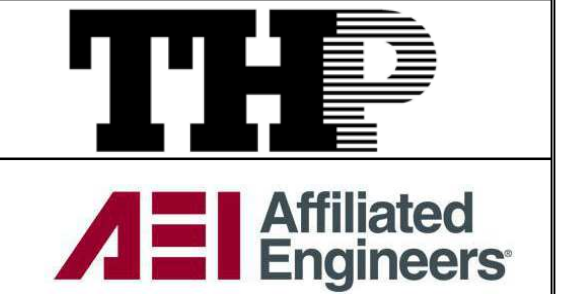
**1 SHELL & CORE POWER PLAN - LEVEL 06 - AREA A**  
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**POWER GENERAL NOTES**

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**SHEET NOTES**

1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

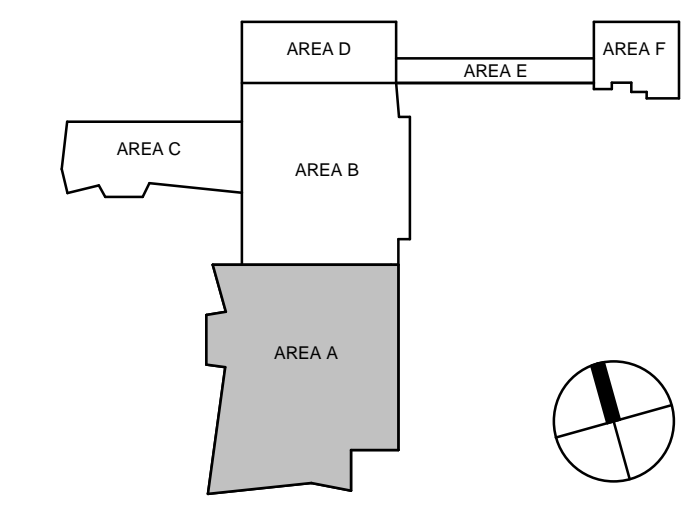
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No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KN</b>
Checked By	<b>SK, AS</b>
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 06 - AREA A**

SHEET NO.  
**E306.A**



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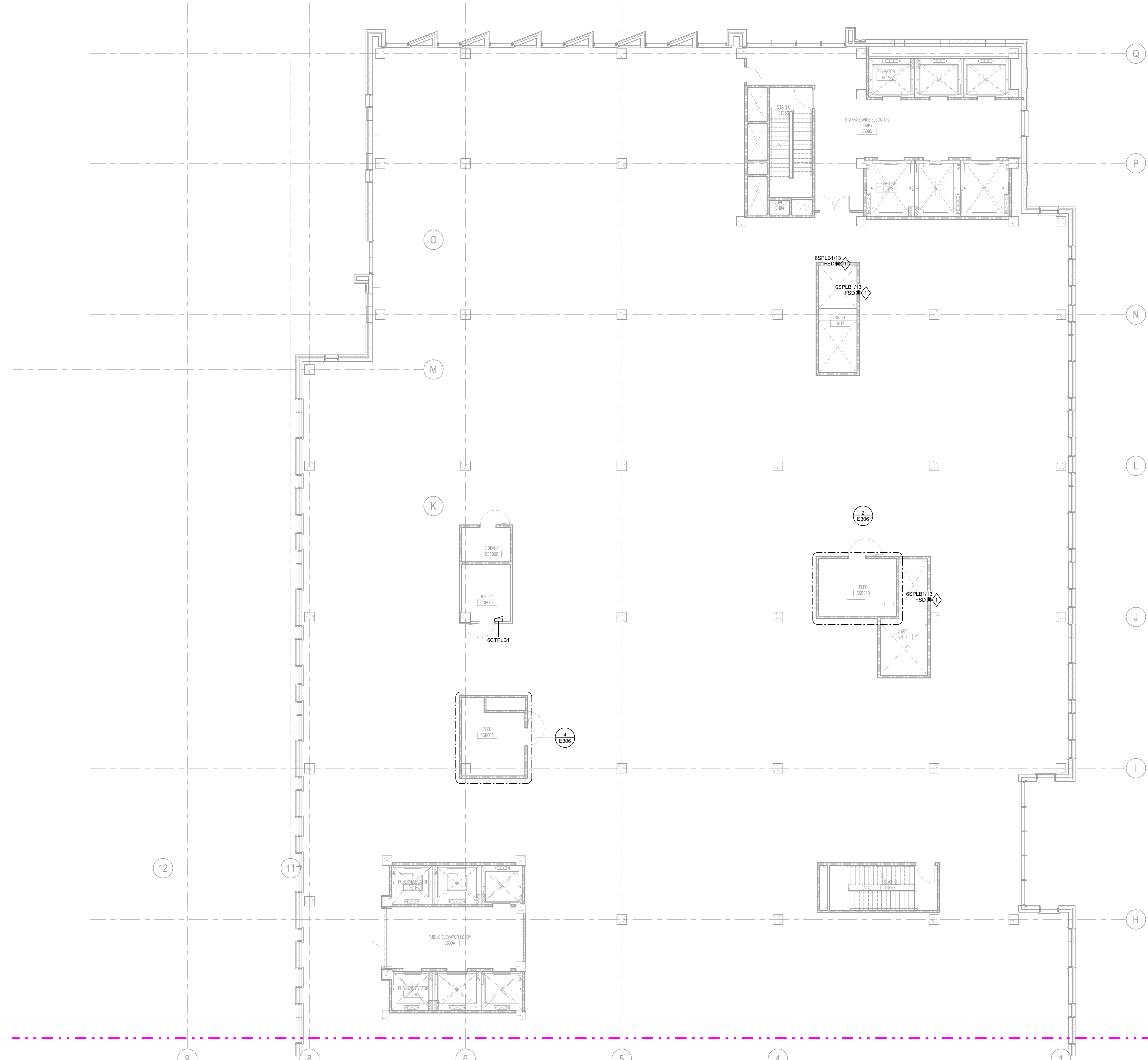
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No.	Description	Date
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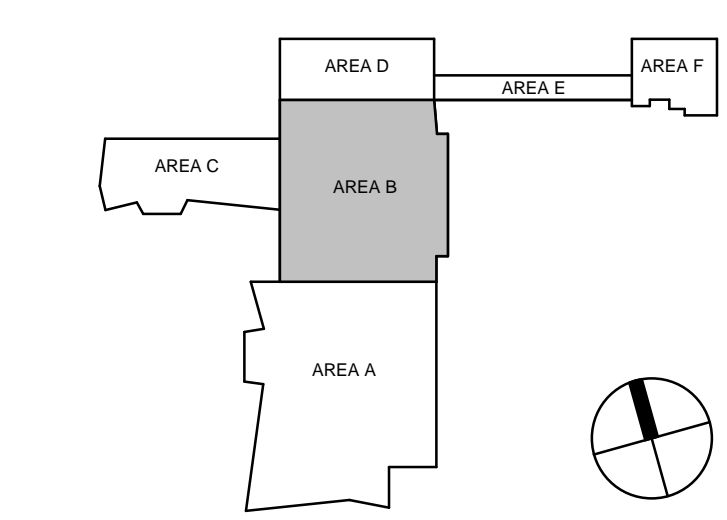
Drawn By	KN
Checked By	SK, AS
Client Number	514
Project Number	6926
DRAWING TITLE	SHELL & CORE POWER PLAN - LEVEL 06 - AREA B
SHEET NO.	E306.B

- POWER GENERAL NOTES**
- ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
  - CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
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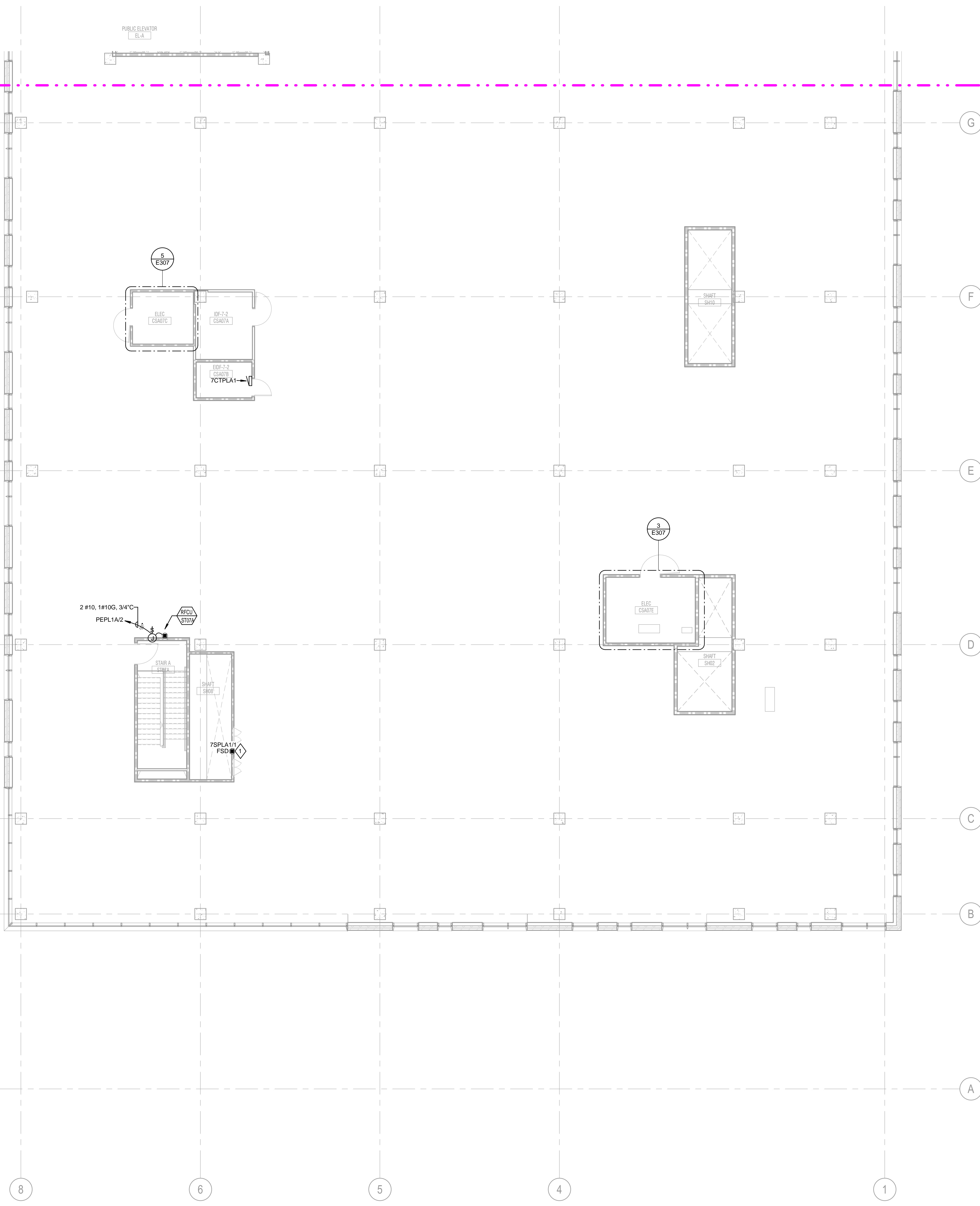


**1 SHELL & CORE POWER PLAN - LEVEL 06 - AREA B**  
SCALE: 1/8" = 1'-0"



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21. COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
22. ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
23. REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
26. PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO "M" AND "P" SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
27. PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
28. ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTING MEANS.

**SHEET NOTES**

1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.

**1 SHELL & CORE POWER PLAN - LEVEL 07 - AREA A**  
SCALE: 1/8" = 1'-0"

**CHAMPLIN**  
ARCHITECTURE  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
Affiliated Engineers  
**AEI**

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
URBAN PLANNING  
CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

**UK**  
HEALTHCARE

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

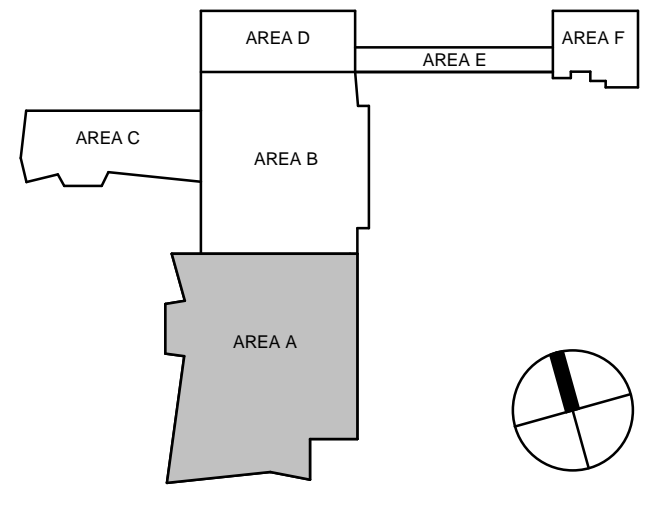
**ISSUANCES**

No.	Description	Date
1	BP-07 ADDENDUM #1	05/28/24

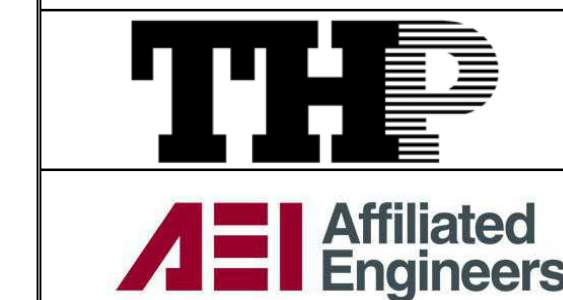
Drawn By <b>KN</b>
Checked By <b>SK, AS</b>
Client Number 514
Project Number 6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - LEVEL 07 - AREA A**

SHEET NO.  
**E307.A**



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Cancer Treatment Center + Advanced Ambulatory Center

1220 Elizabeth St. Lexington, KY 40536 UK Project Number 2563.0

ISSUANCES

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Table with 2 columns: Field, Value. Fields: Drawn By (KN), Checked By (SK, AS), Client Number (514), Project Number (6926)

DRAWING TITLE SHELL & CORE POWER PLAN - LEVEL 07 - AREA B

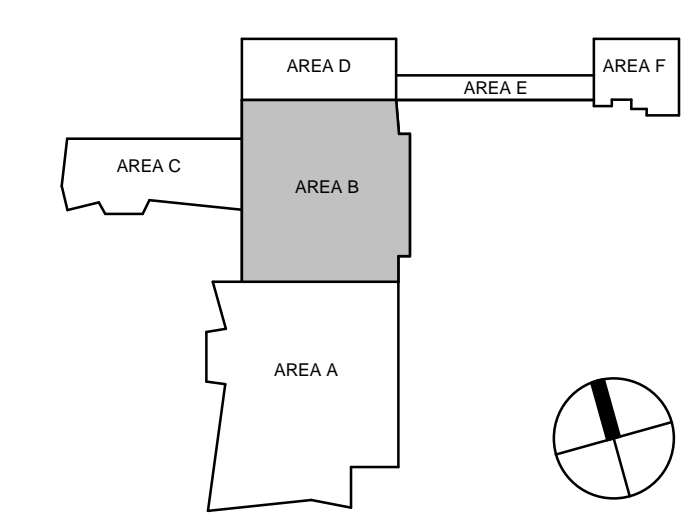
SHEET NO. E307.B

POWER GENERAL NOTES

- 1. ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
2. CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY...
3. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION...
4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
5. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND.
6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS...
7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
8. ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER...
9. ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION...
10. PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC) FROM NEAREST LIFE SAFETY PANEL...
11. PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
12. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
13. PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 264113 'LIGHTNING PROTECTION FOR STRUCTURES'.
14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
16. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
17. BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
18. IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
19. ALL GROUND RODS ARE TO BE 3/4"x10" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
20. PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
21. COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
22. ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
23. REFER TO SHEET E710, 'GROUNDING RISER DIAGRAM' FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
26. PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO 'M' AND 'P' SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
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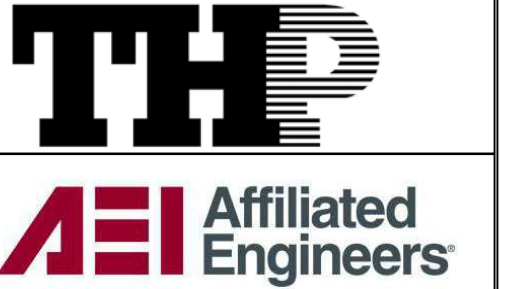
1 SHELL & CORE POWER PLAN - LEVEL 07 - AREA B SCALE: 1/8" = 1'-0"

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HGA

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000



OLIN

CARMAN LANDSCAPE ARCHITECTURE CIVIL ENGINEERING



CDM Smith

PIVOTAL lighting design



Cancer Treatment  
Center + Advanced  
Ambulatory Center

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UK Project Number 2563.0

ISSUANCES

No.	Description	Date
1	C&S 80% CD	03/05/24
2	BP08 - FO 100% DD	04/04/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KN**

Checked By  
**SK, AS**

Client Number  
514

Project Number  
6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - ROOF - AREA A**

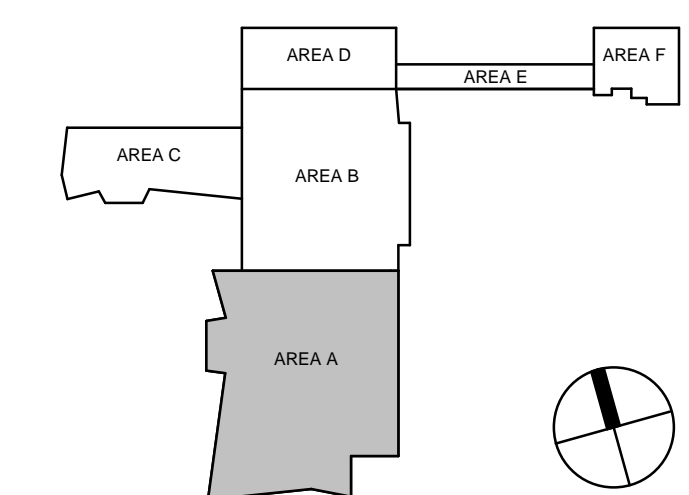
SHEET NO.  
**E309.A**

POWER GENERAL NOTES

- ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
- CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
- VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
- EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
- SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
- COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
- ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB, PRIOR TO START OF CONSTRUCTION.
- ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
- PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAO) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
- PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
- PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 26413 "LIGHTNING PROTECTION FOR STRUCTURES".
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
- HOMERUN RACEWAYS ARE TO BE BURIED 2" BELOW FINISHED GRADE.
- PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
- BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
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- REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
- BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
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SHEET NOTES

- REFER TO SINGLE LINE FOR MOTOR FEEDER. PROVIDE ADDITIONAL (2) #12 FOR VFD INTERLOCK.
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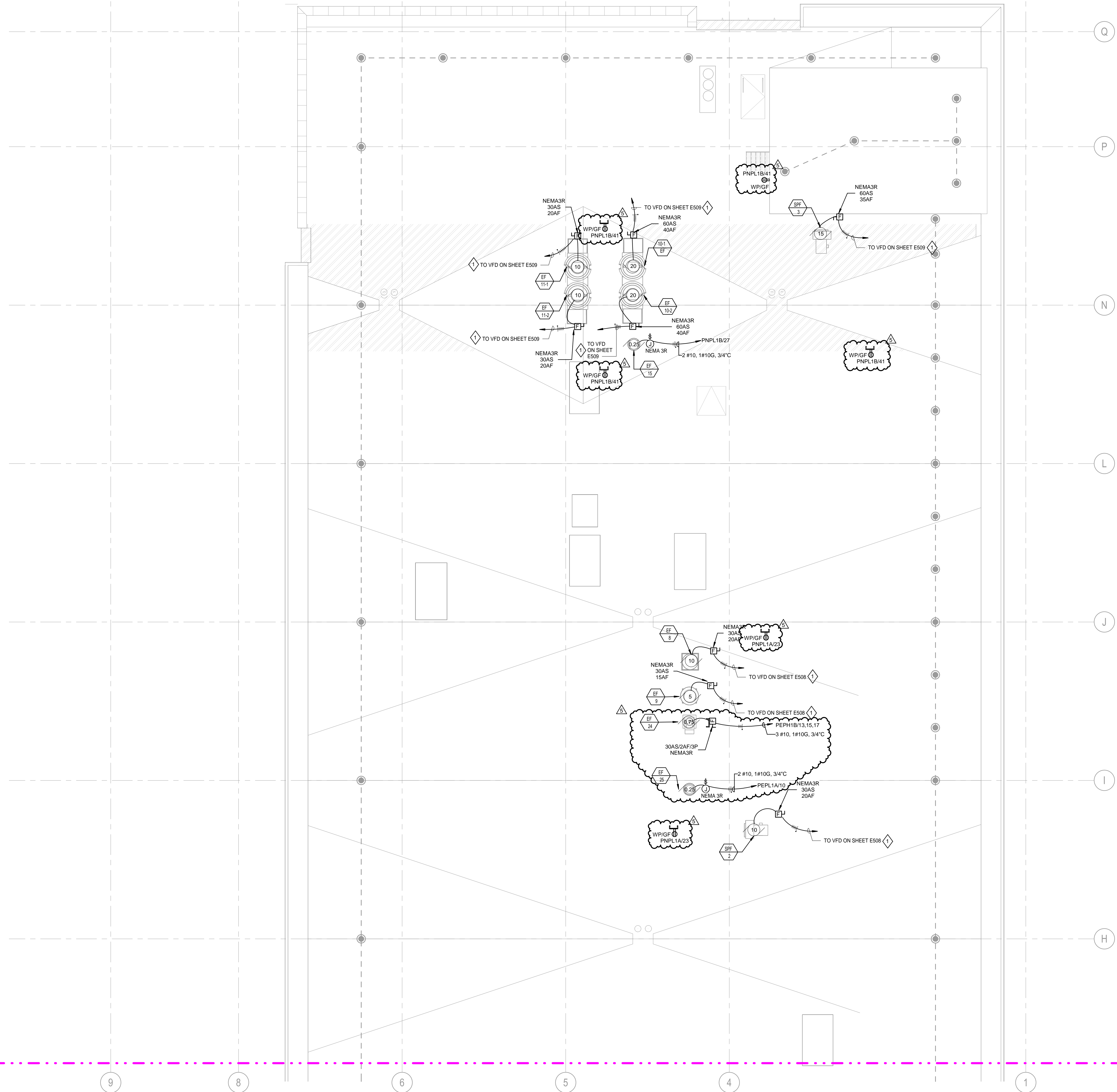
**1 SHELL & CORE POWER PLAN - ROOF - AREA A**  
SCALE: 1/8" = 1'-0"

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# 1 SHELL & CORE POWER PLAN - ROOF - AREA B

SCALE: 1/8" = 1'-0"

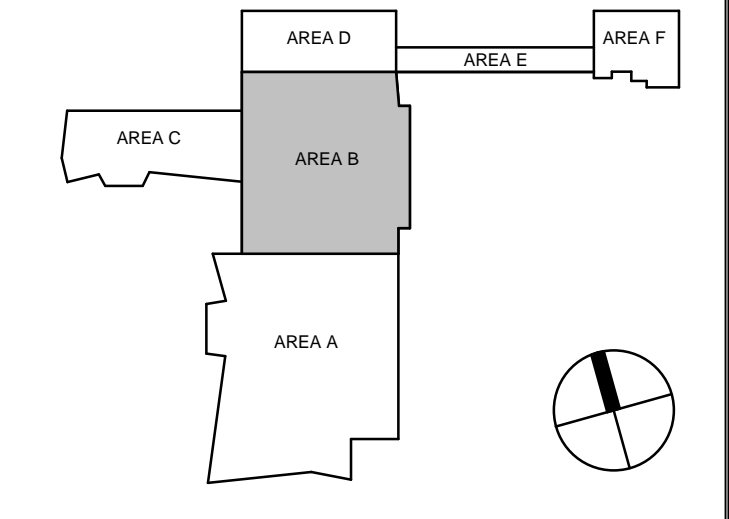


### POWER GENERAL NOTES

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### SHEET NOTES

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**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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 lighting design

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### ISSUANCES

No.	Description	Date
1	C&S 80% CD	03/05/24
2	BP08 - FO 100% DD	04/04/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KN</b>
Checked By	<b>SK, AS</b>
Client Number	514
Project Number	6926

DRAWING TITLE  
**SHELL & CORE POWER PLAN - ROOF - AREA B**

SHEET NO.  
**E309.B**

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**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
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Drawn By

**KN**

Checked By

**SK, AS**

Client Number

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Project Number

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DRAWING TITLE

**ENLARGED PLANS**

SHEET NO.

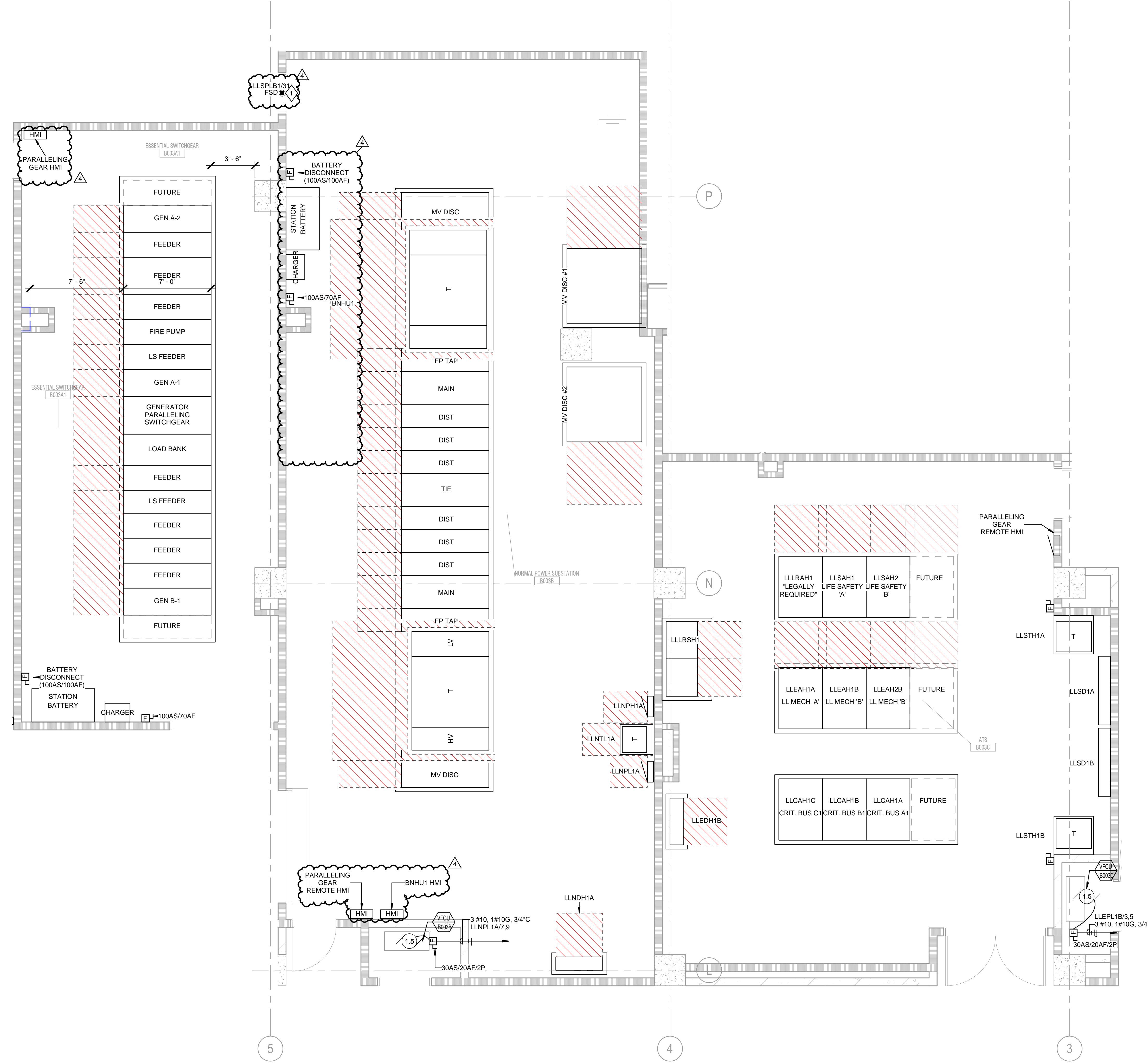
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**POWER GENERAL NOTES**

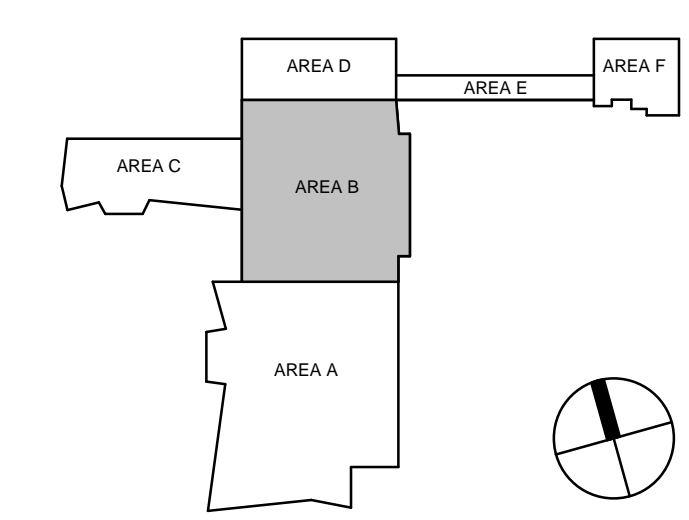
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23. REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
24. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
26. PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO 'M' AND 'P' SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
27. PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
28. ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL PROTECTIVE DEVICES.

**SHEET NOTES**

1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**1 LEVEL 00 - ENLARGED ELECTRICAL ROOMS**  
SCALE: 1/4" = 1'-0"







**ISSUANCES**

No.	Description	Date
1	C&S 60% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By

**KN**

Checked By

**SK, AS**

Client Number

514

Project Number

6926

DRAWING TITLE

ENLARGED PLANS

SHEET NO.

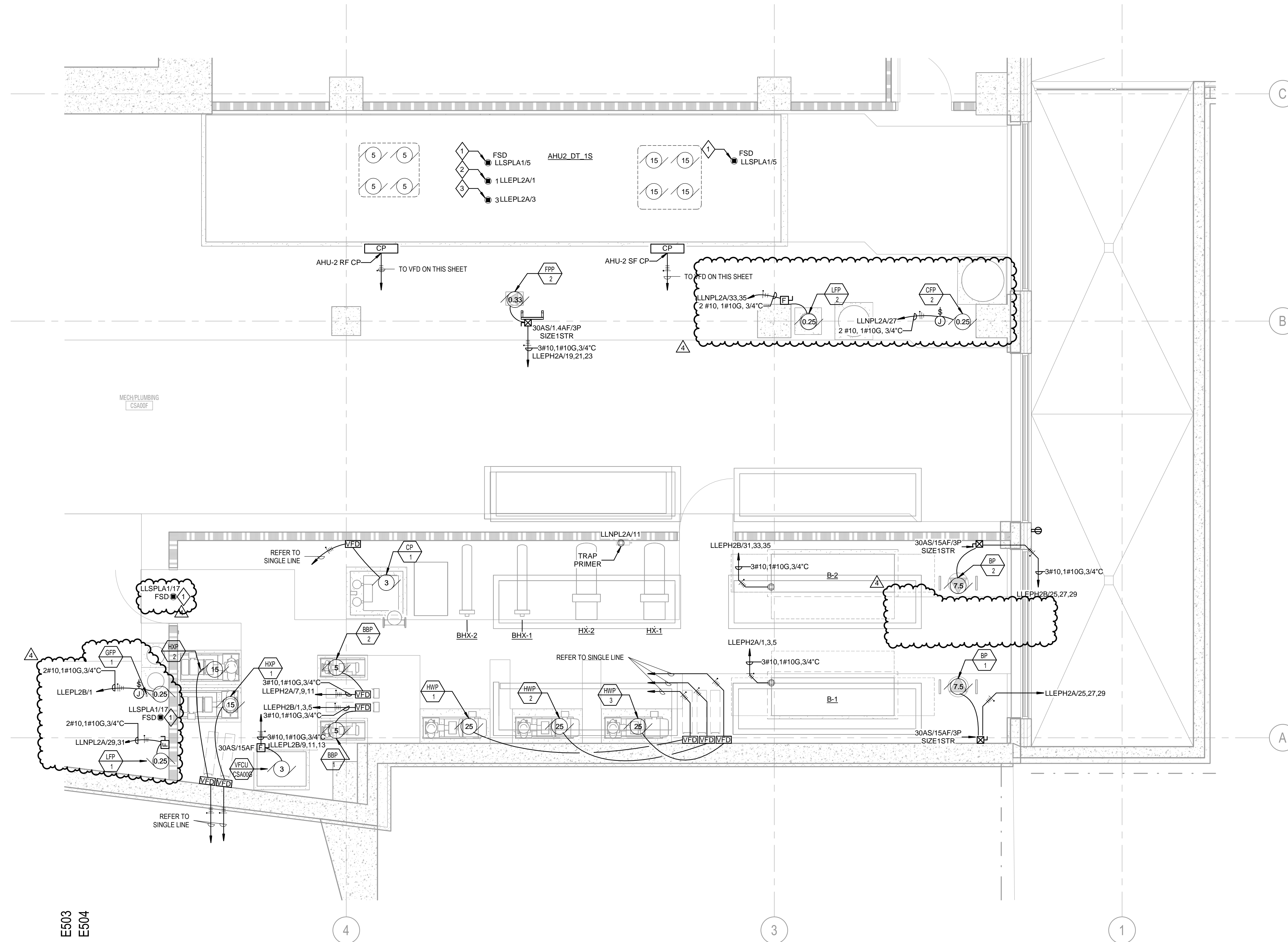
**E504**

**POWER GENERAL NOTES**

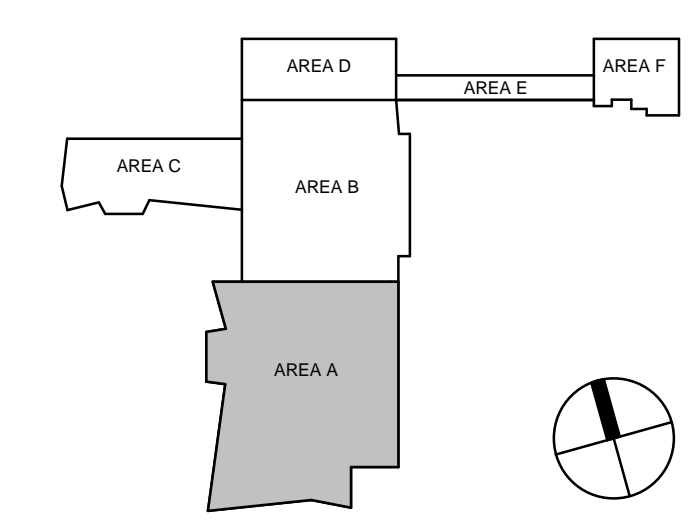
- ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
- CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
- VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
- EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
- SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND ROCKET MIGRATION THROUGH AND AROUND RACEWAYS.
- COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
- ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB PRIOR TO START OF CONSTRUCTION.
- ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
- PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
- PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
- PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 284113 "LIGHTNING PROTECTION FOR STRUCTURES".
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
- HOMERUN RACEWAYS ARE TO BE BURIED 2" BELOW FINISHED GRADE.
- PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
- BURY CONDUCTOR 2" BELOW BOTTOM OF SLAB ELEVATION.
- IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
- ALL GROUND RODS ARE TO BE 3/4"x10" COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
- PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
- COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
- ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
- REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
- BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
- REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
- PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO "M" AND "P" SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
- PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
- ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL GROUNDING POINTS.

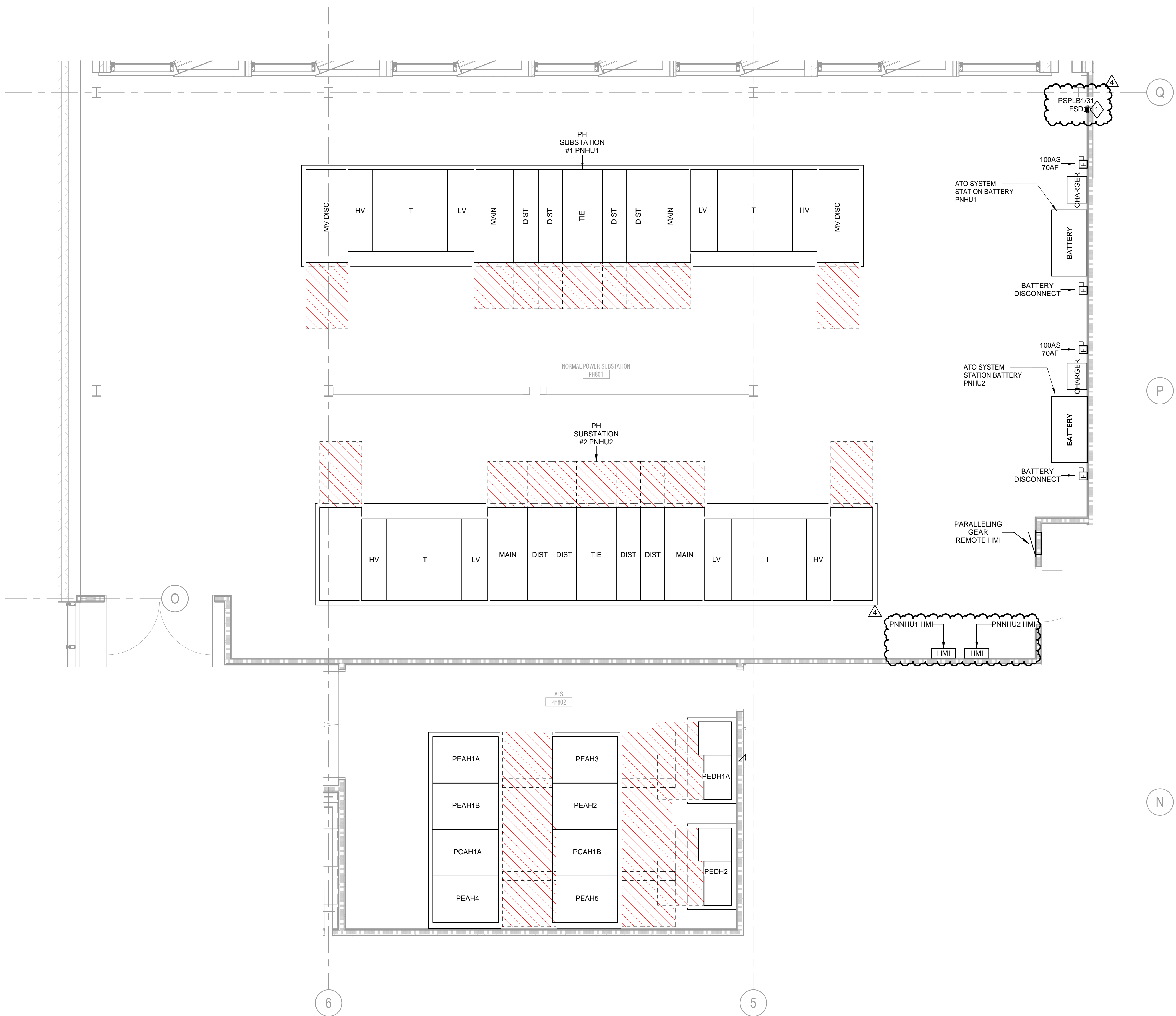
**SHEET NOTES**

- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.
- PROVIDE 120V CONNECTION TO AHU LIGHTING AND MAINTENANCE RECEPTACLES.
- PROVIDE 120V CONNECTION TO IONIZATION DEVICE.



**1 SOUTH MECHANICAL ROOM (2/2)**  
SCALE: 1/4" = 1'-0"





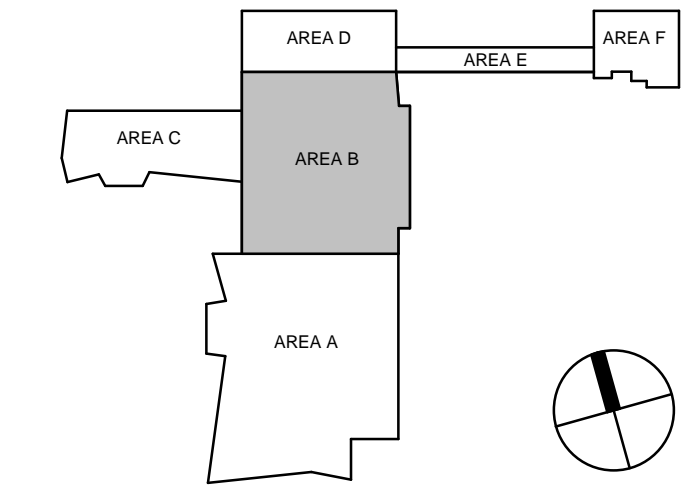
**1 PENTHOUSE ELECTRICAL ROOMS**  
SCALE: 1/4" = 1'-0"

**POWER GENERAL NOTES**

1. ALL IDF & IDF ROOMS SHALL COMPLY WITH UNIVERSITY OF KENTUCKY ITS STANDARDS.
2. CONDUCTOR SIZES ARE BASED ON COPPER THIRTYTHREE IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
3. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
4. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE BRANCH CIRCUITS ARE NOT ALLOWED.
5. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
6. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
7. SEE ARCHITECT'S DRAWINGS FOR ADDITIONAL RECEPTACLE LOCATIONS AND MOUNTING HEIGHTS.
8. ANY CORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB PRIOR TO START OF CONSTRUCTION.
9. ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
10. PROVIDE 120V LIFE SAFETY CONNECTION FOR NOTIFICATION APPLIANCE CIRCUIT PANEL (NACP) FROM NEAREST LIFE SAFETY PANEL. COORDINATE PANEL LOCATIONS WITH FIRE ALARM CONTRACTOR.
11. PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
12. COORDINATE MOUNTING OF RECEPTACLES AND LOW VOLTAGE ROUGH-IN WITH FURNITURE PROVIDER AND ARCHITECTURAL ELEVATIONS.
13. PROVIDE LIGHTNING PROTECTION SYSTEM AND CONNECT TO BUILDING GROUNDING SYSTEM AS REQUIRED IN SPECIFICATION 284113 "LIGHTNING PROTECTION FOR STRUCTURES".
14. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT FLOOR BOX LOCATIONS.
15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
16. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
17. BURY CONDUCTOR 24" BELOW BOTTOM OF SLAB ELEVATION.
18. IDENTIFY CONDUCTOR LOCATION TO PREVENT CONSTRUCTION DAMAGE BEFORE SLAB IS POURED.
19. ALL GROUND RODS ARE TO BE 3/4"x10' COPPER-CLAD STEEL. TOP OF GROUND ROD IS TO BE BURIED 12" BELOW BOTTOM OF SLAB.
20. PROVIDE ENGINEER WITH COPY OF SOILS RESISTANCE REPORT AND INSTALLED SYSTEM RESISTANCE REPORT TWO WEEKS PRIOR TO SLAB POUR.
21. COORDINATE COUNTERPOISE LOCATION TO AVOID STRUCTURAL FOOTINGS AND CAISSON LOCATIONS.
22. ALL SYSTEM CONNECTIONS ARE TO BE MADE WITH CADWELD EXCEPT AT TEST WELLS. FOLLOW CADWELD MANUFACTURER'S INSTRUCTIONS FOR BONDING GROUNDING SYSTEM COMPONENTS.
23. REFER TO SHEET E710, "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
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25. REFER TO AUDIOVISUAL, IT, NURSE CALL, AND SECURITY DRAWINGS FOR ADDITIONAL REQUIREMENTS AND RACEWAY TO BE PROVIDED BY CONTRACTOR.
26. PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. REFER TO 'M' AND 'P' SERIES DRAWINGS FOR ADDITIONAL EQUIPMENT LOCATIONS.
27. PROVIDE ALLOWANCE FOR SLEEVING OF FORTY (40) FLOOR BOXES AND POKE-THRU DEVICES ON EACH FLOOR.
28. ALL FIXED EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH PROPERLY SIZED LOCAL DISCONNECTS.

**SHEET NOTES**

1. PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.



**CHAMPLIN ARCHITECTURE**  
720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**  
420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
**AEI Affiliated Engineers**

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
URBAN PLANNING  
CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell engineering**

**CDM Smith**

**PIVOTAL**  
lighting design

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KN</b>
Checked By	<b>SK, AS</b>
Client Number	514
Project Number	6926

DRAWING TITLE  
**ENLARGED PLANS**

SHEET NO.  
**E505**

**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By

**KN**

Checked By

**SK, AS**

Client  
Number

514

Project  
Number

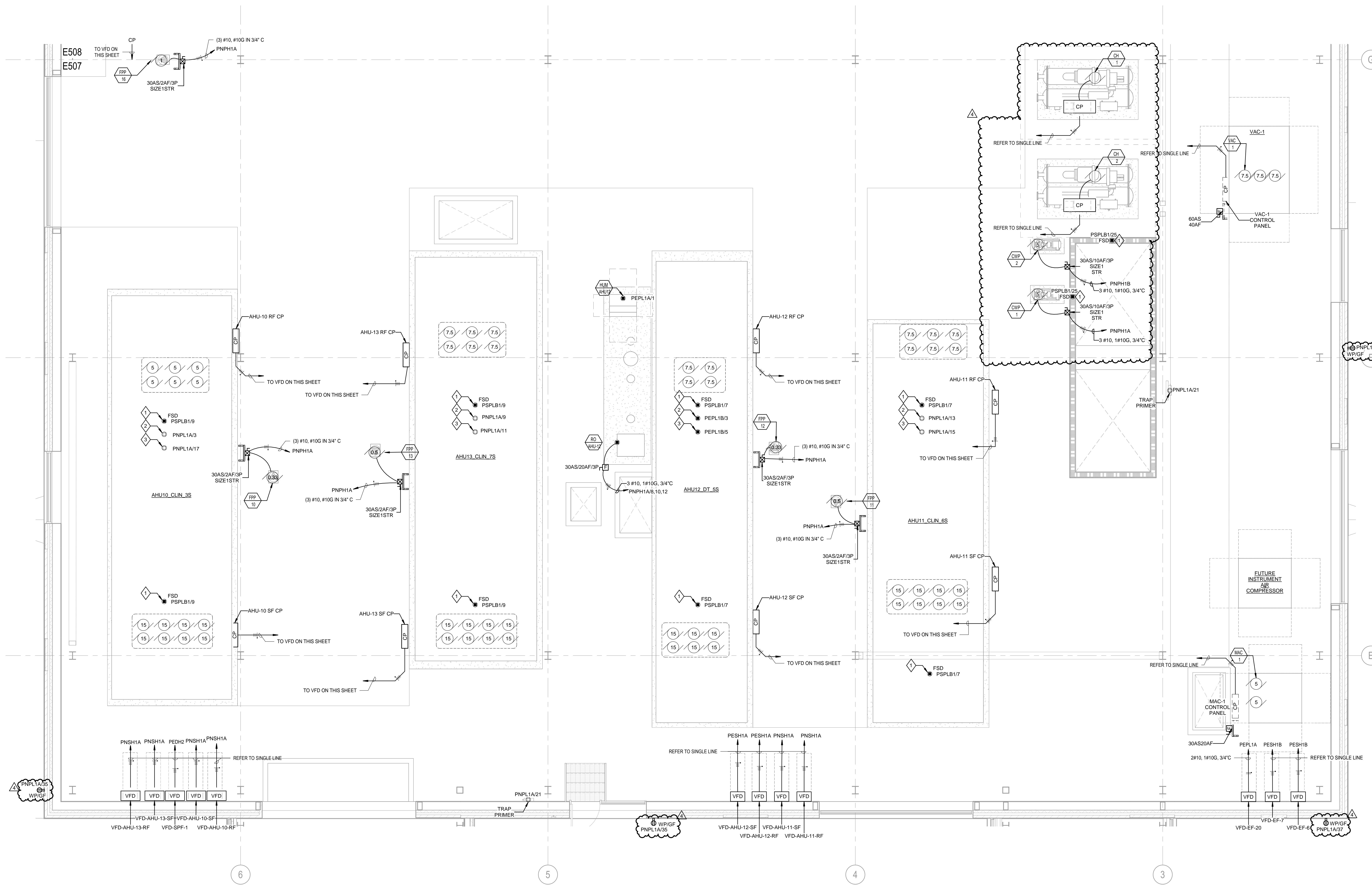
6926

DRAWING TITLE

ENLARGED PLANS

SHEET NO.

**E507**



**1 PENTHOUSE MECHANICAL ENLARGED - SOUTH**  
SCALE: 1/4" = 1'-0"

**SHEET NOTES**

- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.
- PROVIDE 120V CONNECTION TO AHU LIGHTING AND MAINTENANCE RECEPTACLES.
- PROVIDE 120V CONNECTION TO IONIZATION DEVICE.

5/28/2024 2:53:39 PM Autodesk Docs://1446205 - UKHC Cancer Treatment + Advanced Ambulatory Center E25-UNC - 5146205.dwg

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**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By

**KN**

Checked By

**SK, AS**

Client Number

514

Project Number

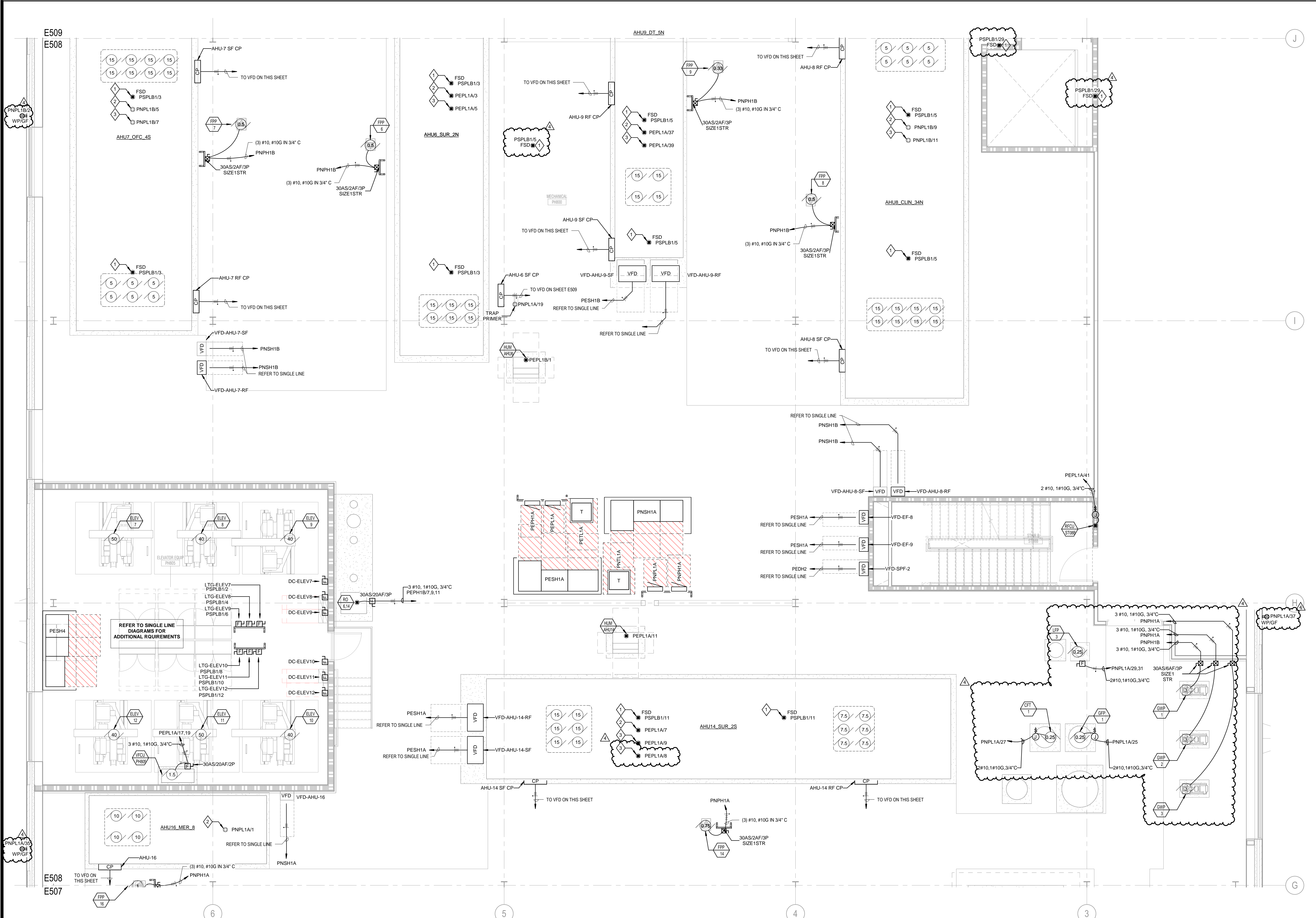
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DRAWING TITLE

ENLARGED PLANS

SHEET NO.

**E508**



**1 PENTHOUSE MECHANICAL ENLARGED - MIDDLE**  
SCALE: 1/4" = 1'-0"

**SHEET NOTES**

- 1 PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.
- 2 PROVIDE 120V CONNECTION TO AHU LIGHTING AND MAINTENANCE RECEPTACLES.
- 3 PROVIDE 120V CONNECTION TO IONIZATION DEVICE.

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**ISSUANCES**

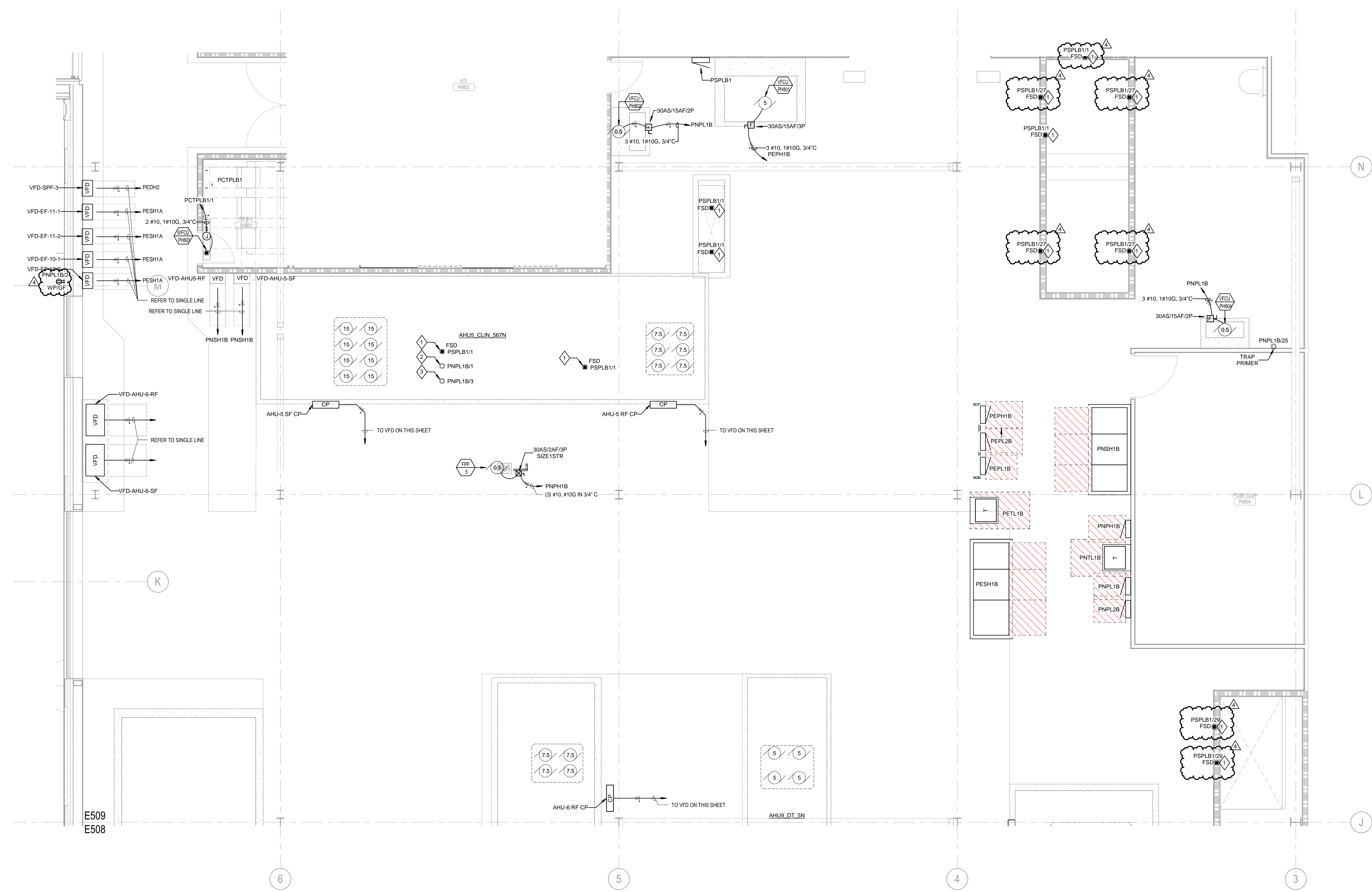
No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KN</b>
Checked By	<b>SK, AS</b>
Client Number	514
Project Number	6926

**DRAWING TITLE**

ENLARGED PLANS

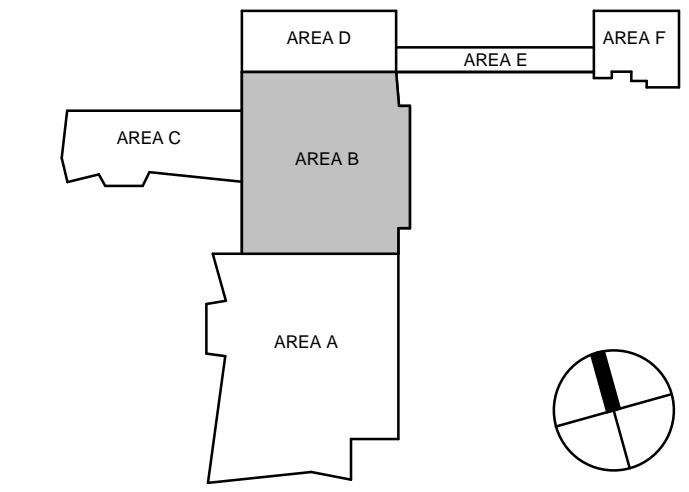
SHEET NO.  
**E509**



**1 PENTHOUSE MECHANICAL ENLARGED - NORTH**  
SCALE: 1/4" = 1'-0"

**SHEET NOTES**

- PROVIDE POWER TO COMBINATION FIRE/SMOKE DAMPER FROM LIFE SAFETY PANEL.
- PROVIDE 120V CONNECTION TO AHU LIGHTING AND MAINTENANCE RECEPTACLES.
- PROVIDE 120V CONNECTION TO IONIZATION DEVICE.



**ISSUANCES**

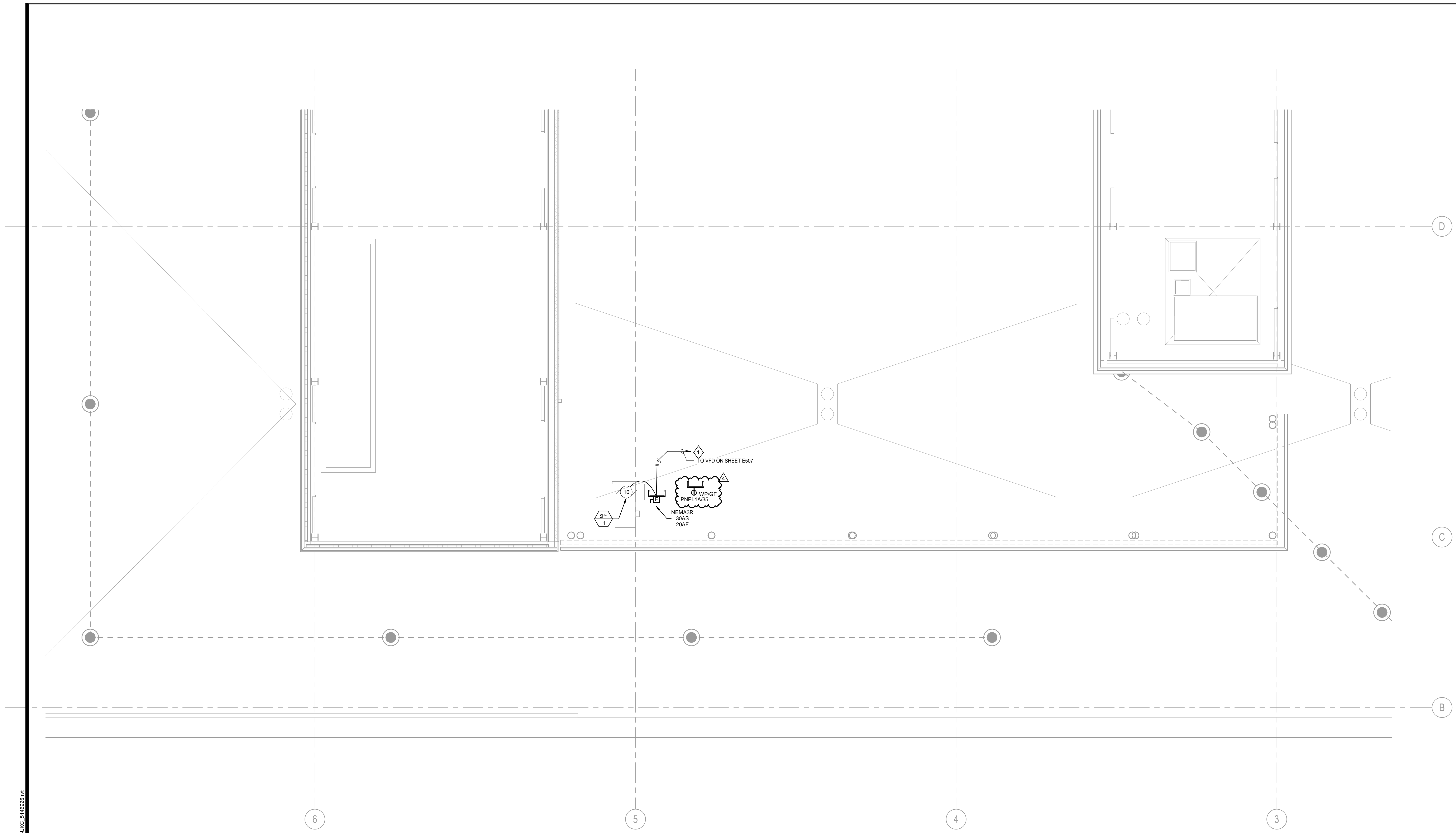
No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KN</b>
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DRAWING TITLE

ENLARGED PLANS

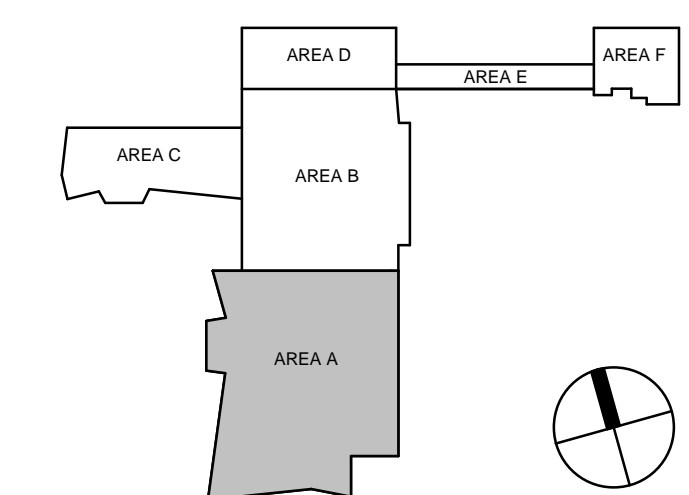
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**E510**

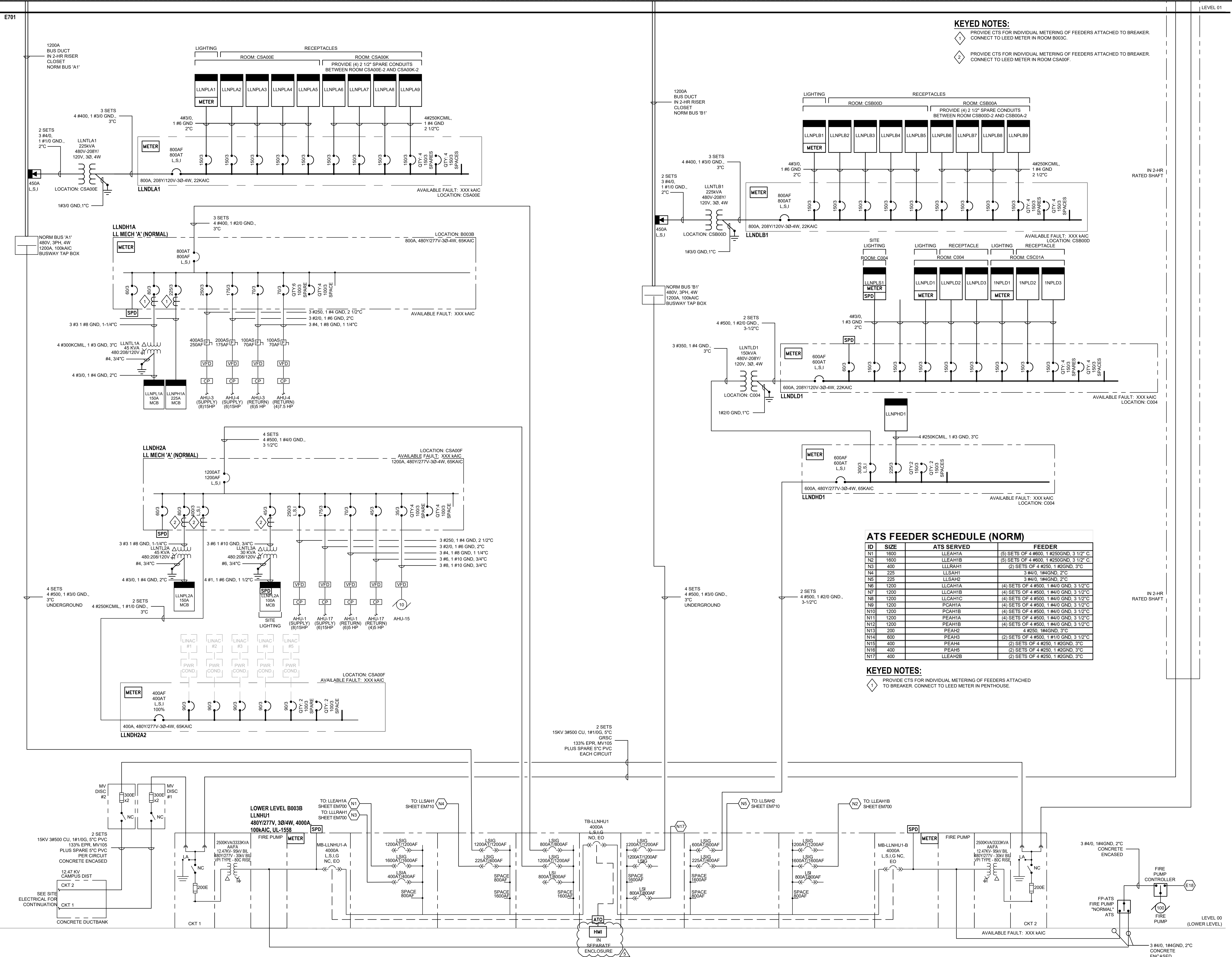


**1 PENTHOUSE ROOF ENLARGED**  
SCALE: 1/4" = 1'-0"

**SHEET NOTES**

1 REFER TO SINGLE LINE FOR MOTOR FEEDER. PROVIDE ADDITIONAL (2) #12 FOR VFD INTERLOCK.





**KEYED NOTES:**  
 1 PROVIDE CTS FOR INDIVIDUAL METERING OF FEEDERS ATTACHED TO BREAKER. CONNECT TO LEED METER IN ROOM 8003C.  
 2 PROVIDE CTS FOR INDIVIDUAL METERING OF FEEDERS ATTACHED TO BREAKER. CONNECT TO LEED METER IN ROOM CSA00F.

**ATS FEEDER SCHEDULE (NORM)**

ID	SIZE	ATS SERVED	FEEDER
N1	1600	LLEAHTA	(5) SETS OF 4 #600, 1 #250GND, 3 1/2" C.
N2	1600	LLEAHTB	(5) SETS OF 4 #600, 1 #250GND, 3 1/2" C.
N3	400	LLRAH1	(2) SETS OF 4 #250, 1 #2GND, 3" C.
N4	225	LLSAH1	3 #4/0, 1#4GND, 2" C.
N5	225	LLSAH2	3 #4/0, 1#4GND, 2" C.
N6	1200	LLEAHTA	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
N7	1200	LLEAHTB	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
N8	1200	LLEAHTC	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
N9	1200	PCAH1A	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
N10	1200	PCAH1B	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
N11	1200	PEAHTA	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
N12	1200	PEAHTB	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
N13	200	PEAH2	4 #250, 1#4GND, 3" C.
N14	600	PEAH3	(2) SETS OF 4 #500, 1 #1/0 GND, 3 1/2" C.
N15	400	PEAH4	(2) SETS OF 4 #250, 1 #2GND, 3" C.
N16	400	PEAH5	(2) SETS OF 4 #250, 1 #2GND, 3" C.
N17	400	LLEAHTB	(2) SETS OF 4 #250, 1 #2GND, 3" C.

**KEYED NOTES:**  
 1 PROVIDE CTS FOR INDIVIDUAL METERING OF FEEDERS ATTACHED TO BREAKER. CONNECT TO LEED METER IN PENTHOUSE.

1 ONE-LINE DIAGRAM - NORMAL POWER  
 SCALE: NOT TO SCALE

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

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**ISSUANCES**

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By: KRN  
 Checked By: ACS  
 Client Number: 514  
 Project Number: 6926  
 Date: 4/30/2024

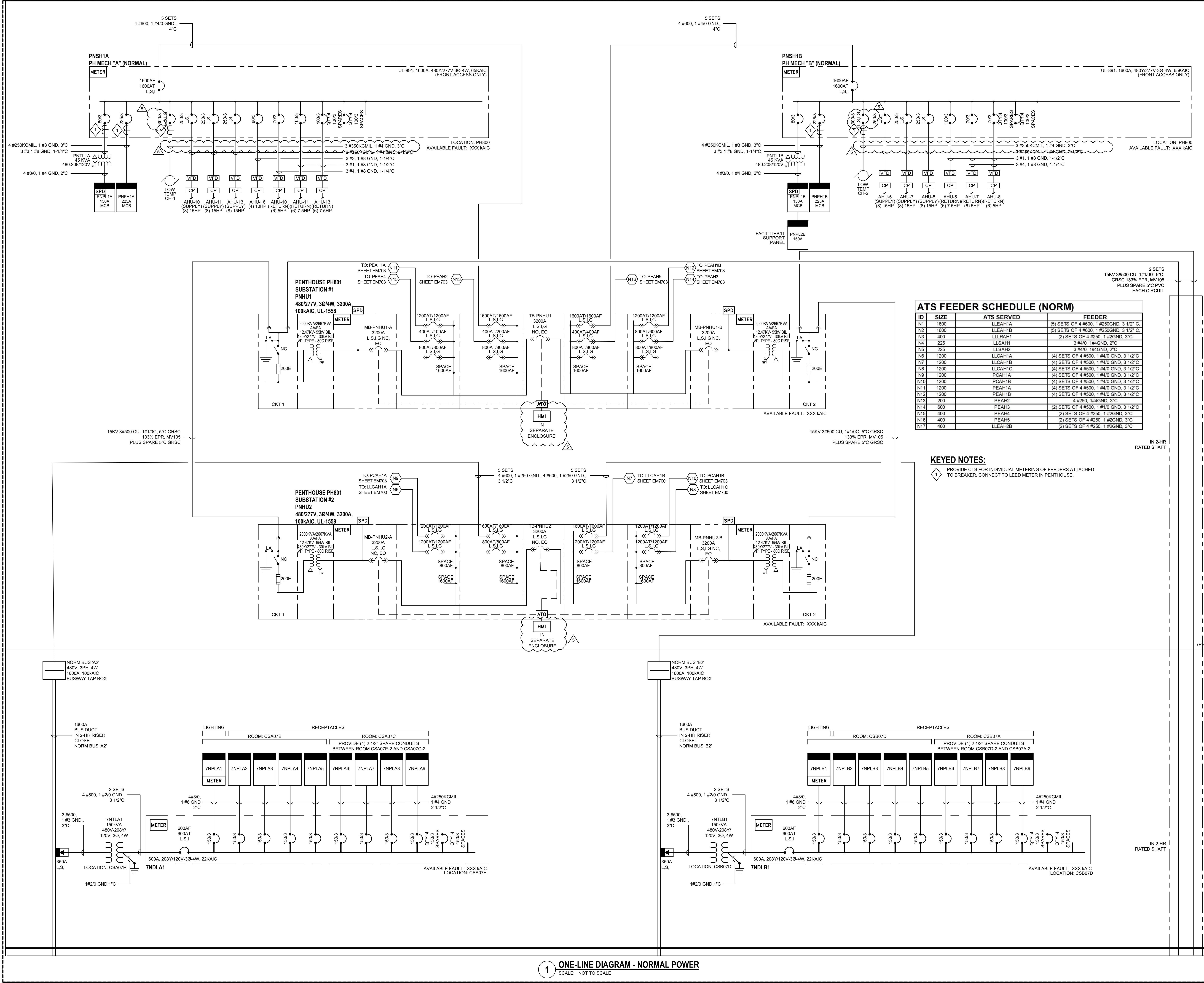
**DRAWING TITLE**  
 ONE-LINE DIAGRAM - NORMAL POWER

SHEET NO. **E700**

**ISSUANCES**

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
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Drawn By	KRN
Checked By	ACS
Client Number	514
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1 ONE-LINE DIAGRAM - NORMAL POWER  
 SCALE: NOT TO SCALE



TYPE	DESCRIPTION	MANUFACTURER	CATALOG NO.	SOURCE	DRIVER	WATTAGE	VOLTAGE	LOCATION	NOTES
C1A	RECESSED ROUND DOWNLIGHT WITH NOMINAL 4 IN. APERTURE, OVERLAP FLANGED TRIM, AND NOMINAL 40-45° BEAM ANGLE. UL LISTED FOR WET LOCATIONS.	LIGHTOLIER	4RN / CAL1999NZ101 / CAROLCO	3000K 90+ CRI 1500 LUMENS	INTEGRAL 0-10V DIMMING TO 1%	17	UNV	LOADING DOCK/ AMBULANCE BAY	PROVIDE SUFFICIENT WIRING LENGTH TO ALLOW DRIVER TO BE REMOVED ENTIRELY THROUGH APERTURE WHILE STILL CONNECTED. FLANGE FINISH TO MATCH APERTURE FINISH.
		PORTFOLIO	LD4C						
		PRE-APPROVED EQUAL							
C5	RECESSED LINEAR MICRO BAFFLE DOWNLIGHT WITH NOMINAL 3 IN. APERTURE, 2 FT. LENGTH, AND BLACK BAFFLE FINISH. UL LISTED FOR WET LOCATIONS.	LUMENWERX	UBISEALR-0-MBPL-SW-90-750-30-2FT-UNV-D1-1C-DTL-8	3000K 90+ CRI 750 LUMENS / FT	INTEGRAL 0-10V DIMMING TO 1%	7.5 / FT	UNV	ENTRANCE CANOPY, PEDWAY	COORDINATE MOUNTING WITH ARCHITECTURAL WOOD PANEL CEILING.
		PRE-APPROVED EQUAL							
L1	LED POLE MOUNTED LUMINAIRE WITH TYPE II OPTIC, MOUNTED ON 16 FT. TALL ROUND ALUMINUM POLE.	KIM LIGHTING	1A-AR02-S4L-560-3K7-2-CLR-4-XXX-BLS / POLE: PM4-4R16-226-XX-SBC-BLS-XX	3000K 70+ CRI 950 LUMENS	REMOTE 0-10V DIMMING	93	UNV	SITE	REFER TO ELECTRICAL DOCUMENTS FOR CONDUIT COORDINATION. BLACK FINISH TO MATCH CAMPUS STANDARD.
		PRE-APPROVED EQUAL							
L1A	DOUBLE HEAD LED POLE MOUNTED LUMINAIRE WITH TYPE IV WIDE OPTIC, MOUNTED ON 16 FT. TALL ROUND ALUMINUM POLE. TWO FIXTURES PER POLE AT 180 DEGREES.	KIM LIGHTING	1A-AR2A-S4L-560-3K7-4W-CLR-4-XXX-BLS / POLE: PM4-4R16-226-SBC-BLS-XX-2B	3000K 70+ CRI 950 LUMENS / HEAD	REMOTE 0-10V DIMMING	186	UNV	SITE	REFER TO ELECTRICAL DOCUMENTS FOR CONDUIT COORDINATION. BLACK FINISH TO MATCH CAMPUS STANDARD.
		PRE-APPROVED EQUAL							
L2	SINGLE HEAD POST TOP PEDESTRIAN FIXTURE WITH TYPE I OPTICS AND OPAL LENS, MOUNTED ON NOMINAL 12 FT. TALL ROUND ALUMINUM POLE.	LANDSCAPE FORMS	TML16-A-1TB-O-XX / POLE: TMF2-T	3000K 80+ CRI 1800 LUMENS	REMOTE 0-10V DIMMING	20	UNV	SITE	FINISH PER ARCHITECT.
		PRE-APPROVED EQUAL							
L2A	DOUBLE HEAD POST TOP PEDESTRIAN FIXTURE WITH WIDE FLOOD OPTICS WITH OPAL LENS, MOUNTED ON NOMINAL 12 FT. TALL ROUND ALUMINUM POLE. STAGGERED 90 DEGREE HEAD POSITION.	LANDSCAPE FORMS	TM16-A-1WF-O-XX / POLE: TMF2-T	3000K 80+ CRI 1750 LUMENS / HEAD	REMOTE 0-10V DIMMING	40	UNV	SITE	
		PRE-APPROVED EQUAL							
L2B	SAME AS L2A EXCEPT WITH MOUNTING PLATE FOR CAMERA (BY OTHERS)	LANDSCAPE FORMS	TM16-A-1WF-O-XX / POLE: TMF2-T MOD MOUNTING PLATE FOR CAMERA ARM	3000K 80+ CRI 1750 LUMENS / HEAD	REMOTE 0-10V DIMMING	40	UNV	SITE	POLE MANUFACTURER TO PROVIDE PLATE RELATED TO POLE TO ACCEPT MOUNTING HARDWARE FROM CAMERA MOUNTING ARM. CAMERA AND CAMERA ARM ASSEMBLY TO BE SPECIFIED BY OTHERS. CAMERA SHALL BE IN THE OPPOSITE ORIENTATION TO THE FIXTURE HEADS (BACK OF POLE) AND SHALL BE LOCATED AT 10'-0" ABOVE FINISHED GRADE.
		PRE-APPROVED EQUAL							
L3	FLEXIBLE LINEAR LED STRIP, INTEGRATED INTO GRANITE BENCH, WET RATED	Q-TRAN	KURV-SW-RCL-WET-30-5.0-ENCL-XX	3000K 80+ CRI 200 LUMENS / FT	REMOTE 0-10V DIMMING	6	UNV	ENTRY PLAZA	
		LUMINII	KRMM-XX-F-XX						
L3A	FLEXIBLE LINEAR LED STRIP, SURFACE MOUNTED VERTICALLY ON BACK SIDE OF WALL, RIGID ALUMINUM EXTRUSION, WET RATED	Q-TRAN	KURV-SW-RCL-WET-30-5.0-ENCL-XX	3000K 80+ CRI 200 LUMENS / FT	REMOTE 0-10V DIMMING	6	UNV	BRICK WALL EAST OF LIMESTONE ST.	LOCATE FIXTURE 12" ABOVE GRADE AND RUN CONTINUOUSLY UP WALL TO 12" BELOW TOP OF WALL.
		LUMINII	KRMM-XX-F-XX						
L4	ADJUSTABLE FLOOD LIGHT WITH 34 DEGREE BEAM DISTRIBUTION, WITH HONEYCOMB BAFFLE AND 90 DEGREE CAP.	BK	RH-LED-TR+130-MFL-BLP-9-13-11-C-INC-MT-TE	3000K 80+ CRI 700 LUMENS	REMOTE 0-10V DIMMING	13	UNV	TREE UPLIGHTS, SUNKEN GARDEN	
		HK LIGHTING	ZXL11-0R1-S-A-XX-012V-XX						
L4A	ADJUSTABLE FLOOD LIGHT WITH 34 DEGREE BEAM DISTRIBUTION, WITH HONEYCOMB BAFFLE AND 90 DEGREE CAP. MOUNTED ONTO PEDESTRIAN BRIDGE SUPPORT COLUMNS	BK	RH-LED-TR+130-MFL-BLP-9-13-11-C-INC-MT-TE	3000K 80+ CRI 700 LUMENS	REMOTE 0-10V DIMMING	13	UNV	PEDESTRIAN BRIDGE	SEE STRUCTURAL DRAWINGS FOR MOUNTING DETAIL.
		HK LIGHTING	ZXL11-0R1-S-A-XX-012V-XX						
L5	ADJUSTABLE EXTERIOR SPOTLIGHT WITH LINEAR SPREAD LENS	LUMASCAPE	6ASXT-XX-9LED-XX	3000K 80+ CRI 2500 LUMENS	REMOTE 0-10V DIMMING	50	120	ABOVE ENTRANCE CANOPY	FIXTURE TYPE FAMILIES L5 AND L8/L8ALB MUST BE PROVIDED BY THE SAME MANUFACTURER.
		LUMENPULSE	LBM-120-30K-NS-LSL-XX-DIM-XX-UL-XX-BK						
L6	RECESSED RECTANGULAR STEPLIGHT WITH DIRECTED OPTICS	INSIGHT	PS9-MD-30K-HSL-XX-120-DIM-XX	3000K 80+ CRI 1400 LUMENS	REMOTE 0-10V DIMMING	20	UNV	LOWER WESTERN EGRESS DOOR	
		GVA	FL50-XX-3000K-10x55-AC277-SMOXX						
L7	RECTANGULAR DIRECTED STEPLIGHT RECESSED WITHIN RAISED GARDEN BED HOUSING WITH KNOCKOUTS FOR BOTTOM FEEL	BEGA	33 059	3000K 80+ CRI 1500 LUMENS	REMOTE 0-10V DIMMING	16	UNV	RAISED BEDS	SEE LANDSCAPE DETAIL FOR MOUNTING INSTALLATION.
		LIGMAN	ULE-40611-13-SWA-30K-01-120277V						
L8	LINEAR INGRADE UPLIGHT WITH NOMINAL 24 IN. LENGTH, AND 30°x60° OPTIC, AND ANTI-SLIP LENS	WE-EF	ST259-60-9W-3000K	3000K 80+ CRI 1500 LUMENS	INTEGRAL 0-10V DIMMING	4 / FT	120	ENTRANCE CANOPY	FIXTURE SHALL BE 1/4" FROM FACE OF COLUMN TO CENTER LINE OF FIXTURE.
		LUMENPULSE	L01-120277-48-30K-10x60-NTL-DIM-ASL						
L8A	LINEAR INGRADE UPLIGHT WITH NOMINAL 48 IN. LENGTH, 10°x60° OPTIC, AND ANTI-SLIP LENS	INSIGHT	MIG-MD-30K-2950-ASYD-48-120-DIM-AS-ALS	3000K 80+ CRI 3000 LUMENS	INTEGRAL 0-10V DIMMING	10 / FT	120	VERTICAL SHROUD WALL	FIXTURE SHALL BE 1/4" FROM WALL FACE TO CENTER LINE OF FIXTURE. FIXTURE TYPE FAMILIES L5 AND L8/L8ALB MUST BE PROVIDED BY THE SAME MANUFACTURER.
		GVA	STR9-IG-1200-TL-10W-3000K-10x60-0-MLXX						
L8B	LINEAR INGRADE UPLIGHT WITH NOMINAL 24 IN. LENGTH, AND 30°x60° OPTIC	LUMENPULSE	L01-120277-24-30K-10x60-NTL-DIM	3000K 80+ CRI 3000 LUMENS	INTEGRAL 0-10V DIMMING	10 / FT	120	PEDESTRIAN BRIDGE SUPPORT BEAMS	FIXTURE SHALL BE 1/4" FROM THE OUTER COLUMN FLANGE. CENTER LINE OF FIXTURE TO BE IN LINEAR WITH FRONT EDGE OF COLUMN FLANGE, CONDUIT ON BACK FACE. FIXTURE TYPE FAMILIES L5 AND L8/L8ALB MUST BE PROVIDED BY THE SAME MANUFACTURER.
		INSIGHT	MIG-MD-30K-2950-ASYD-24-120-DIM-AS						
L9	ADJUSTABLE BASE MOUNTED UPLIGHT WITH WALL WASH OPTIC, TILT AND ROTATION ADJUSTABILITY, AND CUTOFF VISOR MOUNTED ON STABILIZED STAKE WITH INTEGRATED DRIVER	BK LIGHTING	SA-LED-4S3-WW-XX-13-CV-365SL	3000K 80+ CRI 1000 LUMENS	INTEGRAL 0-10V DIMMING	10	UNV	SUNKEN GARDEN	SEE LANDSCAPE DRAWINGS AND SHEET E806 FOR MOUNTING DETAILS. ADJUSTED TO 60 DEGREES. STANDARD OR PREMIUM FINISH PER ARCHITECT.
		PRE-APPROVED EQUAL							
L9A	ADJUSTABLE BASE MOUNTED UPLIGHT WITH WALL WASH OPTIC, TILT AND ROTATION ADJUSTABILITY, AND CUTOFF VISOR MOUNTED TO INTEGRAL DRIVER HOUSING	BK LIGHTING	YO-LED-TR+145-WW-BLP-9-11-CV	3000K 80+ CRI 1000 LUMENS	INTEGRAL 0-10V DIMMING	10	UNV	PENTHOUSE- LEVEL ROOF	FIXTURE TO BE SURFACE MOUNTED ON ROOF WITHOUT PENETRATION OF ROOF MEMBRANE. SEE ARCHITECTURAL DRAWING FOR MOUNTING DETAIL. FIXTURES SHALL BE MOUNTED 18 FT. ON CENTER AT EAST AND WEST ELEVATIONS, AND 18'-0" ON CENTER ALONG SOUTH ELEVATION, 7'-0" FROM PENTHOUSE WALL. STANDARD OR PREMIUM FINISH PER ARCHITECT.
		PRE-APPROVED EQUAL							
L9B	ADJUSTABLE BASE MOUNTED UPLIGHT WITH WALL WASH OPTIC, TILT AND ROTATION ADJUSTABILITY, AND CUTOFF VISOR MOUNTED TO INTEGRAL DRIVER HOUSING ON STANCHION TO MATCH HEIGHT OF MECHANICAL DOGHOUSE	BK LIGHTING	YO-LED-TR+145-WW-BLP-9-11-CV	3000K 80+ CRI 1000 LUMENS	INTEGRAL 0-10V DIMMING	10	UNV	PENTHOUSE- LEVEL ROOF	FIXTURE TO BE SURFACE MOUNTED TO STANCHION ON ROOF WITHOUT PENETRATION OF ROOF MEMBRANE. FIXTURE TO BE MOUNTED AT SAME ELEVATION AS FIXTURES ON TOP OF MECHANICAL DOGHOUSE. SEE ARCHITECTURAL DRAWING FOR MOUNTING DETAIL. FIXTURES SHALL BE MOUNTED 18'-0" ON CENTER, 7'-0" FROM PENTHOUSE WALL. STANDARD OR PREMIUM FINISH PER ARCHITECT.
		PRE-APPROVED EQUAL							
L10	CYLINDRICAL LUMINOUS GARDEN LUMINAIRE MOUNTED ON EARTH SPIKE	BEGA	55 019 (CYLINDER) / B36	3000K 80+ CRI 171 LUMENS	NON-DIMMING	2.5	UNV	SUNKEN GARDEN	
L11	ASYMMETRIC DIRECT LED POB WITH NOMINAL 70° BEAM INTEGRATED IN VERTICAL POST OF HANDRAIL SYSTEM	WAGNER	LULV30K765 / POST INTEGRATED POWER SUPPLY PER MANUFACTURER	3000K 80+ CRI 91 LUMENS	REMOTE 0-10V DIMMING	2.2	24VDC	TERRACE	SEE ARCHITECTURAL DRAWING FOR MOUNTING DETAIL.
W5	SURFACE WALL MOUNT LUMINAIRE WITH TYPE 4 WIDE FORWARD THROW DISTRIBUTION, DUAL DRIVERS	LITHONIA	WDE2-LED-P3-30K-60CRI-VF-MVOLT-SRM-XX-OS-XX-MOD (MOD: CUSTOM FINISH TBD)	3000K 80+ CRI 3000 LUMENS	DUAL NON-DIM DRIVERS	23	UNV	LOADING DOCK/ EGRESS	ZINC / DARK GREY FINISH. EXACT FINISH TO BE COORDINATED WITH ARCHITECT. NON-STANDARD FINISH / CUSTOM RAL MAY BE REQUIRED.
		GARDCO	PWS-196L-650-WW-G2-4 (MOD: CUSTOM FINISH TBD)						
W6	LINEAR SURFACE MULLION MOUNTED DOWNLIGHT WITH FORWARD THROW OPTIC, NOMINAL 3 LENGTH AND 2.5' APERTURE, AND DUAL DRIVERS	VISA	OW2480 L30-MVOLT-FT-DS (MOD: CUSTOM FINISH TBD)	3000K 80+ CRI 2700 LUMENS	DUAL REMOTE 0-10V DIMMING	40	UNV	EGRESS DOORS	ZINC / DARK GREY FINISH. EXACT FINISH TO BE COORDINATED WITH ARCHITECT. NON-STANDARD FINISH / CUSTOM RAL MAY BE REQUIRED. COORDINATE REMOTE DRIVER LOCATIONS WITH ARCHITECT.
		PRE-APPROVED EQUAL							
W6A	LINEAR SURFACE MULLION MOUNTED DOWNLIGHT WITH FORWARD THROW OPTIC, NOMINAL 6 LENGTH AND 2.5' APERTURE, AND DUAL DRIVERS	VISA	OW2484 L30-MVOLT-FT-DS (MOD: CUSTOM FINISH TBD)	3000K 80+ CRI 2700 LUMENS	DUAL REMOTE 0-10V DIMMING	40	UNV	EGRESS DOORS	ZINC / DARK GREY FINISH. EXACT FINISH TO BE COORDINATED WITH ARCHITECT. NON-STANDARD FINISH / CUSTOM RAL MAY BE REQUIRED. COORDINATE REMOTE DRIVER LOCATIONS WITH ARCHITECT.
		PRE-APPROVED EQUAL							

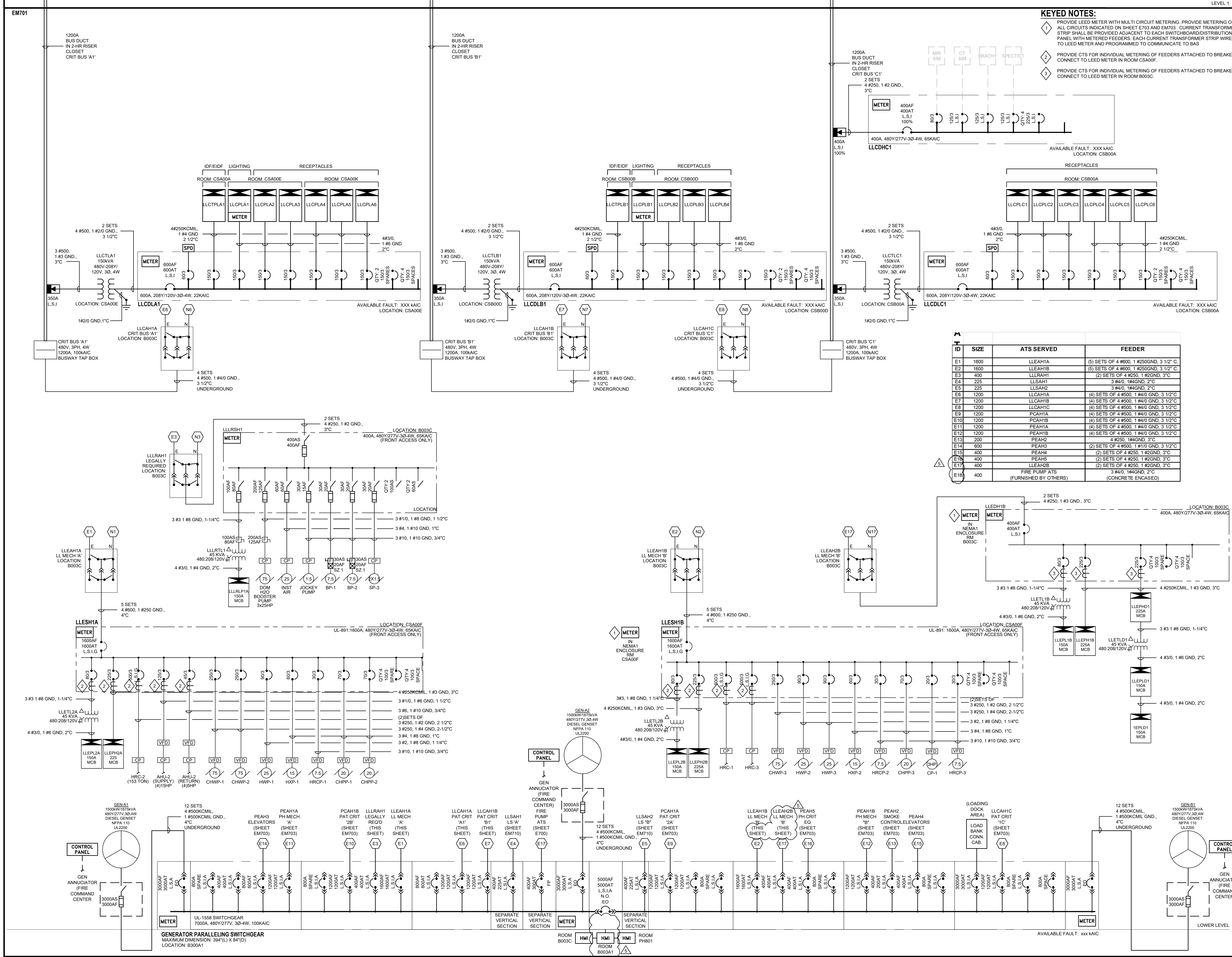
### 1 LUMINAIRE SCHEDULE

SCALE: 12" = 1'-0"

**ISSUANCES**

No.	Description	Date
1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By <b>KN</b>	
Checked By <b>SK, AS</b>	
Client Number 514	
Project Number 6926	



**KEYED NOTES:**

- PROVIDE LEED METER WITH MULTI-CIRCUIT METERING. PROVIDE METERING OF ALL CIRCUITS INDICATED ON SHEET ET03 AND EM703. CURRENT TRANSFORMER STRIP SHALL BE PROVIDED ADJACENT TO EACH SWITCHBOARD/DISTRIBUTION PANEL WITH METERED FEEDERS. EACH CURRENT TRANSFORMER STRIP WIRED TO LEED METER AND PROGRAMMED TO COMMUNICATE TO BAS.
- PROVIDE CTS FOR INDIVIDUAL METERING OF FEEDERS ATTACHED TO BREAKER. CONNECT TO LEED METER IN ROOM CSA00E.
- PROVIDE CTS FOR INDIVIDUAL METERING OF FEEDERS ATTACHED TO BREAKER. CONNECT TO LEED METER IN ROOM B003C.

ID	SIZE	ATS SERVED	FEEDER
E1	1600	LLEAH1A	(5) SETS OF 4 #600, 1 #250GND, 3 1/2" C.
E2	1600	LLEAH1B	(5) SETS OF 4 #600, 1 #250GND, 3 1/2" C.
E3	400	LLRAH1	(2) SETS OF 4 #250, 1 #2GND, 3" C.
E4	225	LLSAH1	3 #4/0, 1#4GND, 2" C.
E5	225	LLSAH2	3 #4/0, 1#4GND, 2" C.
E6	1200	LLCAH1A	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
E7	1200	LLCAH1B	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
E8	1200	LLCAH1C	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
E9	1200	PCAH1A	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
E10	1200	PCAH1B	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
E11	1200	PEAH1A	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
E12	1200	PEAH1B	(4) SETS OF 4 #500, 1 #4/0 GND, 3 1/2" C.
E13	200	PEAH2	4 #250, 1#4GND, 3" C.
E14	600	PEAH3	(2) SETS OF 4 #500, 1 #1/0 GND, 3 1/2" C.
E15	400	PEAH4	(2) SETS OF 4 #250, 1 #2GND, 3" C.
E16	400	PEAH5	(2) SETS OF 4 #250, 1 #2GND, 3" C.
E17	400	LLEAH2B	(2) SETS OF 4 #250, 1 #2GND, 3" C.
E18	400	FIRE PUMP ATS (FURNISHED BY OTHERS)	(2) SETS OF 4 #250, 1 #2GND, 3" C. (CONCRETE ENCASED)

**CHAMPLIN ARCHITECTURE**  
 720 EAST PETE ROSE WAY  
 CINCINNATI, OH 45202  
 T 513.241.4474  
 thinkchamplin.com  
 THINK CREATE REALIZE

**HGA**  
 420 North 5th Street, Suite 100  
 Minneapolis, Minnesota 55401  
 Telephone 612.758.4000

**THP**  
**AEI Affiliated Engineers**

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
 PLANNING CIVIL ENGINEERING

**WALSH CONSULTING GROUP**

**bell engineering**

**CDM Smith**

**PIVOTAL lighting design**

**UK HEALTHCARE**

**Cancer Treatment Center + Advanced Ambulatory Center**  
 1220 Elizabeth St.  
 Lexington, KY 40536  
 UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 100 DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By: KRN  
 Checked By: ACS  
 Client Number: 514  
 Project Number: 6926  
 DRAWING TITLE: ONE-LINE DIAGRAM - ESSENTIAL POWER  
 SHEET NO.: EM700

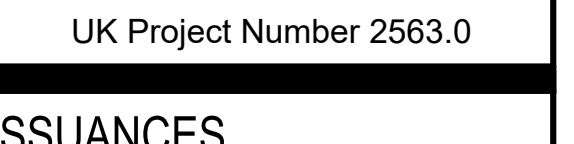
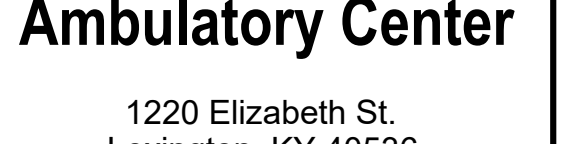
**ONE-LINE DIAGRAM - ESSENTIAL POWER**  
 SCALE: NOT TO SCALE



720 EAST PETER ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE



420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

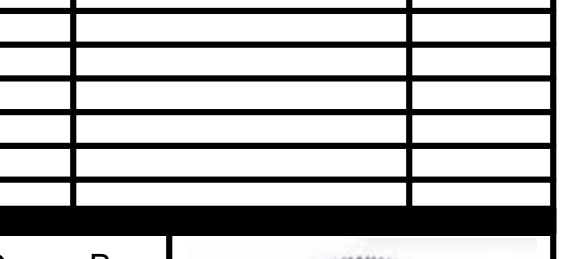


Cancer Treatment Center + Advanced Ambulatory Center

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

No.	Description	Date
1	C&S 100% DD REVIEW	01/10/24
2	C&S 80% CD	03/05/24
3	C&S 100% CD REVIEW	04/09/24
4	BP-07 BID & PERMIT	04/30/24
5	BP-07 ADDENDUM #1	05/28/24

Drawn By: KRN  
Checked By: ACS  
Client Number: 514  
Project Number: 6926  
Date: 4/30/2024



DRAWING TITLE  
ONE-LINE DIAGRAM - ESSENTIAL POWER

SHEET NO.  
EM703

### ATS SCHEDULE

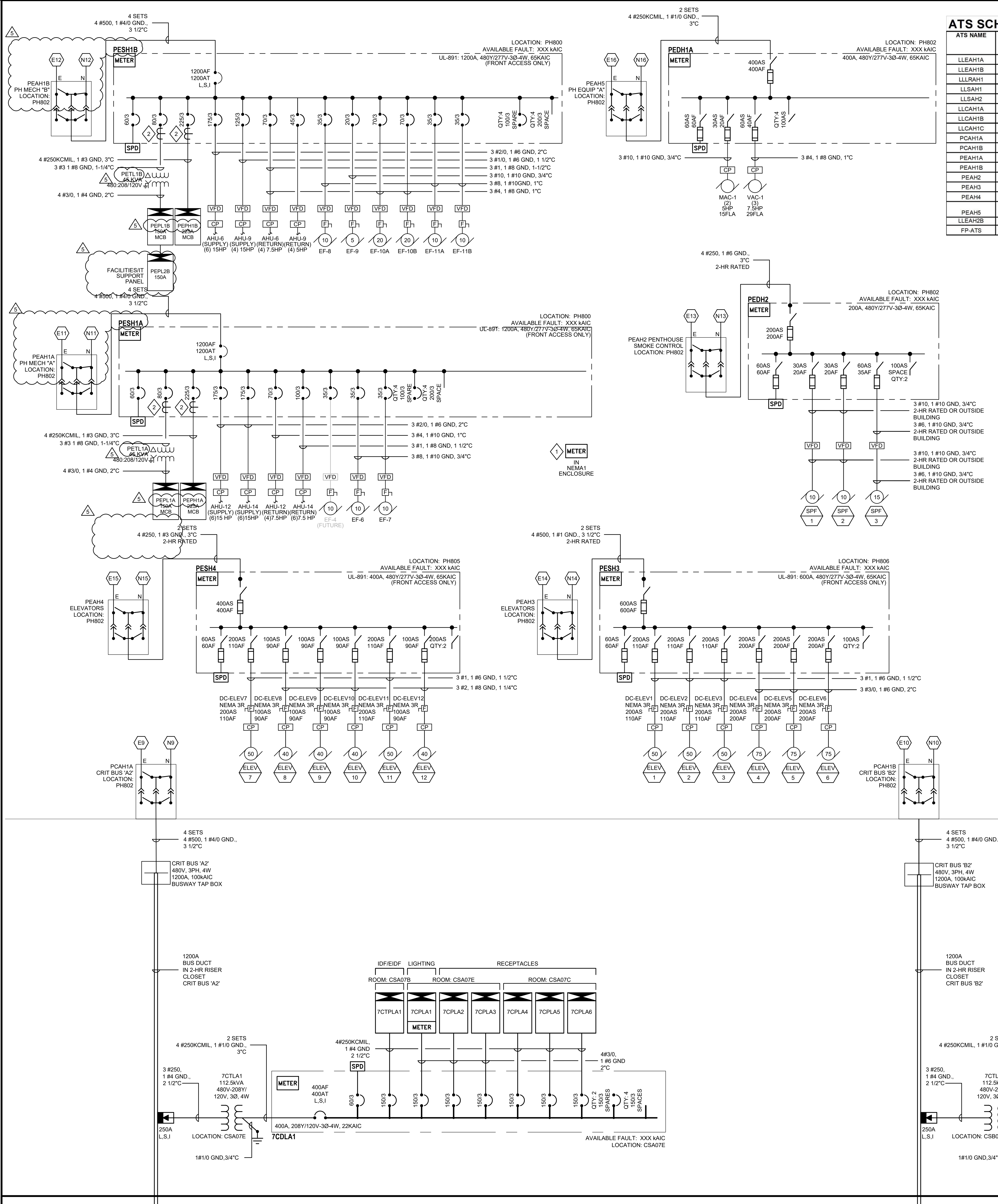
ATS NAME	VOLTS	AMPS	WCR (KAIC - 3 Cycle)	POLES	BYPASS ISOLATION	TRANSITION TYPE	LOADS SERVED	CODE DESIGNATION
LLEAH1A	480V	1600	65	4	Y	CLOSED	LOWER LEVEL MECHANICAL EQUIPMENT - 'A' SIDE	EQUIPMENT BRANCH (NEC ART. 517)
LLEAH1B	480V	1600	65	4	Y	CLOSED	LOWER LEVEL MECHANICAL EQUIPMENT - 'B' SIDE	EQUIPMENT BRANCH (NEC ART. 517)
LLRAH1	480V	400	65	4	Y	CLOSED	LOWER LEVEL LEGALLY REQUIRED	LEGALLY REQUIRED BRANCH (NEC ART. 701)
LLSAH1	480V	280	65	3	Y	CLOSED	LIFE SAFETY RISER - 'A' SIDE	LIFE SAFETY (NEC ART. 517), EMERGENCY (NEC ART. 700)
LLSAH2	480V	280	65	3	Y	CLOSED	LIFE SAFETY RISER - 'B' SIDE	LIFE SAFETY (NEC ART. 517), EMERGENCY (NEC ART. 700)
LICAH1A	480V	1200	65	4	Y	CLOSED	PATIENT CRITICAL BUS RISER #A1	CRITICAL BRANCH (NEC ART. 517)
LICAH1B	480V	1200	65	4	Y	CLOSED	PATIENT CRITICAL BUS RISER #B1	CRITICAL BRANCH (NEC ART. 517)
LICAH1C	480V	1200	65	4	Y	CLOSED	PATIENT CRITICAL BUS RISER #C1	CRITICAL BRANCH (NEC ART. 517)
PACAH1A	480V	1200	65	4	Y	CLOSED	PATIENT CRITICAL BUS RISER #A2	CRITICAL BRANCH (NEC ART. 517)
PACAH1B	480V	1200	65	4	Y	CLOSED	PATIENT CRITICAL BUS RISER #B2	CRITICAL BRANCH (NEC ART. 517)
PEAH1A	480V	1200	65	4	Y	CLOSED	PENTHOUSE MECHANICAL EQUIPMENT - 'A' SIDE	EQUIPMENT BRANCH - NEC ART. 517
PEAH1B	480V	1200	65	4	Y	CLOSED	PENTHOUSE MECHANICAL EQUIPMENT - 'B' SIDE	EQUIPMENT BRANCH - NEC ART. 517
PEAH2	480V	280	65	4	Y	CLOSED	SMOKE CONTROL/STAIRWELL PRESSURIZATION	NEC ART. 701
PEAH3	480V	600	65	4	Y	DELAYED	ELEVATORS - NE BANK	ELEVATOR (NEC ART. 620, NEC ART. 701)
PEAH4	480V	400	65	4	Y	DELAYED	ELEVATORS - SW BANK	ELEVATOR (NEC ART. 620, NEC ART. 701)
PEAH5	480V	400	65	4	Y	CLOSED	PENTHOUSE - EQUIPMENT BRANCH	EQUIPMENT BRANCH (NEC ART. 517)
LLEAH2B	480V	800	65	4	Y	CLOSED	LOWER LEVEL MECHANICAL EQUIPMENT - 'B' SIDE	EQUIPMENT BRANCH (NEC ART. 517)
FP-ATS	480V	400	65	3	Y	OPEN	FIRE PUMP - NORMAL SERVICES	FIRE PUMP - NEC ART. 695

### GENERAL NOTES (ALL POWER RISERS):

- ALL CIRCUIT BREAKERS GREATER THAN 225A SHALL BE ELECTRONIC TRIP WITH LONG, SHORT, AND INSTANTANEOUS PICKUP AND DELAY TRIP ADJUSTABILITY, UNLESS OTHERWISE NOTED. BREAKERS IDENTIFIED WITH "METER" SHALL BE PROVIDED WITH A METERING TRIP UNIT THAT COMMUNICATES TO THE METER IN THE PANEL.
- CIRCUIT BREAKERS 1000A AND LARGER SHALL BE INSULATED CASE CIRCUIT BREAKERS, PROVIDED WITH AN ARC FLASH REDUCTION SWITCH.
- ALL PANELBOARDS SHALL BE PROVIDED WITH MAIN CIRCUIT BREAKER (MAIN FUSE FOR LIFE SAFETY PANELS). PANEL BUS SHALL BE RATED AT 225A. PANEL OVERCURRENT PROTECTION DEVICE SHALL MATCH FEEDER DEVICE.
- BREAKERS 800A AND LARGER SHALL BE 100% RATED CONTINUOUS DUTY.
- BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR RATED.
- CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN OR EQUAL TO 100.
- VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
- ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
- EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIWIRE CARRYING CARRYING ARE NOT ALLOWED.
- SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
- COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
- ANY GORING INTO THE STRUCTURAL FLOOR SHALL BE PRE-APPROVED AND COORDINATED WITH STRUCTURAL ENGINEER. THE ELECTRICAL CONTRACTOR SHALL X-RAY FLOOR SLAB PRIOR TO START OF CONSTRUCTION.
- ALL MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT SHOWN ON PLANS ARE TO INDICATE LOCATION. COORDINATE LOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH MECHANICAL, PLUMBING, AND FIRE PROTECTION EQUIPMENT WITH FINAL ROOM LAYOUT.
- PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- REFER TO "GROUNDING RISER DIAGRAM" FOR ADDITIONAL REQUIRED GROUNDING AND BONDING CONNECTIONS.
- ELECTRICAL CONTRACTOR TO PROVIDE ELECTRICAL COORDINATION STUDY AND ARC FLASH STUDY.
- RACEWAYS UNDERGROUND SHALL BE PVC40, SHALL UTILIZE GRSC ELBOWS, AND TRANSITION TO GRSC RACEWAY UPON ENTERING BUILDING.
- ALL LIFE SAFETY, PATIENT CRITICAL, SMOKE CONTROL, FIRE PUMP, ELEVATOR FEEDERS AND FIRE ALARM RISERS SHALL BE INSTALLED WITHIN 2-HOUR RATED FIRE ENCLOSURE, OR ROUTED OUTSIDE OF THE BUILDING. PROVIDE 2-HOUR SHAFT ENCLOSURE FOR ALL HORIZONTAL FEEDER RUNS FOR LIFE SAFETY INFRASTRUCTURE WHEN TRAVELING BETWEEN ARCHITECTURALLY CONSTRUCTED ENCLOSURES.
- 208Y/120V BRANCH PANELS SHALL BE PROVIDED WITH QTY-42, 20A/1P BREAKERS. 22KAIC RATED.
- 480Y/277V BRANCH PANELS SHALL BE PROVIDED WITH QTY-18, 20A/3P BREAKERS. 65KAIC RATED.
- MAXIMUM EQUIPMENT DIMENSIONS SHALL BE AS SHOWN, SCALED ON ELECTRICAL FLOOR PLANS.

### KEYED NOTES:

- PROVIDE LEED METER WITH MULTI CIRCUIT METERING. PROVIDE METERING OF ALL CIRCUITS INDICATED ON SHEET E703 AND E6103. CURRENT TRANSFORMER STRIP SHALL BE PROVIDED ADJACENT TO EACH SWITCHBOARD/DISTRIBUTION PANEL WITH METERED FEEDERS. EACH CURRENT TRANSFORMER STRIP WIRED TO LEED METER AND PROGRAMMED TO COMMUNICATE TO BAS
- PROVIDE CTS FOR INDIVIDUAL METERING OF FEEDERS ATTACHED TO BREAKER. CONNECT TO LEED METER IN PENTHOUSE.



### 1 ONE-LINE DIAGRAM - ESSENTIAL POWER

SCALE: NOT TO SCALE

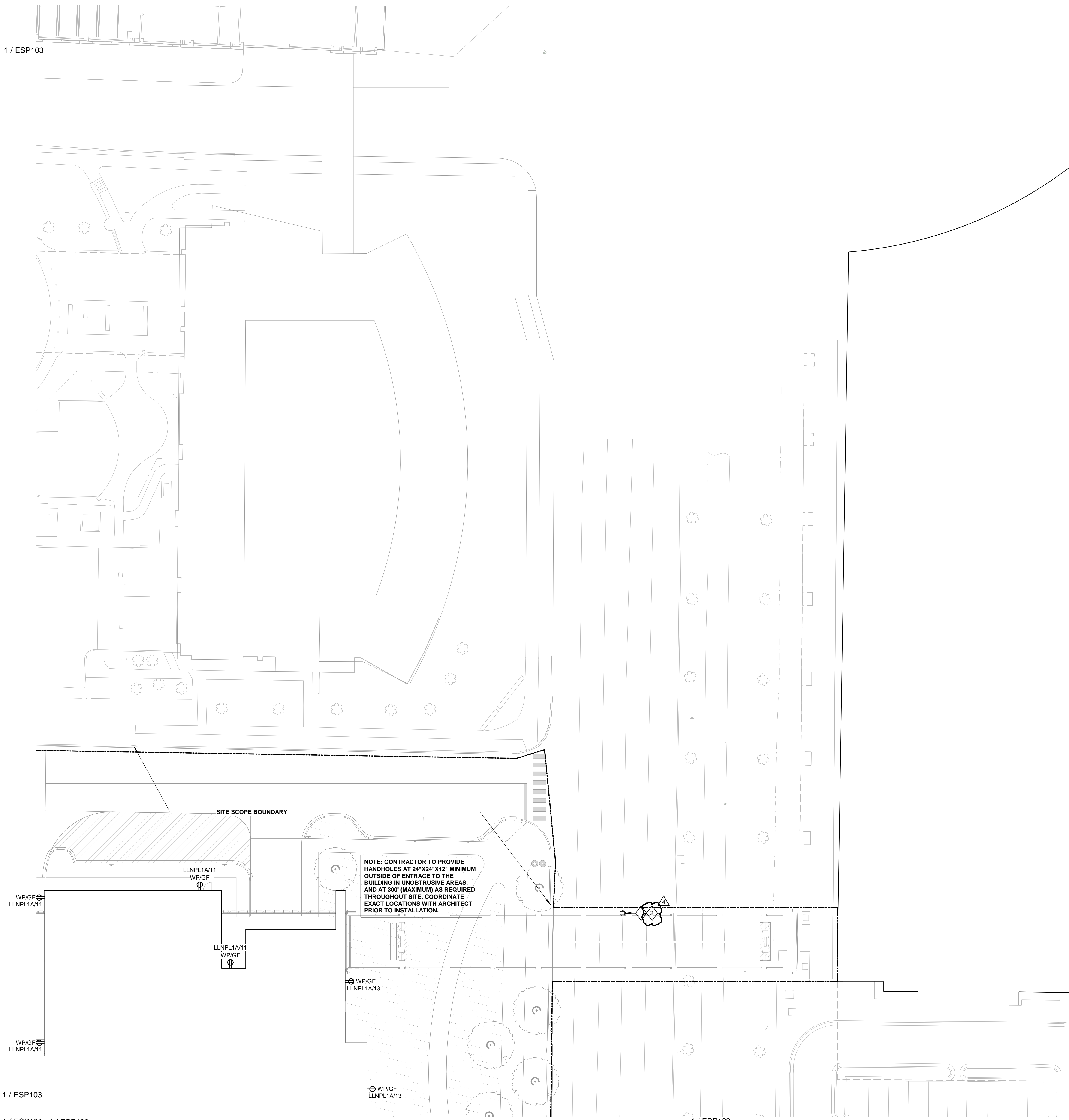
LEVEL 7

**SITE POWER GENERAL NOTES**

1. REFER TO ELECTRICAL POWER PLANS FOR PANELBOARD LOCATIONS.
2. LOCATIONS OF EXTERIOR RECEPTACLES WITHIN LANDSCAPING SHALL BE STAKED FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO FINAL INSTALLATION. ROUTE CONDUITS TO AVOID CONFLICT WITH PROPOSED TREES AND OTHER PLANT MATERIAL.
3. CONDUCTOR SIZES ARE BASED ON COPPER THIRTYTHW IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
4. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
5. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTI-WIRE BRANCH CIRCUITS ARE NOT ALLOWED.
6. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
7. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
8. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
9. PROVIDE LIGHTNING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
10. BACKBOXES & WIRING DEVICES FOUND INSTALLED IN NON-COMPLIANCE WITH ARCHITECTURAL AND ELECTRICAL SHALL BE COMPLETELY REMOVED WITH CONTRACTOR RESPONSIBLE FOR RE-FINISHING WALL PER ARCHITECTURAL SPECIFICATIONS AS REQUIRED BY STAGE OF PROGRESS OF CONSTRUCTION. INSTALLATION OF BLANKOFF PLATES IS NOT ACCEPTABLE.
11. PROVIDE WEATHERPROOF DISCONNECT SWITCHES FOR ALL SITE SIGNAGE.

**SHEET NOTES**

1. PROVIDE POWER CONNECTION TO SITE SIGNAGE. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH ARCHITECTURAL PLANS.
2. COORDINATE EXACT ROUTING OF RACEWAY WITH ARCHITECTURAL PLANS AND DETAILS.



1 POWER PLAN - SITE AREA 4  
SCALE: 1" = 20'-0"

**CHAMPLIN**  
ARCHITECTURE

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

**THP**  
Affiliated Engineers

**CMTA**

**OLIN**

**CARMAN** LANDSCAPE ARCHITECTURE  
URBAN PLANNING  
CIVIL ENGINEERING

**WALSH**  
CONSULTING GROUP

**bell**  
engineering

**CDM Smith**

**PIVOTAL**  
lighting design

**UK**  
HEALTHCARE

**Cancer Treatment Center + Advanced Ambulatory Center**

1220 Elizabeth St.  
Lexington, KY 40536  
UK Project Number 2563.0

**ISSUANCES**

No.	Description	Date
1	C&S 60% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By  
**KN**

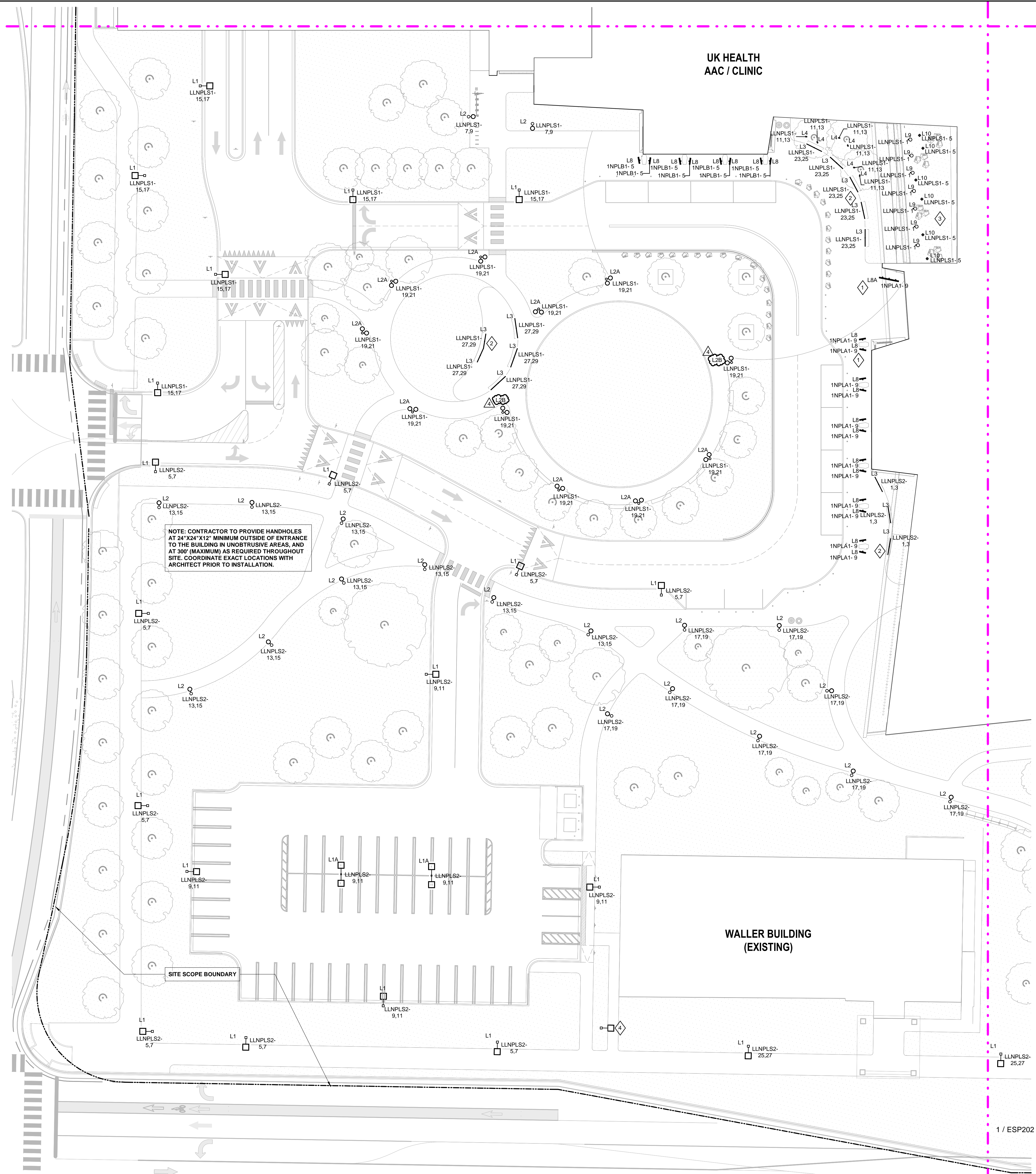
Checked By  
**SK, AS**

Client Number  
514

Project Number  
6926

DRAWING TITLE  
**POWER PLAN - SITE AREA 4**

SHEET NO.  
**ESP104**



**SITE LIGHTING GENERAL NOTES**

1. LIGHTING FIXTURES SHOWN ARE FOR CIRCUITING AND SWITCHING INFORMATION ONLY.
2. SEE SHEET E900 SERIES OF DRAWINGS FOR LIGHTING FIXTURE SCHEDULES AND LIGHTING CONTROL SCHEDULES.
3. ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
4. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
5. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
6. PROVIDE UL924 DEVICE FOR EGRESS LIGHTING FIXTURES.
7. WALL MOUNTED EXIT LIGHTS SHOWN ABOVE DOORS SHALL BE CENTERED AND 1'-0" ABOVE DOOR FRAME TO BOTTOM OF EXIT LIGHT.
8. CONDUCTOR SIZES ARE BASED ON COPPER THIRTYTWO IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
9. MINIMUM #10 AWG IS TO BE USED FOR ALL 120V LIGHTING CIRCUITS OVER 75'-0" RUN TO REDUCE VOLTAGE DROP. MAXIMUM ALLOWABLE VOLTAGE DROP FROM PANEL TO FINAL DEVICE SHALL BE 3%. INCREASE CONDUCTOR SIZE AS NECESSARY TO MEET VOLTAGE DROP REQUIREMENTS.
10. ALL SINGLE-PHASE CIRCUITS INCLUDING LIGHTING TO HAVE DEDICATED NEUTRALS. NO SHARED NEUTRALS ALLOWED.
11. CONTRACTOR SHALL PROVIDE TRAINING, COMMISSIONING AND PROGRAMMING OF LIGHTING CONTROL SYSTEM BY AUTHORIZED MANUFACTURER'S REPRESENTATIVE. OWNER, ENGINEER, AND ARCHITECT SHALL BE NOTIFIED OF PROGRAMMING DATE AND TIME TWO WEEKS PRIOR.
12. SEE SHEET E900 SERIES OF DRAWINGS FOR DETAILS.
13. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
14. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIMIRE BRANCH CIRCUITS ARE NOT ALLOWED.
15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
16. PROVIDE LIGHTING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
17. PROVIDE 0-10V DIMMING CONTROL WIRING FOR ALL FIXTURES WITH DIMMABLE DRIVERS.
18. ALL WIRING SHALL BE ROUTED TO CONTRACTOR PROVIDED PULL BOX ADJACENT TO SOURCE PANEL FOR CONNECTION TO FUTURE (FIT-OUT) LIGHTING CONTROL SYSTEM. PROVIDE 15' OF SLACK FOR EACH CIRCUIT.

**SHEET NOTES**

1. SEE LANDSCAPE DRAWINGS FOR TYPICAL SET BACK OF L8 AND L8A FIXTURES FROM FACE OF WALL/COLUMN.
2. SEE LANDSCAPE DRAWINGS FOR TYPICAL L3 MOUNTING DETAIL WITHIN STONE BENCH.
3. ELECTRICAL CONTRACTOR TO COORDINATE MOUNTING LOCATION OF TYPE L10 LUMINAIRES WITH ADJACENT PLANTING. CONFIRM LOCATIONS WITH LANDSCAPE ARCHITECTS AND LIGHTING DESIGNER PRIOR TO FINAL INSTALLATION.
4. POLE LIGHT AT THIS LOCATION TO REMAIN.

NOTE: CONTRACTOR TO PROVIDE HANDHOLES AT 24"x24"x12" MINIMUM OUTSIDE OF ENTRANCE TO THE BUILDING IN UNOBTRUSIVE AREAS, AND AT 300' (MAXIMUM) AS REQUIRED THROUGHOUT SITE. COORDINATE EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.

SITE SCOPE BOUNDARY

UK HEALTH AAC / CLINIC

WALLER BUILDING (EXISTING)

1 / ESP202

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
Telephone 612.758.4000

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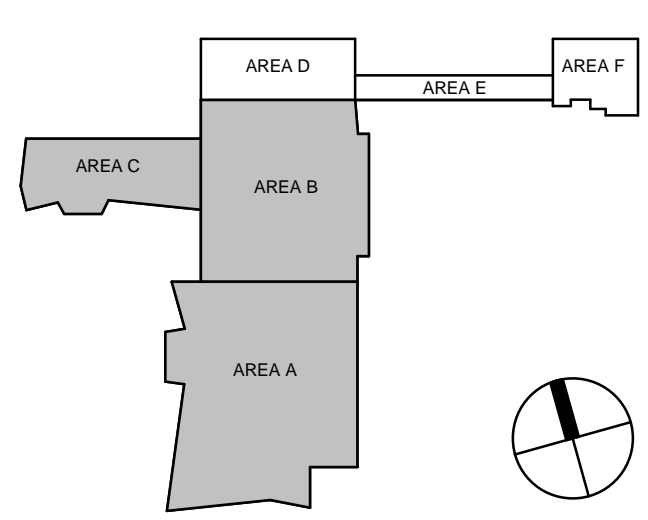
**ISSUANCES**

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1	C&S 80% CD	03/05/24
2	C&S 100% CD REVIEW	04/09/24
3	BP-07 BID & PERMIT	04/30/24
4	BP-07 ADDENDUM #1	05/28/24

Drawn By	KN
Checked By	SK, AS
Client Number	514
Project Number	6926

DRAWING TITLE  
**LIGHTING PLAN - SITE AREA 1**

SHEET NO.  
**ESP201**



5/28/2024 2:51:29 PM Autodesk Docs://1448203 - UKHC Cancer Treatment & Advanced Ambulatory Center/ESP201-1.dwg 5/16/2024 11:41:42 AM

5/28/2024 2:51:29 PM

1 / ESP203 1 / ESP204

1 / ESP201

CANCER CENTER

NOTE: CONTRACTOR TO PROVIDE HANDHOLES AT 24"X24"X12" MINIMUM OUTSIDE OF ENTRANCE TO THE BUILDING IN UNOBTRUSIVE AREAS, AND AT 360" (MAXIMUM) AS REQUIRED THROUGHOUT SITE. COORDINATE EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.

SITE LIGHTING GENERAL NOTES

- 1. LIGHTING FIXTURES SHOWN ARE FOR CIRCUITING AND SWITCHING INFORMATION ONLY.
2. SEE SHEET E900 SERIES OF DRAWINGS FOR LIGHTING FIXTURE SCHEDULES AND LIGHTING CONTROL SCHEDULES.
3. ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
4. SEAL ALL RACEWAYS AND PENETRATIONS BOTH INTERNALLY AND EXTERNALLY WHERE TRANSITIONS ARE MADE FROM CONDITIONED SPACES TO OUTDOOR OR UNDERGROUND. RACEWAYS ARE TO BE SEALED TO PREVENT AIR, MOISTURE, AND RODENT MIGRATION THROUGH AND AROUND RACEWAYS.
5. COORDINATE FIRE SEPARATION BARRIER PENETRATIONS WITH ARCHITECT'S DRAWINGS. USE APPROVED FIRE STOPPING SEALANT AROUND PENETRATION AFTER RACEWAYS ARE INSTALLED.
6. PROVIDE UL924 DEVICE FOR EGRESS LIGHTING FIXTURES.
7. WALL MOUNTED EXIT LIGHTS SHOWN ABOVE DOORS SHALL BE CENTERED AND 1'-0" ABOVE DOOR FRAME TO BOTTOM OF EXIT LIGHT.
8. CONDUCTOR SIZES ARE BASED ON COPPER THIRN/THWIN IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
9. MINIMUM #10 AWG IS TO BE USED FOR ALL 120V LIGHTING CIRCUITS OVER 75'-0" RUN TO REDUCE VOLTAGE DROP. MAXIMUM ALLOWABLE VOLTAGE DROP FROM PANEL TO FINAL DEVICE SHALL BE 3%. INCREASE CONDUCTOR SIZE AS NECESSARY TO MEET VOLTAGE DROP REQUIREMENTS.
10. ALL SINGLE-PHASE CIRCUITS INCLUDING LIGHTING TO HAVE DEDICATED NEUTRALS. NO SHARED NEUTRALS ALLOWED.
11. CONTRACTOR SHALL PROVIDE TRAINING, COMMISSIONING AND PROGRAMMING OF LIGHTING CONTROL SYSTEM BY AUTHORIZED MANUFACTURERS REPRESENTATIVE. OWNER, ENGINEER, AND ARCHITECT SHALL BE NOTIFIED OF PROGRAMMING DATE AND TIME TWO WEEKS PRIOR.
12. SEE SHEET E900 SERIES OF DRAWINGS FOR DETAILS.
13. VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
14. EACH CIRCUIT IS TO HAVE ITS OWN NEUTRAL. MULTIMIRE BRANCH CIRCUITS ARE NOT ALLOWED.
15. HOMERUN RACEWAYS ARE TO BE BURIED 24" BELOW FINISHED GRADE.
16. PROVIDE LIGHTING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
17. PROVIDE 0-10V DIMMING CONTROL WIRING FOR ALL FIXTURES WITH DIMMABLE DRIVERS.
18. ALL WIRING SHALL BE ROUTED TO CONTRACTOR PROVIDED PULL BOX ADJACENT TO SOURCE PANEL FOR CONNECTION TO FUTURE (FIT-OUT) LIGHTING CONTROL SYSTEM. PROVIDE 15' OF SLACK FOR EACH CIRCUIT.

SHEET NOTES

- 1. SEE LANDSCAPE DRAWINGS FOR TYPICAL SET BACK OF L8 AND L8A FIXTURES FROM FACE OF WALL/COLUMN.
2. TYPE L3A TO BE SURFACE MOUNTED VERTICALLY ON BACK SIDE OF WALL. LOCATE FIXTURE 12" ABOVE GRADE AND RUN CONTINUOUSLY UP WALL TO 12" BELOW TOP OF WALL.
3. TYPE L11 TO BE MOUNTED IN VERTICAL POST OF ARCHITECTURAL RAILING. SEE ARCHITECTURAL DRAWINGS FOR EXACT QUANTITY AND LOCATION.

CHAMPLIN ARCHITECTURE
720 EAST PETE ROSE WAY
CINCINNATI, OH 45202
T 513.241.4474
thinkchamplin.com
THINK CREATE REALIZE

HGA
420 North 5th Street, Suite 100
Minneapolis, Minnesota 55401
Telephone 612.758.4000

THP Affiliated Engineers

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CIVIL ENGINEERING

WALSH CONSULTING GROUP

bell engineering

CDM Smith

PIVOTAL lighting design

UK HEALTHCARE

Cancer Treatment Center + Advanced Ambulatory Center

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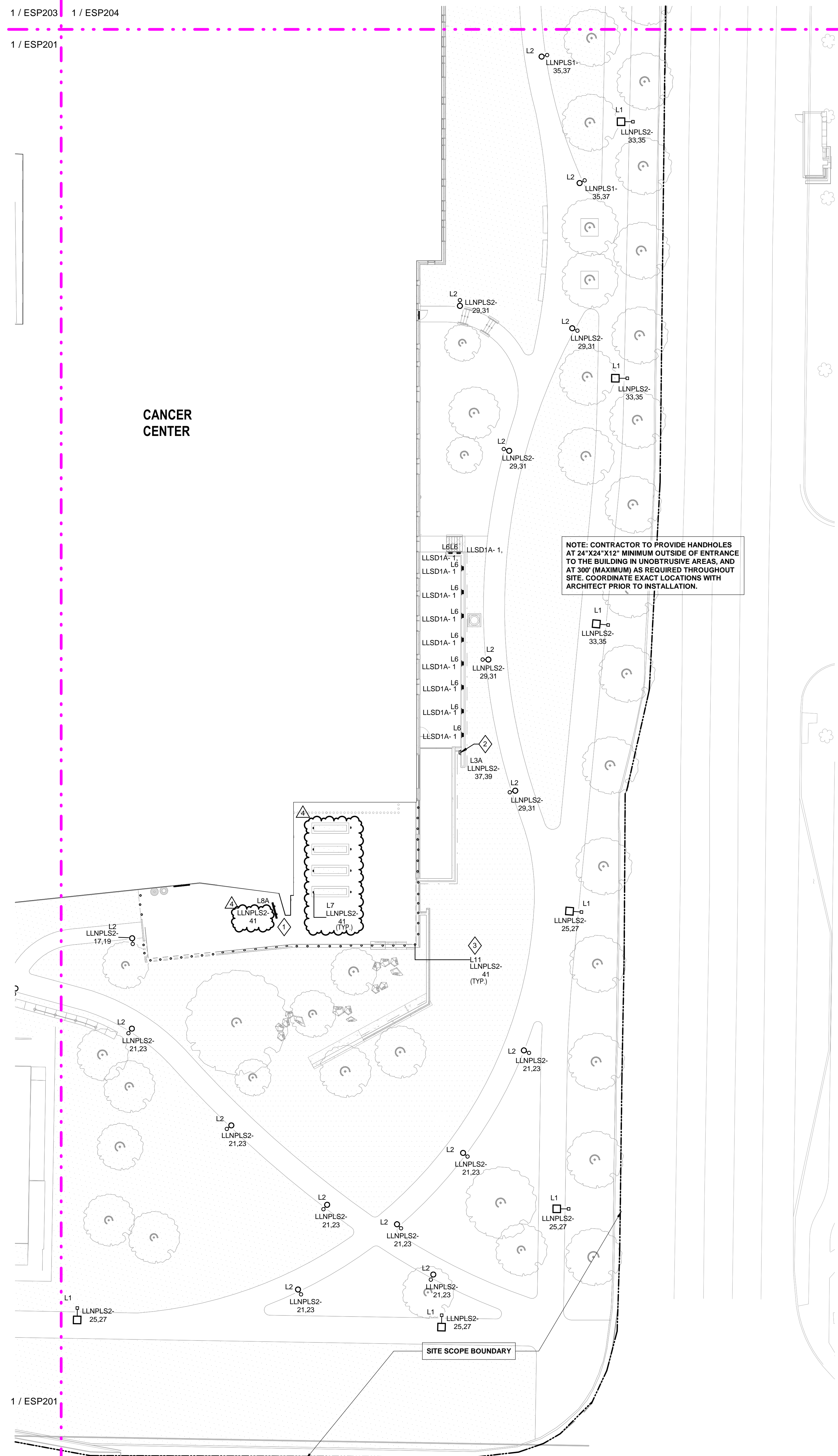
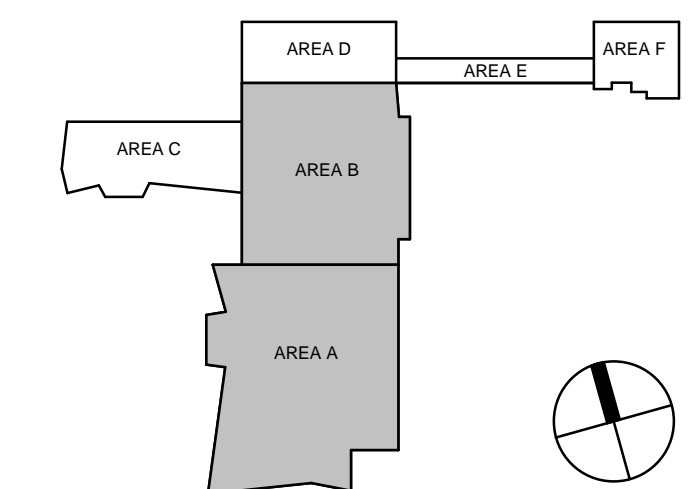
ISSUANCES

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Table with 2 columns: Field Name, Value. Includes Drawn By (KN), Checked By (SK, AS), Client Number (514), Project Number (6926).

DRAWING TITLE
LIGHTING PLAN - SITE AREA 2

SHEET NO.
ESP202

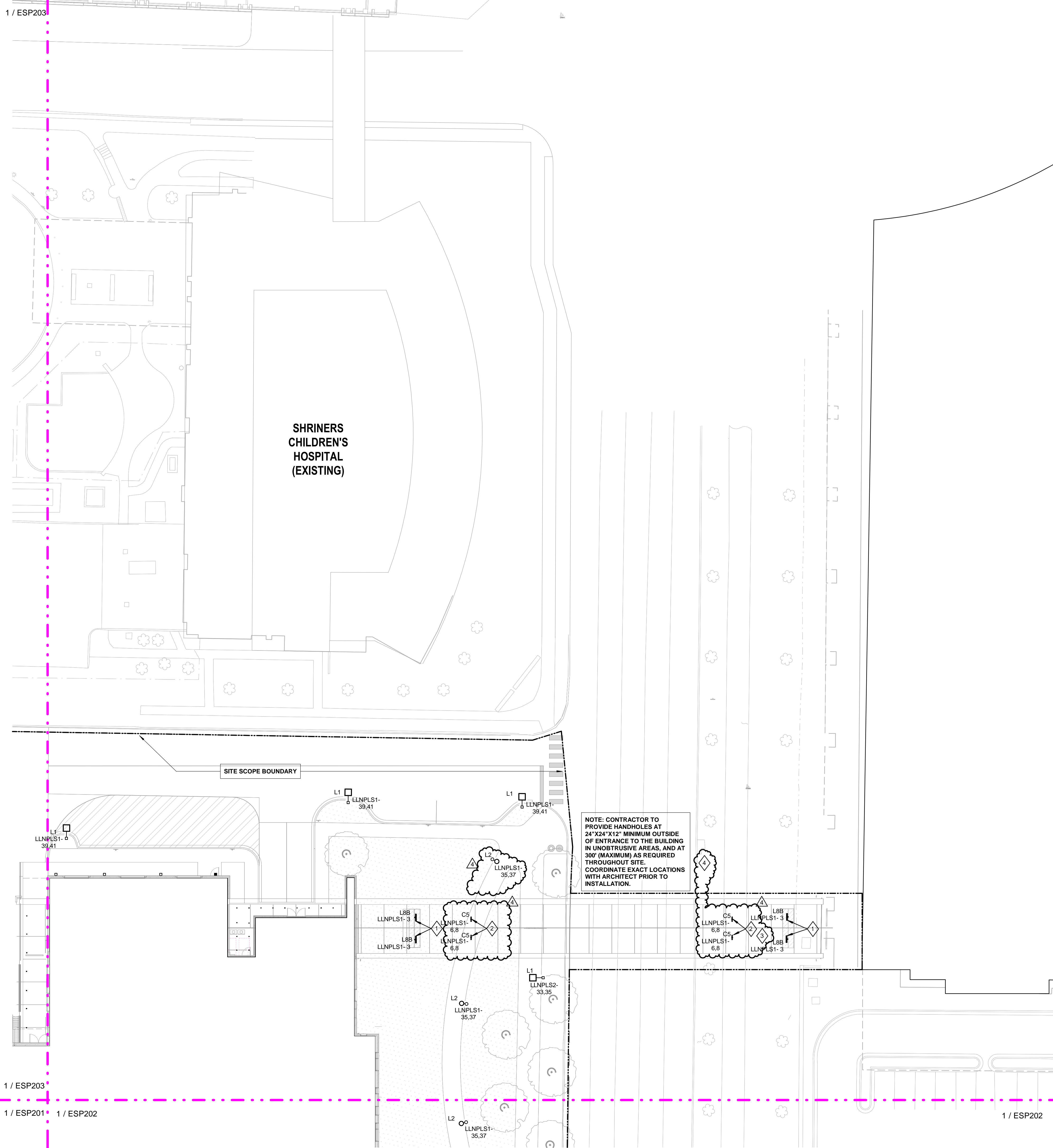


1 LIGHTING PLAN - SITE AREA 2
SCALE: 1" = 20'-0"

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### SITE LIGHTING GENERAL NOTES

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- SEE SHEET E900 SERIES OF DRAWINGS FOR LIGHTING FIXTURE SCHEDULES AND LIGHTING CONTROL SCHEDULES.
- ALL RACEWAYS ARE TO CONTAIN NO MORE THAN NINE CURRENT CARRYING CONDUCTORS AND A CODE SIZED EQUIPMENT GROUNDING CONDUCTOR.
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- PROVIDE UL924 DEVICE FOR EGRESS LIGHTING FIXTURES.
- WALL MOUNTED EXIT LIGHTS SHOWN ABOVE DOORS SHALL BE CENTERED AND 1'-0" ABOVE DOOR FRAME TO BOTTOM OF EXIT LIGHT.
- CONDUCTOR SIZES ARE BASED ON COPPER THINWALL IN METALLIC RACEWAY. 60°C CONDUCTOR USED FOR AMPERAGES LESS THAN OR EQUAL TO 100. 75°C CONDUCTOR USED FOR AMPERAGES GREATER THAN 100.
- MINIMUM #10 AWG IS TO BE USED FOR ALL 120V LIGHTING CIRCUITS OVER 75'-0" RUN TO REDUCE VOLTAGE DROP. MAXIMUM ALLOWABLE VOLTAGE DROP FROM PANEL TO FINAL DEVICE SHALL BE 3%. INCREASE CONDUCTOR SIZE AS NECESSARY TO MEET VOLTAGE DROP REQUIREMENTS.
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- SEE SHEET E900 SERIES OF DRAWINGS FOR DETAILS.
- VERIFY EQUIPMENT LOCATIONS AND CONDUCTOR LENGTHS PRIOR TO INSTALLATION. CONSULT ENGINEER IF INCREASED CONDUCTOR LENGTHS RESULT IN UNACCEPTABLE VOLTAGE DROP (3% OR GREATER).
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- PROVIDE LIGHTING ARRESTORS ON ALL CIRCUITS USED FOR SITE LIGHTING.
- PROVIDE 0-10V DIMMING CONTROL WIRING FOR ALL FIXTURES WITH DIMMABLE DRIVERS.
- ALL WIRING SHALL BE ROUTED TO CONTRACTOR PROVIDED PULL BOX ADJACENT TO SOURCE PANEL FOR CONNECTION TO FUTURE (FIT-OUT) LIGHTING CONTROL SYSTEM. PROVIDE 15' OF SLACK FOR EACH CIRCUIT.

### SHEET NOTES

- TYPE LBB TO BE MOUNTED IN PLINTH AT BASE OF STRUCTURAL SUPPORT. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION. REFER TO ARCHITECTURAL DETAILS FOR ROUTING OF RACEWAY.
- COORDINATE EXACT ROUTING OF RACEWAY WITH ARCHITECTURAL PLANS AND DETAILS.
- EXISTING LIGHT POLE AT THIS LOCATION TO BE REMOVED.
- EXISTING LIGHT POLE AT THIS LOCATION TO BE REMOVED FOR CONSTRUCTION AND THEN REPLACED AFTER PEDWAY WORK IS COMPLETE.

**CHAMPLIN**  
ARCHITECTURE

720 EAST PETE ROSE WAY  
CINCINNATI, OH 45202  
T 513.241.4474  
thinkchamplin.com  
THINK CREATE REALIZE

**HGA**

420 North 5th Street, Suite 100  
Minneapolis, Minnesota 55401  
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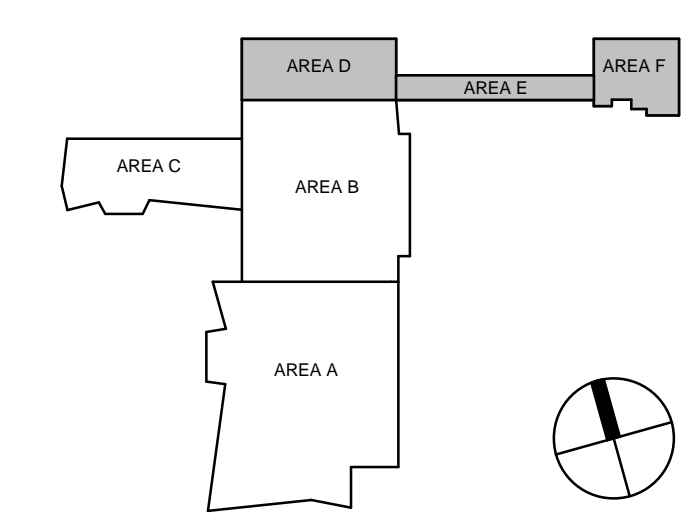
### ISSUANCES

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1	C&S 80% CD	03/05/24
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4	BP-07 ADDENDUM #1	05/28/24

Drawn By	<b>KN</b>
Checked By	<b>SK, AS</b>
Client Number	514
Project Number	6926

DRAWING TITLE  
**LIGHTING PLAN - SITE AREA 4**

SHEET NO.  
**ESP204**



**1 LIGHTING PLAN - SITE AREA 4**  
SCALE: 1" = 20'-0"

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018113.20A	New Construction Checklist
018113.20B	LEED Product Data Sheet
<i>019113</i>	<i>Building Systems Commissioning</i>
<i>019115</i>	<i>Building Enclosure Commissioning</i>
<i>019117</i>	<i>Building Enclosure Functional Performance Testing</i>

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055000	Metal Fabrications
055113	Metal Pan Stairs
055119	Metal Grating Stairs
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072726.04	Fluid-Applied Membrane Air Barriers
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Not Used

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Not Used

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201200	Excavation, Trenching, Backfilling and Grading
201300	Pipe, Pipe Fittings, and Pipe Support
201310	Welding
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202200	Insulation
202300	Thermometers and Others, Monitoring Instruments
202400	Identifications, Tags, Charts, Etc.
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<del>220500</del>	<del>Compressed Air System Deleted entire section</del>
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## **SECTION 019113 - BUILDING SYSTEMS COMMISSIONING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specific Building Systems (MEP) Commissioning requirements are given in this specification. The following specification sections are related to the Commissioning work specified in this section:
  - 1. Building Enclosure Commissioning requirements: refer to Section 019115.
  - 2. Fire Suppression System requirements: refer to Division 21.
  - 3. Plumbing System requirements: refer to Division 22.
  - 4. Mechanical System requirements: refer to Division 20.
  - 5. Test and Balance (TAB) requirements: refer to Section 203100.
  - 6. HVAC System requirements: refer to Division 23.
  - 7. Facility Management System (FMS) / Direct Digital Control (DDC) System requirements: refer to Division 25.
  - 8. Electrical System Requirements: refer to Division 26.
  - 9. Access Control and Video Surveillance System requirements: refer to Division 28.
  - 10. Fire Alarm System requirements: Refer to Division 28.

#### **1.2 SECTION INCLUDES**

- A. Section includes the Commissioning (Cx) requirements for the Building Fire Suppression, Mechanical, Plumbing, Heating Ventilating and Air Conditioning (HVAC), Electrical, and Electronic Safety and Security systems.
  - 1. The Building Systems Commissioning requirements are separate from, and in addition to, the Building Enclosure Commissioning requirements in Section 019115. The Construction Manager and Subcontractors are required to participate in each of the Commissioning processes.
  - 2. The 019113 Commissioning Agent (CxA) and 019115 Building Enclosure Commissioning Agent (BECxA) will provide separate documentation for each Commissioning process.

#### **1.3 DESCRIPTION**

- A. Commissioning is a systematic process of ensuring all building systems perform interactively according to design intent and Owner's operational needs. Commissioning will encompass and coordinate traditionally separate functions of system documentation, installation checkout, equipment Start-Up, control system calibration and point-to-point checkout, testing and balancing, and Functional Performance Testing. Commissioning is intended to achieve the following specific objectives according to the Contract Documents:
  - 1. Verify and document proper installation and performance of equipment and systems.

2. Provide Owner with functional buildings and/or systems with minimal operational problems at time of move-in.
- B. Commissioning does not take away from or reduce responsibility of the Construction Manager or installing Contractors and Subcontractors to provide a finished and fully functioning product.
- C. This section shall in no way diminish the responsibility of the Construction Manager, Contractors, Subcontractors and Suppliers in performing all aspects of work and testing as outlined in the contract documents. The Commissioning requirements in this specification are separate from and in addition to any other Equipment/Systems Testing, Demonstration or Commissioning requirements specified in other Sections of the Project Manual.

#### 1.4 ABBREVIATIONS

- A. The following are common abbreviations used in the Specifications (definitions are found further in this Section):
1. A/E - Architect and Design Engineers.
  2. BECxA – Building Enclosure Commissioning Agent – refer to Section 01 91 15.
  3. CM – Construction Manager.
  4. Cx – Commissioning.
  5. CxA - Commissioning Agent.
  6. Cx Database – Commissioning Database.
  7. Cx Plan - Commissioning Plan.
  8. CxT - Commissioning Team.
  9. DDC – Direct Digital Control.
  10. FMS – Facility Management System / Direct Digital Control (DDC) System.
  11. FMSC – Facility Management System Contractor
  12. FPT - Functional Performance Test.
  13. O&M - Operations & Maintenance.
  14. OR - Owner's Representative.
  15. PFC - Pre-Functional Checklist.
  16. RFI - Request for Information.
  17. TAB - Test, Adjust and Balance.

#### 1.5 DEFINITIONS

- A. Acceptance Phase: Phase of construction after Start-Up and initial checkout when Functional Performance Tests, O&M documentation review and training occur.
- B. Approval: Acceptance that a piece of equipment or system has been properly installed and is functioning in tested modes according to the Contract Documents.
- C. Architect/Engineer (A/E): Prime consultant (architect) and sub-consultants who comprise the design team, generally HVAC Mechanical Designer/Engineer and Electrical Designer/Engineer.
- D. Basis of Design (BOD): Documentation of primary thought processes and assumptions behind design decisions made to meet design intent. Describes systems, components, conditions and methods chosen to meet intent.
- E. Building Enclosure Commissioning Agent (BECxA): Contracted to Owner. BECxA directs and coordinates day-to-day Building Enclosure Commissioning activities independently from CxA.

Refer to Section 019115 for Building Enclosure Commissioning Requirements. BECxA reports directly to Owner.

- F. Commissioning Agent (CxA): Contracted to Owner. CxA directs and coordinates day-to-day Commissioning activities. CxA reports directly to Owner.
- G. Commissioning (Cx) Database - A “cloud-based” process management platform provided by the CxA utilized to execute the Commissioning process.
- H. Commissioning (Cx) Plan: Overall plan developed after bidding that provides structure, schedule and coordination planning for Commissioning process.
- I. Contract Documents: Documents binding on parties involved in construction of this project (drawings, specifications, change orders, amendments, contracts, etc.).
- J. Construction Manager: Contracted directly to Owner. Entity under contract to construct the project. May also be referred to as Contractor or General Contractor in other sections of the Project Manual.
- K. Control System: System and components associated with Facility Management System (FMS) and/or Direct Digital Control (DDC) System. Refer to Division 25.
- L. Commissioning (Cx) Database - A “cloud-based” process management platform provided by the CxA utilized to execute the Commissioning process.
- M. Deferred Functional Tests: Functional tests performed after substantial completion due to partial occupancy, equipment, seasonal requirements, design or other site conditions that disallow test from being performed.
- N. Deficiency: Condition of a component, piece of equipment or system that is not in compliance with Contract Documents (that is, does not perform properly or is not complying with design intent).
- O. Functional Performance Test Procedures: Commissioning protocols and detailed test procedures and instructions that fully describe system configuration and steps required to determine if the system is performing and functioning properly. These procedures shall be used to document Functional Performance Tests.
- P. Functional Performance Test (FPT): Test of dynamic function and operation of equipment and systems. Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, life safety conditions, power failure, etc. Systems are run through all specified sequences of operation. Components are verified to be responding in accordance with contract documents. Functional Performance Tests are executed after Pre-Functional Checklists and Start-Ups are complete.
- Q. Monitoring: Recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or trending capabilities of Facility Management Systems.
- R. Overridden Value: Writing over a sensor value in DDC system to see response of a system (e.g., changing outside air temperature value from 52°F to 72°F to verify economizer operation). See also “Simulated Signal”.

- S. Pre-Functional Checklist (PFC): A list of static inspections and elementary component tests that verify proper installation of equipment (e.g., belt tension, oil levels, labels affixed, gages in place, sensors calibrated, etc.).
- T. Seasonal Performance Tests: Functional Performance Tests deferred until system(s) ambient conditions are closer to design conditions.
- U. Simulated Condition: Condition created for testing component or system (e.g., applying heat to space temperature sensor to monitor response of VAV box).
- V. Simulated Signal: Disconnecting sensor and using signal generator to send amperage, resistance or pressure to transducer and/or DDC system to simulate value to FMS.
- W. Specifications: Construction specifications of Contract Documents.
- X. Start-up: The activities where systems or equipment are initially tested and operated. Start-up is completed prior to Functional Performance Testing.
- Y. Subcontractor: Contractors and their Subcontractors who provide and install building components and systems.
- Z. Test Procedures: Step-by-step process, which must be executed to fulfill test requirements.
- AA. Test Requirements: Requirements specifying what modes and functions, etc. will be tested. Test requirements are not detailed test procedures. Test requirements are specified in the Cx Plan.
- BB. Trending: Monitoring using Facility Management System.
- CC. Vendor: Supplier of equipment.
- DD. Warranty Period: Warranty period for entire project, including equipment components.

## 1.6 COORDINATION

- A. Commissioning Team: Members of the Commissioning Team (CxT) will consist of:
  - 1. Commissioning Agent (CxA).
  - 2. Owner's Representative(s) (OR).
  - 3. Representatives of the Facility User and Operation and Maintenance Personnel.
  - 4. Architect and Design Engineers (A/E).
  - 5. Construction Manager
  - 6. The Contractors and Subcontractors who provide, install, or integrate with the equipment to be commissioned (e.g., Fire Alarm System Contractor integration with the HVAC equipment, etc.).
  - 7. Test and Balance Contractor (TAB Contractor).
  - 8. Facility Management System Contractor (FMSC).
  - 9. Equipment Suppliers and Vendors.
- B. Management: Owner will contract services of the CxA. The CxA directs and coordinates Commissioning activities and reports to OR. All members of the CxT shall cooperate to fulfill contracted responsibilities and objectives of the Contract Documents.



- C. Kick-Off Meeting: CxA will plan, schedule and conduct a Commissioning Kick-Off Meeting. Membership and responsibilities of the CxT will be clarified at this meeting. Cx Kick-Off Meeting shall be conducted no later than 30 days prior to initial installation of any commissioned equipment on-site (i.e., equipment set on site). CxA will distribute meeting minutes to all parties.
  
- D. Scheduling:
  - 1. CxA will work with Commissioning Team (CxT) to establish required Commissioning activities to incorporate in preliminary Commissioning schedule. The Construction Manager will integrate Commissioning activities into master construction schedule. Representatives of the CxT will address scheduling problems. Necessary notifications are to be made in a timely manner in order to expedite Commissioning.
  - 2. The CxA will provide initial outline schedule of primary Commissioning events at Commissioning Kick-Off Meeting. As construction progresses, more detailed schedules are developed by the CxT.
  
- E. Commissioning and Project Phasing:
  - 1. Phased completion of the project construction is anticipated. The commissioning processes described herein will be completed for each phase of work.
  - 2. All Commissioning work must be completed successfully with no remaining installation or operating deficiencies prior to Owner move-in/occupancy with the exception of the following:
    - a. Compilation and delivery of Final Commissioning Report.
    - b. Completion of Online Templates for project LEED Certification.
    - c. Compilation of LEED Current Facilities Requirements and Operations & Maintenance Plan (CFR and O&M Plan).
    - d. Compilation of LEED Systems Manual.
    - e. Compilation of LEED Ongoing Commissioning Plan.
    - f. Opposed Season Testing.
    - g. End of Warranty Review Meeting.

## **PART 2 - PRODUCTS / COMMISSIONING DOCUMENTATION**

### **2.1 COMMISSIONING (CX) DATABASE**

- A. The Commissioning process will be executed utilizing a “cloud-based” Commissioning (Cx) Database provided by the CxA. The Cx Database is accessed by authorized users using any device running an HTML-5 internet browser (e.g., PC, laptop, tablet, phone) or by an operating system specific (e.g., iOS) application downloaded from corresponding app store.
  
- B. CxA will provide the Construction Manager and Subcontractors with web access to the Cx Database during the Commissioning process to allow the Construction Manager and Subcontractors to complete the scoped Commissioning tasks indicated in other sections of this specification (e.g., completion of Commissioning activities such as notification of deficiency item corrections, readiness for Functional Performance Testing, etc.).

## 2.2 COMMISSIONING (CX) PLAN

- A. CxA will develop overall plan for execution of the Commissioning Process. CxA will provide a single overall Commissioning Plan for all phases of work.
- B. The Cx Plan will contain:
  - 1. Executive Summary of overall commissioning process.
  - 2. List of CxT members and roles and responsibilities.
  - 3. Master Equipment List (list of commissioned equipment and systems).
  - 4. Pre-Functional Checklists (PFCs) for commissioned equipment. The PFCs will be developed in the Cx Database.
  - 5. Functional Performance Test Procedures for each commissioned equipment/system including integrated systems testing. The FPTs will be developed in the Cx Database. The initial Cx Plan will not include the FPTs; these will be developed once the FMS/DDC Submittal is approved by the A/E.
  - 6. Sample Master Issues List (used to track issues/deficiencies throughout the commissioning process). The MIL will be developed in the Cx Database.
  - 7. Operation and Maintenance (O&M) and Warranty Data Matrix documenting the O&M/Warranty Documentation requirements for commissioned equipment/systems.
  - 8. Owner Training Matrix documenting the Owner Training requirements for commissioned equipment/systems.
  - 9. Opposed Season Testing Matrix documenting the Opposed Season Testing requirements for commissioned equipment/systems.
- C. The Cx Plan will be delivered to the CxT in electronic format (Adobe PDF file searchable from the Table of Contents).

## 2.3 COMMISSIONED EQUIPMENT/SYSTEMS SUBMITTALS AND O&M DATA

- A. Construction Manager shall provide CxA with documentation required for Commissioning work. At minimum, documentation shall include: Requirements as described in Section 013300, detailed Start-Up procedures, full sequences of operation, O&M data, performance data, any performance test procedures, duct pressure testing procedures and results, piping pressure testing and flushing procedures and results, FMS/DDC drawings, details of Owner contracted tests, Warranty Documentation, and Owner Training Documentation. In addition, installation and checkout materials actually shipped inside equipment and actual field checkout sheet forms used by factory or field technicians shall be submitted to CxA.
- B. Construction Manager shall submit submittals for all commissioned equipment to CxA for review concurrently with A/E as required for LEED project certification.
- C. Construction Manager shall submit one copy of the final A/E approved submittal data to the CxA for record purposes.
- D. Construction Manager shall submit one copy of the final A/E approved O&M data for all commissioned equipment/systems to the CxA for record purposes.
- E. Construction Manager shall submit one copy of as-built shop drawings of all FMS/DDC system including control sequences, control panels and components, master points list, etc., incorporating all field modifications made prior to Owner acceptance.

## 2.4 EQUIPMENT NAMEPLATE DOCUMENTATION

- A. CM/Subcontractors shall submit photo documentation of the equipment nameplate information for all commissioned equipment (.jpg, .jpeg, .png, .tif, .tiff, format). Filenames shall be tagged by equipment identification from the Schedule drawings. The information shall be provided to the CxA prior to equipment installation.
- B. CM/Subcontractors shall submit the following information to the CxA for each item of commissioned equipment. The information will be input by Construction Manager/Subcontractor into the Cx Master Equipment List spreadsheet (Microsoft Excel - .xls format) provided by the CxA. The information shall be provided to the CxA prior to equipment installation.
  - 1. Equipment Manufacturer.
  - 2. Equipment Model Number.
  - 3. Equipment Serial Number.

## 2.5 SITE VISIT REPORTS

- A. CxA will make periodic site visits to complete scoped commissioning work. CxA will provide a report for each site visit to members of the CxT.
- B. CxA Site Visit Report will include the following:
  - 1. Attendees and purpose of site visit.
  - 2. Observations regarding commissioned systems and results of completed commissioning work.
  - 3. "Next Steps" section documenting Cx process status and upcoming Cx work / site visits.
  - 4. Current Master Issues List (MIL).
  - 5. Status Report of Cx Process work completion.
  - 6. Picture Report (where applicable).

## 2.6 PRE-FUNCTIONAL CHECKLISTS (PFC)

- A. The objective of the Pre-Functional Checklist is to verify and document that the equipment/systems are provided and installed according to documented design intent and Contract Documents.
- B. CxA will develop the Pre-Functional Checklists from the Contract Documents and A/E approved Equipment Submittals. The Pre-Functional Checklists will be included in the Cx Plan developed in the Cx Database. The Pre-Functional Checklists will be completed during construction in the Cx Database by the CxA.
- C. Sample Pre-Functional Checklists are included at the end of this specification. The samples are provided to give the Construction Manager and Subcontractors a general idea of the detailed installation items that will be checked for proper installation. The Pre-Functional Checklists included are prototypical, and do not reflect specific requirements of this project's plans or specifications. Specific Pre-Functional Checklist items may be added, modified or deleted in the Construction Phase Cx Plan delivered to the CxT in order to reflect the final construction document requirements. Construction Manager and Subcontractors shall review final construction documentation for applicable details and specifications related to equipment to be commissioned in order to fully ascertain all of the Pre-Functional Checklist requirements.

## 2.7 START-UP PLAN

- A. Construction Manager and Subcontractors responsible for purchase, installation and Start-Up of commissioned equipment shall compile all testing and equipment Start-Up documentation into an overall Start-Up Plan document.
- B. Start-Up Plan shall include the following documentation:
1. Testing documentation and recording forms for all testing required by Division 20, 21, 22, 23, 26, and 28 specifications (e.g., duct pressure testing, duct cleaning, pipe pressure testing, piping flushing and cleaning plans, electrical testing, etc.). Testing documentation shall include:
    - a. A written description of the required testing and the procedures required to complete the testing.
    - b. All instrumentation utilized for the testing.
    - c. Checklist with boxes or lines for recording and documenting the completion of the testing activity and results.
  2. Equipment Start-Up Documentation including detailed Start-Up procedures from equipment manufacturer and checkout procedures with normally used field checkout sheets. Start-up documentation shall include checklists and procedures with specific boxes or lines for recording and documenting inspections of each piece of equipment.
  3. Facility Management System Start-Up and initial check-out documentation and recording forms including but not limited to point-to-point verifications, control sensor calibrations, and control valve/damper actuator calibrations for inclusion in the Start-Up Plan. Facility Management System Start-up documentation shall include checklists and procedures with specific boxes or lines for recording and documenting inspections of each control system point, sensor or device.
  4. Test and Balance (TAB) Execution Plan outlining the TAB procedures and proposed sequencing and scheduling of required TAB work.
  5. Equipment Maintenance Log including a listing all maintenance tasks (including frequency of execution) required to be performed on equipment started to ensure equipment warranties are not voided. Start-Up Plan documentation shall include a log for each required maintenance task for Subcontractor/Vendor to document execution of the required maintenance tasks from Start-Up through Final Application for Payment.
- C. Start-Up Plan documentation shall be provided in “searchable” electronic PDF format as follows:
1. Provide a separate Start-Up Plan PDF file for each Division of work (e.g., Division 20 Start-Up Plan Division 21 Start-Up Plan, Division 22 Start-Up Plan, Division 23 Start-Up Plan, etc.)
  2. Each Start-Up Plan PDF file will have a Cover Sheet with Project Information and Document Title.
  3. Each Start-Up Plan PDF file will have a Table of Contents. The Table of Contents shall be “bookmarked” for hyperlink navigation directly to each section and item/document noted below.
    - a. Proposed Schedule/Sequencing Plan of Testing and Start-Up activities.
    - b. Completed Testing documentation (e.g., duct pressure testing, duct cleaning, piping pressure testing, piping flushing and cleaning, electrical testing, etc.) organized by specification section.
    - c. Executed Start-Up Checklists for each item of equipment organized by specification section.

- d. Completed Facility Management System Start-Up activities completed by the Facility Management System Contractor including but not limited to all point-to-point verifications, control sensor calibrations and control actuator calibrations.
- e. TAB Execution Plan.
- f. Warranty Maintenance Log for each item of equipment organized by specification section.

## 2.8 OWNER TRAINING

- A. Construction Manager with assistance from responsible Subcontractors and Equipment Vendors will provide Owner training in Start-Up, Operation and Maintenance of all commissioned systems/equipment under contract per Project Manual specifications.

## 2.9 FACILITY MANGEMENT SYSTEM (FMS) TREND DATA

- A. Building Systems operation will be monitored and analyzed by the CxA utilizing trend data provided from the FMS.
- B. The Facility Management System Contractor (FMSC) for this project shall provide trend data for all commissioned equipment/systems monitored or controlled by the FMS. The complete cost for the FMSC to set up all required trending and reporting shall be included in the project contract cost.
- C. Examples of FMS trended points by system type utilized for commissioning are included in a Table at the end of this specification. The CxA will conduct an FMS Cx Trend Data Planning Meeting with the FMSC as a part of the Cx FPT Scheduling Meeting. The FMS Cx Trend Data Planning Meeting will coordinate and finalize:
  - 1. System points to be monitored.
  - 2. Frequency/interval of monitoring for each point.
  - 3. Trend data output file format, presentation, and data-transfer requirements.
  - 4. Equipment/systems adjustments required for "forced" peak load trending (e.g., adjusting equipment space temperature sensor setpoints to simulate peak cooling/heating loads, utilizing AHU preheat coil to simulate peak cooling load, etc.).
- D. Prior to the FMS Cx Trend Data Planning Meeting; the FMSC will provide CxA with a Master Point Summary Table, organized by equipment type, listing all FMS points for each item of equipment controlled or monitored by the FMS. The Master Point Summary Table shall list the following information:
  - 1. Building Designator.
  - 2. Building Name.
  - 3. System Description or Equipment Name. Equipment Names shall match drawing Schedule information.
  - 4. Point ID.
  - 5. Point Type.
  - 6. Full point name.
  - 7. English language point description. The point description shall be an easily understandable English-language description of the point.
  - 8. Node address (Domain, Subnet, Node).
  - 9. Node/Device ID.
  - 10. Device MAC Address, where applicable.

11. Object ID [object type, instance number] (BACnet Systems).
12. Engineering units.
13. Alarm limits, if any.

E. General Trend Report Requirements

1. Each trend report is generated in a Microsoft Excel-readable file format (e.g., .xlsx, .csv, or .txt).
2. Equipment/System Trend Reports shall be compiled in separate Workbooks for each equipment type or system.
3. Each Workbook shall be titled by specific equipment/system type (e.g., Air Handling Unit, VAV Box, Exhaust Fan, Chilled Water System, Heating Hot Water System, etc.). Max Workbook file size is 10MB. Provide multiple Workbook files (e.g., Air Handling Unit 1, Air Handling Unit 2, etc.) if required to meet file size limitations.
4. Each Workbook will contain separate Trend Data worksheets for each piece of equipment. Each worksheet will be tabbed by project specific equipment name per project schedule drawings.
5. Refer to Sample Trend Report at the end of this specification for required Worksheet Trend Report format/layout.
6. Cx FMS Trend Reports shall remain in place through the project one year warranty period (to allow CxA to utilize FMS Trend Reports for Opposed Season Testing and Warranty Review).

F. Trend Point Configuration

1. All data point names must be unique from other points in the same project.
2. Each trend data point shall record the instantaneous value of the corresponding control data point being trended at 5-minute, 15-minute, or change-of-value intervals. The trend sampling interval for each data point must be consistent (e.g., data cannot start at a 5-minute interval and then change to a 15-minute interval).
3. All utility consumption data (kWh, ton-hr., btu, etc.) trends shall report the accumulated consumption across the interval period (e.g., electrical consumption, kWh, total for the 15-minute period) and shall not report total accumulating consumption.
4. All utility demand data (kW, ton, btu/hr., etc.) trends shall report the instantaneous demand at a 15-minute interval period unless otherwise specified by the CxA and shall not report total accumulating demand.
5. Input a custom data point naming convention utilized for trend reports that shall comply with the Owner's established point naming convention.

2.10 FUNCTIONAL PERFORMANCE TEST (FPT)

- A. CxA will develop the Functional Performance Test (FPT) procedures from the Contract Documents and A/E approved FMS Control Submittal. The FPT procedures will be included in the Cx Plan developed in the Cx Database. The FPTs will be executed by the Construction Manager and Subcontractors. The CxA will witness the FPT and document the results in the Cx Database.
- B. Development of Test Procedures:
  1. The purpose of any given specific test is to verify and document compliance with stated criteria of acceptance given on test form. CxA shall develop specific test procedures and forms to verify and document proper operation of each piece of equipment and system. Contractors will provide limited assistance to CxA in developing procedure (i.e.,

answering questions about equipment, operation, sequences, etc.). Prior to execution, CxA shall provide a copy of test procedures to CxT for review. Construction Manager and Subcontractors will review tests for feasibility, safety and equipment warranty protection.

2. Test procedure forms developed by the CxA will include (but not be limited to) the following information:
  - a. System and equipment or component name(s).
  - b. Equipment location and ID number.
  - c. Date.
  - d. Project name.
  - e. Participating parties.
  - f. Specific sequence of operation or other specified parameters being verified.
  - g. Instructions for setting up test.
  - h. Specific step-by-step procedures to execute test, in a clear, sequential and repeatable format.
  - i. A Yes/No checkbox to allow for clearly marking whether or not proper performance of each part of test was achieved.
  - j. Section for comments
  
3. Sample Functional Performance Test (FPT) forms are included at the end of this specification. The samples are provided to give the Construction Manager and Subcontractors a general idea of the work required to complete the FPT. The FPT checklists included are prototypical, and do not reflect specific requirements of this project's plans or specification. Specific FPT items may be added, modified or deleted in the Cx plan delivered to the CxT in order to reflect the final construction document requirements. Construction Manager and Subcontractors shall review final construction documentation for applicable details and specifications related to equipment to be commissioned in order to fully ascertain all of the FPT requirements.

#### 2.11 CxA MASTER ISSUES LIST (MIL)

- A. Any issues noted by CxA are tracked in a Master Issues List (MIL) accessed from the Commissioning (Cx) Database.

#### 2.12 TEST EQUIPMENT

- A. Construction Manager and Subcontractors shall provide all specialized tools, test equipment and instruments required to execute Start-Up, checkout and Functional Performance Testing of equipment under their contract.
  
- B. Test equipment shall be of sufficient quality and accuracy to test and/or measure system performance with tolerances specified. A testing laboratory shall have calibrated test equipment within the previous 12 months. Calibration shall be NIST traceable. Equipment shall be calibrated according to manufacturer's recommended intervals and when dropped or damaged. Calibration tags shall be affixed or certificates readily available.
  
- C. Construction Manager/Electrical Subcontractor shall provide full capacity Load Banks for Emergency Power System Testing. Full capacity Load Banks may be required during separate testing periods (three or more) depending on construction completion and equipment readiness for testing. Provide Load Banks for one week testing period for each system test to allow for potential weather events.

## 2.13 SYSTEMS MANUAL DOCUMENTATION

- A. Construction Manager will provide the following documentation for each item of commissioned equipment and each commissioned system to the CxA for preparation of various electronic Systems Manuals. This documentation is in addition to any documentation required in other specification sections of the Project Manual:
1. Final Owner's Project Requirements Document (from Owner).
  2. Final Basis of Design Document (from A/E).
  3. Construction Record Drawings and Specifications.
  4. As-Built Drawings.
  5. A/E approved equipment submittals.
  6. A/E approved Operations and Maintenance (O&M) Data including:
    - a. Operating instructions for all equipment.
    - b. Preventive maintenance plan for building equipment including recommended schedule and frequency for equipment preventative maintenance.
  7. As-Built FMS/DDC Drawings/Schematics and Sequences of Operation including the following information for each commissioned system:
    - a. Building Occupancy Schedule.
    - b. Operating instructions for associated integrated building systems.
    - c. Instructions for Energy Saving Operations and descriptions of Energy Savings Strategies in use in the facility.
    - d. Seasonal Start-Up and shut down procedures, manual and restart operations procedures, recommendations regarding seasonal operational issues that affect energy use.
    - e. A list of equipment run-time and time of day schedules (occupied/unoccupied) and a schedule frequency to review them for relevance and efficiency.
    - f. Setpoints for all systems.
      - 1) Changes in schedules or setpoints for different seasons, days of the week, and times of day.
      - 2) A table of all user adjustable set points and reset schedules with a brief discussion of the purpose of each and the range of reasonable adjustments with energy implications. Include a schedule of frequency to review the various set points and reset schedules to ensure they are at current relevant and efficient values.
    - g. Any ongoing system optimization procedures.
    - h. A table of all sensors and actuators including a recommendation for recalibration frequency of each sensor and actuator by type and use.
  8. Owner Training Documentation.
- B. Documentation shall be provided in "searchable" "bookmarked" electronic Adobe PDF format organized as follows:
1. Separate Adobe PDF file for:
    - a. Final Owner's Project Requirement Document
    - b. Final Basis of Design Document.



- c. Construction Record Drawings and Specifications bookmarked by drawing number and specification Section/Title.
  - d. As-Built Drawings bookmarked by drawing number.
  - e. Equipment Submittals bookmarked by specification Section/Title.
  - f. Equipment O&M Data bookmarked by equipment specification Section/Title.
  - g. As Built FMS/DDC drawings bookmarked by system.
  - h. Owner Training Documentation bookmarked by specification Section/Title.
2. Table of Contents for each PDF document organized by contract document specification Section and specific contract document identification tag. The Table of Contents shall be hyperlinked to allow direct access from each Section to each individual equipment item and each specific information item for the equipment.

## 2.14 FINAL COMMISSIONING REPORT

### A. The Final Commissioning Report will include:

- 1. Executive Summary including:
  - a. List of Commissioned Equipment/Systems.
  - b. List of participants and roles.
  - c. Overview of Commissioning and testing scope and general description of testing and verification methods.
  - d. Evaluation regarding disposition of equipment, systems and documentation in the following areas:
    - 1) Conformance to specifications and design intent.
    - 2) Equipment installation.
    - 3) Functional performance.
    - 4) Recommendations for improvement to equipment or operations, future actions, etc. will also be listed.
- 2. Master Issues List.
- 3. Executed Pre-Functional Checklists.
- 4. Executed Functional Performance Tests.
- 5. Site Visit Reports.
- 6. Design Phase Cx Documentation.
- 7. Executed Matrices documenting Cx verification of O&M, Warranty and Owner Training for commissioned equipment/systems.
- 8. Sections will be provided for the following information to be inserted at a later date:
  - a. Opposed Season Testing.
  - b. End of Warranty Review Meeting Minutes.

## **PART 3 - EXECUTION**

### 3.1 COMMISSIONING OVERVIEW

- A. The following provides a brief overview of typical Commissioning tasks during construction and general order in which they occur:

1. CxA develops project specific Commissioning Plan in the Cx Database including specific Pre-Functional Checklists and equipment and system Functional Performance Test procedures. CxT members are provided web access to the Cx Database for review of the Cx Plan prior to Cx Kick-Off meeting.
2. Commissioning during construction begins with a Kick-Off Meeting conducted by CxA where membership of CxT is established, and responsibilities reviewed. The Commissioning Plan is reviewed during this meeting.
3. CxA schedules subsequent meetings as necessary to plan, coordinate and schedule Commissioning activities. Deficiencies and problem resolution will also be discussed at these meetings.
4. Construction Manager submits copies of submittals for all equipment to be commissioned to CxA for review concurrently with A/E review. CxA reviews equipment submittals and forwards review comments to A/E and OR.
5. Construction Manager submits copies of final A/E approved submittals for all equipment to be commissioned to CxA for record purposes. CxA revises Cx Plan if required.
6. Construction Manager develops initial outline Owner Training Program and submits to CxT for review.
7. Subcontractors install commissioned equipment/systems. CxA makes periodic site visits to review commissioned equipment installations and execute Pre-Functional Checklists. CM/Subcontractors provide the necessary personnel to assist CxA (e.g., provide room access, provide ladders, remove A/C unit covers, open electrical panel covers, etc.) with sample PFC verifications.
8. Any issues noted by CxA are tracked in a Master Issues List (Cx MIL) in the Cx Database. Subcontractors correct issues noted by CxA and update Cx MIL in Cx Database for CxA verification of issue corrections.
9. CM develops Start-Up Plans. CM/Subcontractors coordinate overall schedule of equipment/systems Testing and Start-Up and submit schedule to CxA so that CxA may witness Testing and Start-Up activities as required.
10. Subcontractors complete testing (e.g., duct and piping pressure testing, piping flushing, etc.) as required by Division 20, 21, 22, 23, 26, and 28 specifications. Subcontractors compile completed testing documentation in the Start-Up Plan. CM/Subcontractors submit Start-Up Plan to CxA for verification of completion of testing activities prior to Functional Performance Tests.
11. CxA conducts a Commissioning Functional Testing Schedule Meeting with the CxT to establish a coordinated approach to the integration of the Functional Performance Testing activities within the Master Construction Schedule. CxA conducts Cx FMS Trend Data Planning meeting as a part of this meeting.
12. Subcontractors and Equipment Vendors/Suppliers perform Start-Up and Initial Checkout per the Start-Up Plan documentation and checklists. CM/Subcontractors compile completed Start-Up and Initial Checkout documentation in the Start-Up Plan. CM/Subcontractors submit Start-Up Plan to CxA for verification of completion of Start-Up activities prior to Functional Performance Tests.
13. Facility Management System Contractor sets up required FMS System trending and reporting for CxA review to assess readiness for Functional Performance Tests.
14. CM submits Systems Manual documentation to CxA.
15. Functional Performance Tests are executed by CM and Subcontractors, under supervision of and documented by CxA.
16. Items of non-compliance in material, installation or set-up will be corrected at CM expense and system shall be retested.
17. CM executes Owner Training exercises per Owner Training Plan.
18. CxA issues Final Commissioning Report.
19. CxA completes LEED Online documentation for project certification.
20. Opposed Season Functional Performance Tests are scheduled by the CM. Opposed Season Functional Performance Tests are executed by CM and Subcontractors, under

supervision of and documented by CxA. Subcontractors correct any issues noted from Opposed Season Functional Performance Tests.

21. CxT participates in End of Warranty Review Meeting with facility maintenance staff to review systems performance. An updated Warranty Phase Issue Log shall be generated, and the CM shall resolve all issues determined by the CxT to be subject to project Warranty requirements.
22. CxA issues Opposed Season Functional Performance Test Report and Warranty Review Meeting Minutes for insertion in Final Commissioning Report.

### 3.2 SYSTEMS TO BE COMMISSIONED

#### A. GENERAL:

1. CxA PFC and FPT for 100% of equipment listed below with the following exceptions:
  - a. Parking Garage is excluded from CxA scope.
  - b. Equipment/systems the Level 4 Shelled areas are excluded from CxA scope with the exception of the HVAC terminal equipment (heaters, air terminal boxes, split systems, etc.) installed to provide tempering to shelled spaces for extended periods prior to fit-outs.
  - c. Terminal Devices (e.g., VAV Boxes, Venturi Valves, Fan Coil Units, Lighting Control Occupancy Sensors, Door Access Controls, Fire Alarm Device verifications, etc.) on Levels 5, 6, and 7 will be commissioned (PFC and FPT) at a 25% sampling rate.

#### B. FIRE SUPPRESSION:

1. Fire Pump and Jockey Pump.
2. Any Facility Management System (FMS) integration or monitoring of commissioned Fire Suppression systems and alarms.
3. FMS System trending data for 100% of the Fire Suppression systems and alarms monitored or controlled by the FMS.

#### C. PLUMBING:

1. Domestic Water Booster Pumps
2. Domestic Hot Water System. Domestic Hot Water System FPT will include sample verification of HW Delivery to most remote fixtures on each level.
3. Safety Plumbing Fixtures (Emergency Eyewashes, Showers).
4. Water Softener System.
5. RO/DI System.
6. Vacuum Systems.
7. Compressed Air Systems.
8. Fuel Oil Storage and Distribution System.
9. Any Facility Management System (FMS) integration or monitoring of commissioned Plumbing systems and alarms.
10. FMS System trending data for 100% of the Plumbing systems and alarms monitored or controlled by the FMS.

#### D. MECHANICAL / HEATING, VENTILATING AND AIR CONDITIONING (HVAC):

1. Heat Recovery Chillers.
2. Condensing Boilers.

3. Heat Exchangers.
4. Steam PRVs.
5. Hydronic Pumps.
6. Fans.
7. Air Handling Units.
8. Fan Coil Units.
9. CRAC Units.
10. VAV Boxes and Venturi Valves:
  - a. Testing will include 8-hour FMS trending in normal operation prior to CxA FPT. Trending data must indicate operation with no deficiencies prior to scheduling CxA FPT.
  - b. Testing will include 4-hour FMS “forced” trending in each operational mode (peak cooling, peak heating, any special sequences like CO2, DCV or dehumidification, any special alarms, etc.) prior to CxA FPT. Trending data must indicate operation with no deficiencies prior to scheduling CxA FPT.
11. Baseboard Heaters.
12. Hydronic Coils.
13. Unit Heaters.
14. Variable Frequency Drives.
15. Humidifiers.
16. Critical Space Pressure Monitors/Alarm Systems.
17. Fuel Oil Storage and Distribution System.
18. Facility Management Systems (FMS) for all commissioned equipment including integration into UK Campus “Tridium” System. CxA FPT of FMS will include sample verification (40 hrs.) of FMS Contractor control device calibrations and BAS point-to-point verifications.
19. FMS trending data for 100% of the HVAC equipment monitored or controlled by the FMS.

E. ELECTRICAL:

1. The Variable Frequency Drives (VFD), Motor Control Panels/Motor Starters for all commissioned equipment.
2. Lighting Control Systems including Scheduled Event control, Occupancy Sensor control and Daylight Harvesting controls.
3. The Emergency Power System including Generators, Paralleling Gear, Transfer Switches, Load Banks and remote annunciation, etc.
4. Power Monitoring and Control System.
5. Normal Power Distribution Equipment monitored by the Power Monitoring and Control System, or any equipment monitored for the purpose of Energy Monitoring for ASHRAE 90.1.
6. Coordination of Breakers in commissioned Electrical Equipment including reviewing the Protective Device Coordination Study and confirming installed settings in the field.
7. Confirming Arc Flash Labeling per Arc Flash Study for commissioned Electrical Equipment.
8. Comprehensive Black Site Test (BST) encompassing the verification of all commissioned systems and Emergency Lighting (interior and exterior) functional performance while under emergency power (loss of normal power – transfer to emergency power – restoration of normal power).
9. Any Facility Management System (FMS) integration or monitoring of commissioned Electrical equipment/systems.
10. FMS System trending data for 100% of the Electrical equipment monitored or controlled by the FMS.

F. ELECTRONIC SAFETY AND SECURITY:

1. Security Systems including Access Control and Video Surveillance.
2. The Fire Alarm System including interface with other systems such as Emergency Power, Fire Suppression, HVAC Systems, Elevators, Stairwell Pressurization, etc. Fire Alarm System Functional Testing will include testing each prototypical alarm sequence in each Fire Alarm Zone and verification of Fire Alarm devices to ensure correct alarm notification, labeling of device, activation of general alarm, etc. CxA Fire Alarm System FPT will be conducted separately from and prior to any required Fire Marshal, Code Official or Authority Having Jurisdiction (AHJ) testing.

G. OTHER SYSTEMS:

1. Elevators (FPT only). Elevator interface operation with Fire Alarm and Emergency Power System only.
2. Renewable Energy Systems (if any).

3.3 RESPONSIBILITIES OF COMMISSIONING TEAM MEMBERS

A. Architect/Engineer (A/E):

1. Document design intent of systems. Respond to any issues developed during the commissioning process that may require clarification of design intent.
2. Provide final copy of Basis of Design Document (BOD) for inclusion in Systems Manual.
3. Provide PDF files of design documents required for Systems Manual.

B. Commissioning Agent (CxA):

1. Facilitate cooperation of CxT in Commissioning work.
2. Provide periodic progress reports of Commissioning status.
3. Review, track and coordinate resolution of non-compliance and deficiencies identified by CxT. Maintain Master Issues List (MIL), Resolution List, & Testing Records. Maintain records of all issues submitted by CxT.
4. Identify Commissioning activities and durations for inclusion into the project schedule by the Construction Manager. Review schedule periodically with CxT to ensure commissioning activities are properly reflected. Participate in the "Reverse Phase Scheduling Meeting" with the CxT to verify construction schedule has allowed sufficient time for completion of commissioning activities.
5. Attend and chair CxT meetings as required.
6. Develop Construction Phase Commissioning Plan including project specific Pre-Functional Checklists and Functional Performance Test procedures.
7. Conduct initial Commissioning Kick-Off Meeting to review Cx Plan and responsibilities of each member of the CxT.
8. Review shop drawings for equipment to be commissioned concurrent with the A/E. Provide submittal review comments to OR and A/E for inclusion in the submittal comments returned to the Construction Manager.
9. Review final A/E approved shop drawings for equipment to be commissioned and modify Cx Plan if required.
10. Review A/E approved control submittal sequences of operation and update Commissioning Plan Functional Performance Tests (FPTs) if required. Work with Construction Manager, FMS Contractor, and AE until sufficient clarity has been obtained, in writing, to update Commissioning Plan FPTs.
11. Review initial outline Owner Training Program developed by Construction Manager.

12. Make periodic site visits to review commissioned equipment installations and execute Pre-Functional Checklists (PFC) in Cx Database. Provide a summary Site Visit Report following each site visit.
13. Attend construction meetings as necessary. Typically, periodic site visits will be scheduled to allow attendance at regularly scheduled contractor progress meetings.
14. Prior to equipment Start-Up, conduct a Commissioning Functional Testing Schedule Workshop (Web Meeting) with the CxT in order to establish a coordinated approach to the integration of the Cx FPT activities within the Master Construction Schedule.
15. As a part of the Commissioning FPT Schedule Workshop:
  - a. Coordinate scheduling and CxA participation in witnessing FMS Start-Up activities (control device calibrations, point-to-point verifications) with FMSC.
  - b. Conduct Cx FMS Trend-Logging Plan Meeting with FMSC to coordinate FMS trending requirements for Cx.
16. Make periodic site visits to witness Subcontractor Testing and Start-Up activities (major equipment/systems).
17. Make periodic site visits to witness FMSC Start-Up activities (40 hrs. total).
18. Review final executed Start-Up Plan systems testing and equipment Start-Up documentation completed by Subcontractors and Vendors prior to Functional Performance Testing to verify systems readiness for CxA testing.
19. Review O&M documentation submitted by Construction Manager for compliance with the project specifications.
20. Review the final Test and Balance report prior to Functional Performance Testing to verify systems readiness for CxA testing. Report any comments to CxT.
21. Provide benchtop testing of BAS system programming (review programming and conduct “dry run” test for each distinct sequence with the FMSC).
22. Review FMS Trend Data prior to Functional Performance Testing to verify systems readiness for testing.
23. Witness FPTs. Document test results and recommend system for acceptance.
24. As a part of the FPTs, verify accuracy of Final TAB Report by witnessing TAB Contractor Verification readings.
25. Monitor the completion of the Owner Training exercises by:
  - a. Attending a sampling of the Owner Training exercises.
  - b. Digitally videotaping O&M staff training sessions.
  - c. Reviewing the final executed Owner Training Program documentation submitted by the CM/Subcontractors at the completion of the Owner Training exercises.
26. Provide Final Commissioning Report, summarizing final disposition of building systems after Functional Performance Testing.
27. Complete LEEDv4 Fundamental Cx and Enhanced Cx Online templates required for project certification.
28. Witness Opposed Season Functional Performance Testing and document results.
29. Conduct End of Warranty Review with CxT and Facilities Staff and document findings for commissioned systems.
30. Append Final Commissioning Report as required for Opposed Season Functional Performance Testing and End of Warranty Review Meeting Minutes.

C. Construction Manager:

1. The Construction Manager leads the commissioning process for the construction team and facilitates cooperation of Subcontractors in executing and completing the commissioning work. In addition to the specific Construction Manager commissioning roles and responsibilities specified herein, the Construction Manager is ultimately

- responsible for ensuring that the Subcontractor commissioning roles and responsibilities of this specification are executed and completed as specified.
2. Ensures resolution of non-compliance and deficiencies of construction related items identified by CxA. Ensures Cx Database Master Issues List (MIL) is updated by Subcontractors to reflect deficiency item corrections for CxA verification. Updates to Cx Database regarding corrections of deficiencies shall be made within two working days of completion of deficiency correction work.
  3. Notifies CxA of completion of Commissioning Activities (e.g., Cx MIL deficiency issue corrections, Start-Up completion, readiness for Functional Performance Testing, etc.) via Cx Database. Updates to Cx Database regarding status of Commissioning activities shall be made within two working days of activity completion.
  4. Review Commissioning Plan, Pre-Functional Checklists, and FPT procedures.
  5. Attend Commissioning Kick-Off Meeting, and other CxT Meetings.
  6. Attend Commissioning Scheduling Meetings to coordinate the integration of the Cx activities in the Master Construction Schedule. Update the Master Construction Schedule to include all Cx activities.
  7. Periodically update Commissioning activities in the construction schedule and provide construction schedule updates to CxT. Attend and participate in the "Reverse Phase Scheduling Meeting" with the CxT to verify construction schedule has allowed sufficient time for completion of commissioning activities.
  8. Submit copies of submittal data for commissioned equipment, with manufacturer Start-Up criteria, Subcontractor/Vendor Start-Up checklists, and Operating and Maintenance criteria to CxA for review simultaneous with A/E review.
  9. Submit copies of final A/E approved submittal data for all commissioned equipment to CxA for record purposes.
  10. Provide necessary personnel to assist CxA with execution of the PFCs during periodic CxA site visits (e.g., provide site and space access, provide ladders, etc.).
  11. Develop, with cooperation of Subcontractors/Vendors, detailed Owner Training Program. Submit initial outline Owner Training Program to CxT for review within 60 days of completion of submittal process (i.e., all equipment/systems approved by A/E). Revise Owner Training Program as required based on CxA review comments.
  12. Oversee development of equipment Start-Up Plan by and execution of equipment Start-Up checks by Subcontractor/Vendors.
    - a. Ensure equipment Start-Up Plan is developed and contains forms for all required Testing and Start-Up activities.
    - b. With Subcontractors, develop overall schedule of Testing and Start-Up activities. Submit final Testing and Start-Up schedule to CxA 30 days prior to start of any such activities to allow CxA to schedule site visit trips to witness activities as required.
    - c. Ensure final executed Start-Up Plan is submitted to CxA prior to start of Functional Performance Testing. Ensure final executed Start-Up plan is organized and contains all documentation required by this specification before submitting to CxA.
  13. Attend the Cx FPT Schedule Workshop (Web Meeting) conducted by CxA with the CxT in order to establish a coordinated approach to the integration of the Cx FPT activities within the Master Construction Schedule. Update the Master Construction Schedule to include all Cx FPT activities. Attend Trend-Logging Plan Meeting with CxA and FMSC.
  14. Assures CxA that equipment and systems are ready for FPTs. Verifies that the following activities are completed, and documentation submitted to CxA as a prerequisite for FPTs:
    - a. All deficiency items noted by CxA prior to Functional Performance Testing are corrected by Contractors and MIL is updated accordingly.
    - b. Executed Start-Up Plan electronic PDF files submitted to CxA including:

- 1) All equipment/systems testing documents completed by Subcontractors.
  - 2) All equipment/systems Start-Up documents completed by Subcontractors/Vendors.
  - 3) All FMS Start-Up documentation completed by FMSC. FMS point-to-point and control device calibration documentation included.
  - 4) Maintenance logs of all interim maintenance tasks performed by Subcontractors/Vendors on all equipment from initial Start-Up through final Owner acceptance, so warranties are not void.
- c. Verify Subcontractors and FMSC have confirmed equipment control integration (LonTalk, BACnet, MODBUS, etc.) into FMS.
  - d. Attend and verify completion of CxA/FMSC benchtop testing of BAS system programming (“dry run” test for each distinct control sequence).
  - e. Final Test and Balance Report is submitted to CxA for review.
  - f. O&M documentation submitted to CxT for review.
  - g. FMS Trend Data is submitted to CxA for review.
  - h. Systems Manual documentation submitted to CxA.
  - i. Final schedule for Owner Training exercises submitted to CxA.
15. Schedule, coordinate and assist CxT in FPTs. Attend and participate in Cx FPTs as required to ensure Subcontractor and Equipment Vendor participation and completion of scheduled FPT activities. At a minimum, the Construction Manager should be present at start and completion of daily FPT activities to ensure Subcontractor/Equipment Vendor participation and completion of Functional Testing work.
  16. Verify Subcontractors correct deficiencies identified during FPTs. Schedule, coordinate and attend any retesting required to verify FPT deficiency corrections.
  17. Coordinate training sessions and execute training per Owner Training Program through the Subcontractors/Vendors.
  18. Submit maintenance logs of all interim maintenance tasks performed by Subcontractors/Vendors on all equipment from initial Start-Up through final Owner acceptance so warranties are not void.
  19. Schedule, coordinate and assist CxT in Opposed Season FPTs. Verify Subcontractors correct deficiencies identified during Opposed Season FPTs. Schedule, coordinate and attend any retesting required to verify Opposed Season FPT deficiency corrections.
  20. Schedule, coordinate, and lead the End of Warranty Review Meeting to review system/equipment performance. Correct any deficiency issues noted during Warranty Period per the Project Warranty Process.

D. Subcontractors and Equipment Vendors:

1. Review Commissioning Plan, Pre-Functional Checklists, and FPT procedures.
2. Attend Commissioning Kick-Off Meeting and other CxT Meetings.
3. Assist CxT with developing a comprehensive Commissioning schedule. Attend Commissioning Scheduling Meetings to coordinate the integration of the Cx activities in the Master Construction Schedule. With Construction Manager, update the Master Construction Schedule to include all Cx activities. Attend and participate in the “Reverse Phase Scheduling Meeting” with the CxT to verify construction schedule has allowed sufficient time for completion of commissioning activities.
4. Notify CxA of completion of Commissioning Activities (e.g., deficiency corrections, Start-Up completion, readiness for Functional Performance Testing, etc.) via Cx Database. Updates to Cx Database regarding status of Commissioning activities shall be made within two working days of activity completion.
5. Provide necessary personnel to assist CxA with execution of the PFCs during periodic CxA site visits (e.g., provide equipment model/serial number list, provide ladders, remove A/C unit covers, open electrical panel covers, etc.).



6. Correct deficiencies of construction related items identified by CxA. Update Cx Database to reflect deficiency item corrections for CxA verification. Updates to Cx Database regarding corrections of deficiencies shall be made within two working days of completion of deficiency correction work.
7. Develop Start-Up Plan with Construction Manager.
8. Prepare Owner Training Program with Construction Manager.
9. Execute all required equipment and systems testing as required by project specifications (e.g., duct pressure testing, piping pressure testing, piping flushing, electrical acceptance testing, etc.). Provide schedule of testing activities to CxA 30 days prior to start of any testing so that CxA may witness a sampling of the testing. Submit completed testing documentation in final executed Start-Up Plan electronic PDF files to CxA for review prior to start of Functional Performance Testing.
10. Attend the Cx FPT Schedule Workshop (Web Meeting) conducted by CxA with the CxT in order to establish a coordinated approach to the integration of the Cx FPT activities within the Master Construction Schedule. With Construction Manager, update the Master Construction Schedule to include all Cx FPT activities. Attend Cx FMS Trend-Logging Plan Meeting with CxA, Construction Manager, and FMSC.
11. Execute equipment Start-Up per Start-Up Plan. Provide schedule of equipment Start-Up activities to CxA 30 days prior to beginning any equipment Start-Up so that CxA may witness a sampling of the equipment Start-Up activities. Submit completed Start-Up documentation in final executed Start-Up Plan electronic PDF files to CxA prior to start of Functional Performance Testing.
12. Execute all periodic maintenance required on started equipment from initial Start-Up of equipment to final acceptance by Owner to prevent equipment warranties from being voided. Document execution of periodic maintenance by signing and dating maintenance logs for each item of equipment. Submit maintenance log documentation in final executed Start-Up Plan electronic PDF files to CxA prior to start of Functional Performance Testing.
13. Ensure installation work is complete, is in compliance with Contract Documents and is ready for Functional Performance Testing.
  - a. Verify all deficiency items noted by CxA prior to Functional Performance Testing are corrected and MIL is updated in Cx Database. Deficiency item status updates should be made within two days of completion of corrective work.
  - b. Verify Start-Up Plan electronic PDF files are forwarded to Construction Manager/CxA.
  - c. Confirm equipment control integration (LonTalk, BACnet, MODBUS, etc.) into FMS.
  - d. With Construction Manager, compile O&M documentation and submit to CxT for review.
  - e. With Construction Manager, compile Systems Manual documentation and submit to CxA.
  - f. Attend and participate in CxA/FMSC benchtop testing of BAS system programming (“dry run” test for each distinct control sequence) as required (for equipment/systems integrated with FMS).
  - g. Notify CxT that equipment and systems are ready for Functional Performance Testing.
14. Provide certified and calibrated instrumentation required to take measurements of system and equipment performance during FPTs.
  - a. Electrical Subcontractor shall provide full capacity Load Banks for Emergency Power System Testing. Full capacity Load Banks may be required during separate testing periods (three or more) depending on construction completion and

equipment readiness for testing. Provide Load Banks for one week testing period for each system test to allow for potential weather events.

15. Execute FPTs developed by CxA as described in contract documents and Commissioning Plan. FPT test results will be documented by CxA.
  - a. Electrical Subcontractor and Lighting Control System Vendor/Authorized Manufacturer Representative shall demonstrate complete operation of Lighting Control Systems during CxA FPT separate from and in addition to any other required Owner Demonstrations or Owner Training (i.e., Lighting Control System Vendor/Authorized Manufacturer Representative shall include separate site visit trip(s) for Commissioning Lighting Control System Functional Performance Testing).
16. Correct deficiencies identified during FPT. Conduct any retesting required to verify FPT deficiency corrections.
17. Execute training per Owner Training Program.
18. Execute Opposed Season FPTs. Correct deficiencies identified during Opposed Season FPTs. Conduct any retesting required to verify Opposed Season FPT deficiency corrections.
19. Subcontractors shall ensure Equipment Provider Technician and/or Authorized Manufacturer's Representative on-site participation in FPT and Opposed Season FPT as required; along with FMSC, to demonstrate commissioned equipment/system operation.
  - a. Equipment Provider Technician and/or Authorized Manufacturer's Representative shall be skilled in software programming and hardware operation to exercise sequences of operation and to correct control deficiencies identified during FPTs and Opposed Season FPTs.
  - b. Equipment Provider Technician and/or Authorized Manufacturer's Representative shall provide instrumentation, computer, software, and communication resources necessary to demonstrate total operation of commissioned equipment during FPTs and Opposed Season FPTs.
20. Attend and participate in the End of Warranty Review Meeting to review system/equipment performance. Correct any deficiency issues noted during warranty period per the Project Warranty Process.

E. Facility Management System Contractor (FMSC):

1. Review Commissioning Plan, Pre-Functional Checklists, and FPT procedures.
2. Attend Commissioning Kick-Off Meeting and other CxT Meetings.
3. Assist CxT with developing a comprehensive Commissioning schedule. Attend Commissioning Scheduling Meeting to coordinate the integration of the Cx activities in the Master Construction Schedule. Update the Master Construction Schedule to include all Cx activities. Attend and participate in the "Reverse Phase Scheduling Meeting" with the CxT to verify construction schedule has allowed sufficient time for completion of commissioning activities.
4. Notify CxA of completion of Commissioning Activities (e.g., deficiency corrections, Start-Up completion, readiness for Functional Performance Testing, etc.) via Cx Database. Updates to Cx Database regarding status of Commissioning activities shall be made within two working days of activity completion.
5. Provide necessary personnel to assist CxA with sample verification of the Pre-Functional Checklists for Facility Management System as required during periodic CxA site visits

- (e.g., provide equipment model/serial number list, provide ladders, remove/open control panel covers, etc.)
6. Correct deficiencies of construction related items identified by CxA. Update Cx Database MIL to reflect deficiency item corrections for CxA verification. Updates to Cx Database MIL regarding corrections of deficiencies shall be made within two working days of completion of deficiency correction work.
  7. Prepare Owner Training Program with Construction Manager.
  8. Following A/E approval of FMS submittal (and prior to FMS Start-Up), provide the following documentation to CxA:
    - a. Master List of FMS Points (see Part 2 FMS Trend Data requirements for Master List Point documentation required).
    - b. Master List of DDC Control Devices (e.g., valves, dampers, actuators, sensors, flow measuring devices, etc.).
    - c. FMS Point-to-Point Verification Checklists to be executed during FMS Start-Up.
    - d. FMS Control Device Checklists to be executed during FMS Start-Up.
  9. Completely install and thoroughly inspect Start-Up, test, adjust, calibrate and document systems and equipment under FMS Contract.
  10. Provide laptop computer, software and training to accommodate TAB Contractor in system balancing.
  11. Maintain database of FMS/DDC parameters submitted by TAB Contractor subsequent to field adjustments and measurements.
  12. Submit schedule of FMS Start-Up activities to CxA 30 days prior to beginning any Start-Up work to allow CxA to witness FMS Start-Up activities. Coordinate and scheduled site visits for CxA to witness FMS Start-Up activities (40 hrs.). Provide on-site technician skilled in software programming and hardware operation to assist CxA during CxA verifications of DDC Control Device calibrations and point-to-point checks required during Start-Up.
  13. Maintain comprehensive records of all FMS Start-Up records including but not limited to system calibration checkout records and point-to-point checklists. Submit completed Start-Up documentation in final executed Start-Up Plan electronic PDF files to CxA prior to start of FPT.
  14. Attend the Cx FPT Schedule Workshop (Web Meeting) conducted by CxA with the CxT in order to establish a coordinated approach to the integration of the Cx FPT activities within the Master Construction Schedule. With Construction Manager, update the Master Construction Schedule to include all Cx FPT activities.
  15. As a part of the Cx FPT Scheduling Workshop (Web Meeting), attend Cx FMS Trend-Logging Plan Meeting with Construction Manager prior to FPT to coordinate FMS trending requirements.
  16. Conduct benchtop testing of BAS system programming (review programming and conduct "dry run" test for each distinct sequence) with CxA and other members of the CxT.
  17. Ensure installation work is complete, is in compliance with Contract Documents and is ready for Functional Performance Testing.
    - a. Verify all deficiency items noted by CxA prior to Functional Performance Testing are corrected and MIL is updated in Cx Database. Deficiency item status updates should be made within two days of completion of corrective work.
    - b. Verify Start-Up Plan electronic PDF files are forwarded to /CxA.
    - c. Confirm equipment control integration (LonTalk, BACnet, MODBUS, etc.) into FMS.
    - d. With Construction Manager, compile O&M documentation and submit to CxT for review.

- e. With Construction Manager, compile Systems Manual documentation and submit to CxA.
  - f. Complete benchtop testing of BAS system programming (review programming and conduct “dry run” test for each distinct sequence) with CxA and other members of the CxT.
  - g. Submit one week of operating FMS trend data (either automatically or manually) to CxA for review to assess the readiness of the specific system to begin on-site FPT. Submit FMS trend data to CxA for review a minimum of seven (7) days prior to scheduled FPT.
  - h. Submit Systems Manual documentation to CxA.
  - i. Notify CxT that equipment and systems are ready for Functional Performance Testing.
- 18. Provide instrumentation, computer, software, and communication resources necessary to demonstrate total operation of building systems and control system equipment during FPTs.
  - 19. Provide on-site technician skilled in software programming and hardware operation to exercise sequences of operation and to correct control deficiencies identified during FPTs. Conduct any retesting required to verify FPT deficiency corrections.
  - 20. Execute training per Owner Training Program.
  - 21. Provide instrumentation, computer, software, and communication resources necessary to demonstrate total operation of building systems and control system equipment during Opposed Season FPTs.
  - 22. Provide on-site technician skilled in software programming and hardware operation to exercise sequences of operation and to correct control deficiencies identified during Opposed Season FPTs. Conduct any retesting required to verify Opposed Season FPT deficiency corrections.
  - 23. Attend and participate in the End of Warranty Review Meeting to review system/equipment performance. Correct any deficiency issues noted during warranty period per the Project Warranty Process.

F. Test, Adjust and Balance (TAB) Contractor:

- 1. Review Commissioning Plan, Pre-Functional Checklists, and FPT procedures.
- 2. Attend Commissioning Kick-Off Meeting and other CxT Meetings.
- 3. Assist CxT with developing a comprehensive Commissioning schedule. Attend Commissioning Scheduling Meetings to coordinate the integration of the Cx activities in the Master Construction Schedule. Update the Master Construction Schedule to include all Cx activities. Attend and participate in the “Reverse Phase Scheduling Meeting” with the CxT to verify construction schedule has allowed sufficient time for completion of commissioning activities.
- 4. Correct deficiencies of construction related items identified by CxA. Update Cx Database MIL to reflect deficiency item corrections for CxA verification. Updates to Cx Database MIL regarding corrections of deficiencies shall be made within two working days of completion of deficiency correction work.
- 5. Notify CxA of completion of Commissioning Activities (e.g., deficiency corrections, Start-Up completion, readiness for Functional Performance Testing, etc.) via Cx Database. Updates to Cx Database regarding status of Commissioning activities shall be made within two working days of activity completion.
- 6. Prepare Owner Training Program with Construction Manager.
- 7. Submit TAB Plan and forms describing methodology for execution of test and balance procedures specific to this project to CxT for review.
- 8. Cooperate with FMSC with execution of required work.

9. Coordinate schedule for all TAB activities with CxA. Provide CxA with final schedule for all TAB activities 30 days prior to starting TAB work to allow CxA to schedule site visits to witness TAB work and readings.
10. Attend the Cx FPT Schedule Workshop (Web Meeting) conducted by CxA with the CxT in order to establish a coordinated approach to the integration of the Cx FPT activities within the Master Construction Schedule. With Construction Manager, update the Master Construction Schedule to include all TAB and Cx FPT activities.
11. Submit copy of Final TAB report to CxA for review prior to start of Functional Performance Testing.
12. Submit Systems Manual documentation to CxA.
13. Provide on-site technician and equipment, as necessary, skilled in TAB procedures to provide verification of equipment and system performance and to correct any TAB deficiencies identified during FPTs. Conduct any retesting required to verify FPT deficiency corrections.
14. Provide on-site technician and equipment, as necessary, skilled in TAB procedures to provide verification of Final TAB Report air and water readings to CxA.
  - a. Final TAB Report Verification Readings are separate from and in addition to TAB Contractor equipment performance verifications during CxA Functional Performance Testing.
  - b. Allow 80 hours for Final TAB Report Verification Readings.
15. Execute training per Owner Training Program.
16. Provide on-site technician and equipment, as necessary, skilled in TAB procedures to provide verification of equipment and system performance and to correct any TAB deficiencies identified during Opposed Season Functional Performance Testing. Conduct any retesting required to verify Opposed Season FPT deficiency corrections.
17. Attend and participate in the End of Warranty Review Meeting to review system/equipment performance and operations. Correct any deficiency issues noted during warranty period per the Project Warranty Process.

### 3.4 COMMISSIONING TEAM (CxT) MEETINGS

- A. CxT meetings will be held periodically as determined by CxA with frequency increasing as construction advances and systems become operational. Attendance is mandatory. CxA will record minutes and attendance. CxA will chair CxT Meetings.
- B. Discussions held in CxT meetings shall include, but not be limited to PFC completion, system/equipment Start-Up, progress, scheduling, testing, documentation, deficiencies and problem resolution.

### 3.5 REPORTING

- A. CxA will provide regular status reports to Construction Manager and Owner, with increasing frequency as construction and Commissioning progresses.
- B. CxA will regularly communicate with members of CxT, keeping them apprised of Commissioning progress.
- C. CxA shall submit non-compliance and deficiency reports to Owner and Construction Manager.
- D. CxA shall provide a Final Commissioning Report to Owner.

### 3.6 SUBMITTAL REVIEWS.

- A. CxA shall review submittals for commissioned equipment concurrently with A/E. CxA shall review submittals:
  - 1. For conformance as it relates to commissioning. Review is primarily intended to aid in development of Functional Testing procedures and only secondarily to verify compliance with equipment specifications.
  - 2. To ensure maintenance and operation requirements are addressed.
  - 3. To verify compliance with the Basis of Design and Owner's Project Requirement information provided by the A/E.
- B. CxA submittal review comments will be submitted to the A/E and OR for review. A/E shall review CxA submittal review comments to determine if the comment should be included in the formal A/E submittal review comments returned to the Construction Manager.
- C. Construction Manager shall submit one copy of the final A/E approved submittal data to the CxA for record purposes.
- D. CxA will update Cx Plan PFCs and FPTs if required based on final A/E approved submittals.

### 3.7 PRE-FUNCTIONAL CHECKLISTS (PFC)

- A. CxA will complete the Pre-Functional Checklists in the Cx Database.
- B. Any deficiency issues noted will be included and tracked in the Master Issues List in the Cx Database.

### 3.8 MASTER ISSUES LIST (MIL)

- A. Commissioning Issues will be tracked from initial notice by CxA through correction via the Cx Database as follows:
  - 1. Open Issue:
    - a. Issues noted by the CxA during periodic site visits will be included in the Cx Database Master Issues List (MIL).
  - 2. Recheck Issue:
    - a. The Subcontractors shall correct the deficiency items and notify the CxA when the items are corrected and ready for CxA verification by updating the deficiency item status from "Open" to "Recheck" in the Cx Database. CxA does not recheck issues until they have been noted ready for "Recheck" in the Cx MIL by the Subcontractor that corrected the issue.
  - 3. Closed Issue:
    - a. The CxA will verify the correction and update the item status from "Recheck" to "Closed" in the Cx Database.

- B. Costs for CxA to reverify any Issue marked by the Subcontractor for CxA recheck and found to be incomplete will be considered Additional Services (see paragraphs below for CxA costs).

### 3.9 START-UP AND INITIAL CHECKOUT

- A. Construction Manager shall schedule all required Systems Testing and Equipment Start-Up with CxT. Subcontractors and Equipment Vendors shall execute Systems Testing and Equipment/Systems Start-Up per the Start-Up Plan.
- B. Construction Manager shall submit final schedule of Testing and Start-Up activities to CxA 30 days prior to any testing or Start-Up activity to allow CxA to witness as required.
- C. Subcontractors shall execute equipment/systems Testing and Start-Up per Start-Up Plan, document results and compile/organize all Start-Up Plan documentation into electronic PDF files (searchable from Table of Contents to each documentation item).
- D. Construction Manager shall forward copy of completed Start-Up Plan PDF files to CxA for review to verify completion of Start-Up activities. Executed Start-Up Plan PDF files must be submitted to CxA prior to start of Functional Testing.
- E. Construction Manager shall clearly list outstanding items or Testing/Start-Up activities that are not completed successfully. Updates to Cx Database regarding corrections of any Testing and Start-Up deficiency issues shall be made within two working days of completion of retesting work.
- F. Construction Manager shall submit an updated Start-Up report and Statement of Correction on any incomplete or non-compliance report.
- G. Any Testing or Start-Up activity marked as completed which is later found to be incomplete and causes re-verification work by CxA, delays during Functional Performance Testing, or retesting will be considered Additional Services (see paragraphs below for CxA costs).

### 3.10 FUNCTIONAL PERFORMANCE TESTING

- A. Objectives and Scope:
  - 1. The objective of Functional Performance Testing is to demonstrate each system is operating according to documented design intent and Contract Documents. Functional Performance Testing facilitates bringing systems from a state of substantial completion to full dynamic operation. Additionally, during Functional Performance Testing, areas of deficient performance are identified and corrected, improving operation and functioning of systems.
  - 2. Each system shall be operated through all modes of operation (occupied, unoccupied, warm-up, cool-down, etc.) where there is a specified system response. Verifying each sequence in the sequences of operation is required.
  - 3. Functional Performance Testing is separate from, and in addition to, any other Start-Up, Testing, Demonstration or Commissioning required in other Sections of the Project Manual.
  - 4. The CxA will document the Functional Performance Testing utilizing the Cx Database.
- B. Initial Facility Management Systems (FMS) Checkout:

1. The FMS must be verified for correct operation by the FMSC prior to the CxA witnessing and documenting the FPTs. The Cx FPTs are intended to document completion of the FMS and proper operation of the Commissioned Systems. The Cx FPTs are not intended to serve as a “Quality Control” measure or “Punch List” for the Construction Manager, Facility Management System Contractor or other Subcontractor. The CxA FPTs are not intended to serve as “Beta” testing for the FMS.
2. Prior to CxA FPT, FMSC will complete benchtop testing of BAS system programming (review programming and conduct “dry run” test for each distinct sequence) with CxA and other members of the CxT.
3. The intent of this process is for the FMSC to physically check and verify proper equipment and integrated systems operation for all operational sequences prior to the CxA witnessing and documenting the actual FPT.

C. Coordination and Scheduling:

1. Prior to equipment Start-Up, CxA will conduct a FPT Scheduling Meeting with the CxT in order to integrate the FPT activities into the Master Construction Schedule. The Construction Manager will update the Master Construction Schedule to include all Cx activities.
2. Construction Manager will provide sufficient notice to CxA regarding completion schedule for equipment and systems. Construction Manager will schedule FPTs with CxT. CxA shall witness and document functional testing of equipment and systems. Contractors shall execute tests under direction of CxA.
3. Construction Manager must allow sufficient time in the Construction Schedule to complete the FPT prior to Owner move-in/occupancy. This includes completing the commissioned systems installations, Testing, Start-Up, and all prerequisites required for Functional Performance Testing. CxT will participate in Attend and participate in a “Reverse Phase Scheduling Meeting” to verify construction schedule has allowed sufficient time for completion of commissioning activities. Time and expenses for CxA to complete Functional Performance Testing during Owner move-in or after Owner occupancy will be considered Additional Services (see paragraphs below for CxA costs).
4. FPTs are Integrated Systems Tests. For example, the Fire Alarm System must be complete and ready for operation in order to test the AHU Fire Alarm shutdown sequence. All equipment and systems associated with a FPT must be complete and ready for testing.
5. In general, the Functional Performance Testing will be organized/scheduled based on the following hierarchy:
  - a. Project completion. Some areas of the building may be complete before other areas. Priority will be given to these area systems assuming they can be grouped together for Integrated Systems Testing.
  - b. Integrated Systems. The testing will be organized into groups of Integrated Systems from larger systems down to smaller systems (e.g., Chilled Water System, Air Handling System, Terminal Units, etc.).
  - c. Systems with limited integration and “stand alone” systems (e.g., Unit Heater or Fan only being monitored by the FMS).
6. FPTs will be grouped together to allow testing to be conducted over weekly testing periods to maximize testing efficiencies. Single systems testing spread out over multiple testing weeks will not be allowed. In general, the testing will begin on Monday and end on Friday afternoon. The actual testing hours will be coordinated with the Construction Manager based on the amount of testing work to be completed during that week. Construction Manager and Subcontractors should be prepared to work from 8:00AM to 5:00PM each day to complete the testing for that weekly period.



7. Some systems may require testing after normal working hours (e.g., Lighting Controls, Fire Alarm System integration, etc.) to avoid conflicts with ongoing work or adjacent building operations. This testing will be scheduled for evenings (Monday – Thursday) or early mornings (Tuesday – Friday). Weekend testing will only be allowed if agreed upon by CxT in advance.

D. Prerequisites for Functional Performance Testing:

1. All MIL Issues noted prior to Functional Testing must be corrected and updated in the Cx Database.
2. Construction Manager must submit the fully executed Start-Up Plan electronic PDF files including all equipment and systems testing documentation (e.g., duct and piping pressure testing, cleaning/flushing documentation, etc.), and all executed start up and initial check-out documentation.
3. TAB Contractor shall complete all test and balance work and submit Final Test and Balance Report for review by A/E and CxA. A/E shall review Final Test and Balance Report for acceptance. CxA review of Final TAB Report is cursory (not for acceptance) and is primarily intended to ensure that the equipment and systems are ready to be functionally tested.
4. FMSC must submit all FMS Start-Up and initial checkout documentation (including point-to-point verifications, etc.) in the Start-Up Plan.
5. Commissioned equipment control integration (e.g., LonTalk, BACnet, MODBUS, etc.) to the Control System must be complete and verified by the Equipment Provider and FMSC.
6. FMSC must complete benchtop testing of BAS system programming (review programming and conduct “dry run” test for each distinct sequence) with CxA and other members of the CxT.
7. FMSC must complete FMS system trending data set-up and reporting and submit one week of operating data (either automatically or manually) for CxA review to assess the readiness of the specific system to begin on-site Functional Testing. Operating data must be submitted at least seven (7) days prior to anticipated start of FPT.
8. FMS network and front end must be complete and operational. FMS graphics must be complete.
9. O&M documentation must be submitted to CxA for review.
10. Final schedule of Owner Training exercises must be submitted to CxA prior to scheduling Functional Performance Tests.
11. Systems Manual documentation must be submitted to CxA.

E. Final Test and Balance (TAB) Report Verification:

1. TAB Contractor will allow for 80 hours of Final TAB Report verification readings (both air and water readings). Final TAB Report Verification readings to be focused on critical areas (starting with those equipped with pressure monitors).
2. TAB Contractor will re-read devices with the same equipment used in the TAB process in the presence of the CxA. The devices will be selected at random by the CxA and the CxA will record the TAB Verification readings. All Verification readings must be within  $\pm 10\%$  of final TAB report readings.
3. Readings outside of the  $\pm 10\%$  tolerance in more than 10% of the TAB Verification readings will indicate failure of the TAB Verification testing and require re-testing. TAB Subcontractor will correct all deficient readings and schedule TAB Verification re-testing with CxA. The CxA will randomly select a different sample of the TAB final report readings for the Verification re-testing.
4. Readings outside of the  $\pm 10\%$  tolerance in more than 10% of the TAB Verification re-testing readings will indicate failure of the Verification re-test and will require a second re-testing. TAB Subcontractor will correct all deficient readings and schedule second TAB Verification re-testing with CxA. The TAB Verification re-testing procedures will be

repeated a second time again utilizing a different sample of the final TAB report readings selected at random by the CxA.

5. Readings outside of the  $\pm 10\%$  tolerance in more than 10% of the second TAB Verification re-testing readings will require TAB Verification retesting for all the TAB final report readings.
6. All TAB verification retesting will be completed at no additional cost to the Owner. See paragraphs below for CxA costs for retesting.

### 3.11 DOCUMENTATION, NON-CONFORMANCE AND APPROVAL OF TESTS

#### A. Documentation:

1. CxA will witness and document results of FPT utilizing Cx Database. FPTs are made available to the CxT in the Cx Database for review and approval prior to testing. CxA will include the executed FPTs in the Final Commissioning Report.

#### B. Non-Conformance:

1. CxA will record results of FPT. Deficiency or Non-Conformance Issues will be noted and reported to Construction Manager and Owner in the Cx Master Issues List (Cx MIL).
2. Corrections of minor deficiencies identified may be made during tests at discretion of CxA. In such cases, deficiency and resolution will be documented in the FPT.
3. Every effort will be made to expedite testing and minimize unnecessary delays, while not compromising integrity of tests. CxA shall not overlook deficient work or loosen acceptance criteria to satisfy scheduling or cost issues unless directed to do so by the Owner.
4. Deficiency and Non-Conformance Issues are handled in the following manner:
  - a. When there is no dispute on Deficiency Issue and Construction Manager accepts responsibility for remedial action:
    - 1) CxA documents Deficiency Issue and Subcontractors response and intentions in the Cx MIL and they go on to another test or sequence.
    - 2) All issues are made available to CxT via the Cx MIL and written Cx Site Visit Reports.
    - 3) Subcontractor corrects deficiency and updates Issue status to "Recheck" in the Cx MIL.
    - 4) Construction Manager reschedules test with Subcontractor.
    - 5) CxA witnesses retesting and documents results. Corrected issues will be updated in the Cx MIL to "Closed".
    - 6) See paragraphs below for CxA costs for retesting and reverification work.
  - b. When there is a dispute about a Deficiency Issue, regarding whether it is a deficiency or who is responsible:
    - 1) CxA documents Deficiency Issue and Subcontractors response and intentions in the Cx MIL and they go on to another test or sequence.
    - 2) All issues are made available to CxT via the Cx MIL and written Cx Site Visit Reports.
    - 3) Construction Manager facilitates resolution of deficiency. Other parties are brought into discussions as needed. Final interpretive authority is with A/E. Final acceptance authority is with the Owner.
    - 4) Construction Manager documents resolution process.

- 5) Once interpretation and resolution have been decided, appropriate Subcontractor corrects deficiency and updates Issue status to "Recheck" in the Cx MIL.
- 6) Construction Manager reschedules test and test is repeated until satisfactory performance is achieved.
- 7) CxA witnesses retesting and documents results. Corrected issues will be updated in the Cx MIL to "Closed".
- 8) See paragraphs below for CxA costs for retesting and reverification work.

C. Costs for CxA MIL Verifications and Retesting:

1. Cost for Subcontractor to correct and retest any PFC or FPT deficiency item, if they are responsible for deficiency, will be theirs. If Subcontractor is not responsible, cost recovery for retesting will be negotiated with CM.
2. CxA has included a seventy (70) hour allowance for delays, reverifications and retesting work to be used over the duration of the Cx process. CxA will provide status of retesting allowance to CxT in periodic site visit reports. CxA labor and expenses for any of the following work beyond the 70 hour allowance will be considered Additional Services to be negotiated with the Owner. CxA Additional Service costs must be approved by the Owner for CxA to schedule retesting site visits.
  - a. Excessive Deficiency Issue Verifications (for excessive/repeated issues).
  - b. Any reverification of a Deficiency Issue when the Issue is marked as corrected by the CM/Subcontractor and found to remain deficient by CxA on verification.
  - c. Delays during Functional Performance Testing caused by excessive or repeated testing failures.
  - d. Any Functional Performance Testing or Opposed Season Functional Performance Testing MIL Issue Verifications or Retesting (for any reason).

D. Costs for Functional Performance Test Additional Services:

1. Cost for CM/Subcontractor to complete Functional Performance Testing Additional Services will be theirs.
2. Additional Services for CxA to complete any Functional Performance Testing during Owner move-in or after Owner occupancy (regardless of whether the testing was attempted prior to that point or not) will be considered Additional Services to be negotiated with the Owner. CxA Additional Service costs must be approved by the Owner for CxA to schedule testing site visits during Owner move-in or after Owner occupancy.

E. Approval:

1. CxA notes each satisfactorily demonstrated function on test form. CxA, A/E and Owner provide formal approval of FPT. CxA recommends acceptance of each test to Owner. The Owner gives final approval, providing a signature to Construction Manager.

3.12 TRAINING OF OWNER PERSONNEL

- A. CM/Subcontractors/Vendors will provide complete training in start-up, operation and maintenance of all equipment under contract.
- B. Construction Manager and Subcontractors will be responsible for

1. Developing Owner Training Program.
2. Scheduling of Owner Training with Owner and Contractors. Owner Training Schedule will be provided to CxA to allow CxA to schedule site visits to attend training sessions.
3. Execution of Owner Training.
4. Documentation of completed Owner Training.

C. CxA will monitor the completion of the Owner Training as follows:

1. CxA will review Owner Training Program submitted by Construction Manager.
2. CxA will attend a sampling of the Owner Training Sessions.
3. CxA will digitally videotape O&M staff training sessions for commissioned equipment/systems.
4. CxA will review the final executed Owner Training Program documentation.

D. General sequencing of the development of the Owner Training Program and completion of the Owner training is as follows:

1. CxA will review the Owner training requirements (including preparation of Owner Training Program) with the Construction Manager and Subcontractors at the Commissioning Kick-Off meeting.
2. Construction Manager will prepare an outline of the Owner Training Program within 30 days of completion of submittal process (i.e., all equipment/systems approved by A/E). Submit Owner Training Program outline to CxT for review.
3. Schedule for Owner Training sessions will be reviewed and updated as required throughout the project construction by CxT at Construction Manager Progress Meetings (attended by CxA during periodic site visits). Construction Manager will submit final Owner Training Schedule to CxT 30 days prior to start of training exercises to allow CxA to witness the Owner training exercises.
4. Subcontractors and Equipment Vendors will execute training exercises per Training Program including any required comprehension testing and continuing Owner Training exercises.
5. Construction Manager will submit a copy of the following Owner Training documentation to CxA on completion of Owner Training exercises (CxA copy is in addition to any copies required by other specifications for Owner use):
  - a. Final executed Owner Training Program and Owner Training Manuals including all training documentation (sign-in sheets, handouts, comprehension tests, etc.). Copy shall be in "searchable" PDF format.

### 3.13 OPPOSED SEASON FUNCTIONAL PERFORMANCE TESTING

- A. During Warranty Period, seasonal testing (tests delayed until weather conditions are closer to system's design) will be completed as part of this contract. Construction Manager will coordinate this activity.
- B. One Opposed Season Test will be conducted (during peak conditions opposite initial Functional Performance Testing). Only seasonally impacted sequences and capacities will be retested during the opposed season test (e.g., safeties and fire alarm interlocks will not be retested during the Opposed Season Tests).
- C. Tests will be executed, documented and deficiencies corrected by appropriate contractor(s), with facilities staff and CxA witnessing.

- D. CxA will incorporate final updates to the Final Cx Report as necessary.

### 3.14 END OF WARRANTY REVIEW MEETING

- A. CxA will participate in an End of Warranty Review with the Owner and O&M staff to review the facility and commissioned systems performance. End of Warranty Review will be completed 10-11 months into the one-year warranty period.
- B. The End of Warranty Review shall address the following (for commissioned systems only):
  - 1. Any outstanding construction deficiencies.
  - 2. Any outstanding warranty period deficiencies identified by the CxA during Opposed Season Testing.
  - 3. Any deficiencies that were noted by the Operations Staff during the warranty period.
  - 4. Any problems noted by the Operations Staff related to operating the facility as originally intended.
- C. Any issues covered under a warranty or under the original Contract Documents will be assigned to the Construction Manager for correction per the project warranty process. CM/Subcontractor will correct the issue and notify the Owner of correction. Subcontractor shall provide any retesting or photo documentation required by Owner to verify issue corrections.
- D. CxT will determine a process for resolution, including the party responsible for resolution (e.g., A/E, Facility Staff, etc.), for all other non-warranty issues.
- E. CxA will document resolution process for all issues in meeting minutes and distribute to the CxT.

### 3.15 SAMPLE COMMISSIONING DOCUMENTATION

- A. Sample Pre-Functional Checklist (PFC), Functional Performance Test (FPT) and Cx BMS Trend Data/Report are included on the following pages.



## Sample HVAC Pre-Functional Checklist

PROJECT:  
 LOCATION:

SYSTEM/UNIT: HVAC Equipment/ AHU

Tested By:  
 Date:

### Model Verification - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 Specified Manufacturer				
2 Installed Manufacturer				
3 Specified Model #				
4 Installed Model #				
5 Serial #				
6 Specified Airflow				
7 Specified Static Pressure				

### General - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 Inspection and Access doors are operable				
2 Casings Undamaged				
3 Equipment has been cleaned and finish touched up if necessary.				
4 Manufacturer's required maintenance clearance provided for service.		23 05 10 1.8 E		
5 Specified unit mounting requirements		Schedule Note 10		
6 Verify unit is mounted per plans and specs		Schedule Note 10		
7 Specified access doors		Schedule Note 4		
8 Verify access doors are provided per plans and specs		Schedule Note 4		
9 Access doors are installed so no air leaks through door				
10 Access doors open against air pressure				
11 Specified lights are provided per plans and specs		Schedule Note 5		
12 Verify lights are installed in locations per plans and specs		Schedule Note 5		
13 4" housekeeping pad is provided under all floor mounted equipment		23 05 48 3.4 G		
14 Flexible pipe connectors are installed on all equipment supported by vibration isolation		23 05 48 3.4 L		

### Accessories - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 Specified accessories are provided (1)		Schedule Note 12		
2 Verify accessories are provided (1)		Schedule Note 12		
3 Specified accessories are provided (2)		Schedule Note 11		
4 Verify accessories are provided (2)		Schedule Note 11		
5 UV lights are factory installed downstream of cooling coils		Schedule Note 16		



## Sample HVAC Pre-Functional Checklist

PROJECT:  
 LOCATION:

SYSTEM/UNIT: HVAC Equipment- AHU

Tested By:  
 Date:

### Ductwork - HVAC Equipment - AHU

Verification	Response	Notes	By	Date/Time
1 Ductwork is connected to unit with flexible connections		Schedule Note 19		
2 Duct installation is complete				
3 Access doors installed and labeled at fire / smoke dampers, fire dampers, and smoke detectors		23 31 13 3.1 E		

### Controls - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 Return duct smoke detector is installed in return duct		Schedule Note 19		
2 Supply duct smoke detector is installed after supply fan		Schedule Note 13		
3 Specified return air sensors are installed per the controls schematic		M06-02 Detail C3		
4 Verify return air sensors are installed per the controls schematic		M06-02 Detail C3		
5 Specified mixed air sensors are installed per the controls schematic		M06-02 Detail C3		
6 Verify mixed air sensors are installed per the controls schematic		M06-02 Detail C3		
7 Specified discharge air sensors are installed per the controls schematic		M06-02 Detail C3		
8 Verify discharge air sensors are installed per the controls schematic		M06-02 Detail C3		
9 Specified automatic dampers are installed per the controls schematic		M06-02 Detail C3		
10 Verify automatic dampers are installed per the controls schematic				

### Labeling - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 Permanently fasten labels are on each major item of mechanical equipment. Labels are located in accessible and visible areas.		23 05 53 2.3 A		
2 Duct is labeled with contents and flow direction		23 05 53 2.3 C		

### Insulation - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 Specified Air Duct Insulation requirements:		23 07 13 4.1 - EXPOSED: 2" Rigid Fiberglass Board; CONCEALED: 2" Flexible Fiberglass with Vapor Barrier		
2 Verify Air Duct Insulation requirements:		23 07 13 4.1		

### Startup Mechanical - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 Contractor's executed startup procedures have been submitted for review				



## Sample Electrical Pre-Functional Checklist

PROJECT:  
 LOCATION:  
 PROJECT #:

SYSTEM/UNIT: Emergency Equipment/GEN 1  
 AREA: Exterior

### Documentation - Emergency Equipment/GEN 1

Verification	Response	Notes	By	Date/Time
1	Manufacturer - Specified			
2	Manufacturer - Installed			
3	Capacity / Power Factor - Specified			
4	Capacity / Power Factor - Installed			
5	Voltage - Specified			
6	Voltage - Installed			
7	Engine Model			
8	Engine Serial #			
9	Generator Model			
10	Generator Serial #			

### Installation - Emergency Equipment/GEN 1

Verification	Response	Notes	By	Date/Time
1	Generator installation is clean and clear of debris			
2	Generator is secured to concrete housekeeping pad			
3	Generator installed on steel base			
4	Generator mounted on spring isolators			
5	Provided with flex connection between radiator and exhaust plenum			
6	Flexible fuel lines provided for connection to generator			
7	Provided with flex connection exhaust silencer			
8	All conduit connections consist of flex conduit			
9	Generator installed to provide access for periodic maintenance			
10	Provided with electrically powered, thermostatically controlled jacket water heater(s) to maintain a minimum specified water jacket temperature under ambient temperatures			
11	Critical grade exhaust silencer provided and installed per design			
12	Provided with gas proof, stainless steel, flexible exhaust bellows with threaded NPT or flanged connections			
13	Silencer provided w/ condensate drain			
14	Rain cap and bird screen provided for exhaust pipe			
15	A lube oil drain is extended beyond the skid base			





## Sample Electrical Pre-Functional Checklist

PROJECT:  
 LOCATION:  
 PROJECT #:

SYSTEM/UNIT: Emergency Equipment/GEN 1  
 AREA: Exterior

### Installation - Emergency Equipment/GEN 1

Verification	Response	Notes	By	Date/Time
16	Provided with engine mounted combustion air intake filter with a "blocked filter" indicator			
17	Emergency stop pushbutton is installed outside of generator enclosure			
18	Remote annunciation is provided and wired to the generator (annunciator panel, BAS)			
19	Equipment grounding conductor is installed from generator to grounding electrode system. Flexible jumper is provided between base and isolated generator			
20	Specified system grounding			
21	Verify system is grounded as specified			

### Display - Emergency Equipment/GEN 1

Verification	Response	Notes	By	Date/Time
1	Specified display requirements			
2	Verify display provided as specified			
3	Display shock mounted to genset			

### Starting System - Emergency Equipment/GEN 1

Verification	Response	Notes	By	Date/Time
1	Correct number of starting motors are provided			
2	Specified starting system and battery accessories			
3	Verify starting and battery accessories are provided			
4	Automatic battery charger is provided			
5	Specified battery charger features and options			
6	Verify battery charger features are provided			



## Sample Electrical Pre-Functional Checklist

PROJECT:  
 LOCATION:  
 PROJECT #:

---

SYSTEM/UNIT: Emergency Equipment/GEN 1  
 AREA: Exterior

### Generator Room \ Enclosure - Emergency Equipment/GEN 1

Verification	Response	Notes	By	Date/Time
1 Room / enclosure is complete (including doors)				
2 Room / enclosure is provided with thermostatically operated space heater				
3 Louver / damper installation is complete				
4 Room / enclosure provided with bird / rodent screens				
5 Room / enclosure provided with emergency lighting				
6 Convenience receptacles provided				
7 Specified sound attenuation provisions				
8 Verify sound attenuation provisions are provided				

Sample



## Sample HVAC Functional Performance Test

PROJECT:  
 LOCATION:

SYSTEM/UNIT: AHU

Tested By:  
 Date:

### 1.01 Pre-test Set points & Conditions - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 RECORD: OA Flow				
2 RECORD: Damper Pos				
3 RECORD: OA Temp°F				
4 RECORD: RA Humidity %RH				
5 RECORD: CHW Valve Status/Command				
6 RECORD: CHW Coil LAT				
7 RECORD: VFD - 1 Status/Command				
8 RECORD: VFD - 1 Speed %				
9 RECORD: VFD - 2 Status/Command				
10 RECORD: VFD - 2 Speed %				
11 RECORD: SA Temperature Setpoint/Actual	°F			
12 RECORD: SA Flow Setpoint/Actual				
13 RECORD: Interlocked Exhaust Fan(s) Status/Command				
14 RECORD: Coil DP Setpoint/Actual				
15 RECORD: 2/3 Duct Static Pressure				

### 1.02 Post-test Set points - HVAC Equipment/ AHU

Verification	Response	Notes	By	Date/Time
1 RESET: Upon completion of test reset set points to pre-test set point values				

Sample



## Sample HVAC Functional Performance Test

PROJECT:  
 LOCATION:

SYSTEM/UNIT: HVAC Equipment/AHU

Tested By:  
 Date:

### 2.01 Unit - On - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Unit is commanded on via building BMS				
2 EXPECTED RESPONSE: Fire/Smoke Dampers are fully opened				
3 EXPECTED RESPONSE: Supply fan is energized and runs continuously during unit operation				
4 EXPECTED RESPONSE: Interlocked Exhaust Fan(s) is energized and runs continuously during unit operation				
5 EXPECTED RESPONSE: VFD(s) modulates to maintain constant flow as filters get loaded				
6 EXPECTED RESPONSE: OA damper opens to minimum airflow position				
7 EXPECTED RESPONSE: RA damper opens fully				
8 EXPECTED RESPONSE: OA damper modulates to maintain OA flow setpoint				
9 EXPECTED RESPONSE: Cooling coil valve modulates to maintain LAT setpoint (50°F, adj.)				
10 VERIFY: Supply fan minimum runtime is programmed				

### 2.02 Cooling Coil Control HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate OA temp > 45°F				
2 EXPECTED RESPONSE: Cooling Coil is enabled				
3 EXPECTED RESPONSE: Cooling coil control valve modulates to maintain LAT setpoint of 50°F (adj.)				



## Sample HVAC Functional Performance Test

PROJECT:  
 LOCATION:

SYSTEM/UNIT: HVAC Equipment/AHU

Tested By:  
 Date:

### 2.03 Supply Air Reset - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate return air temperature > return air high limit				
2 EXPECTED RESPONSE: Supply air temperature setpoint is reset downward				
3 RECORD: RA Temperature High Limit Setpoint	°F			
4 RECORD: Supply Air Temperature Setpoint/Actual	°F			
5 TEST PROCEDURE: Simulate return air temperature < return air low limit				
6 EXPECTED RESPONSE: Supply air temperature setpoint is reset upward				
7 RECORD: RA Temperature Low Limit Setpoint	°F			
8 RECORD: Supply Air Temperature Setpoint/Actual	°F			

### 2.04 Unit - Off - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Unit is commanded to shut down via building BMS				
2 EXPECTED RESPONSE: OA damper closes				
3 EXPECTED RESPONSE: Coil opens				
4 EXPECTED RESPONSE: Supply fan deenergizes				
5 EXPECTED RESPONSE: Interlocked exhaust fan(s) deenergizes				

### 3.01 High Space Temperature Alarm - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate space temperature greater than the cooling setpoint by a "user defined amount"				
2 EXPECTED RESPONSE: Alarm is sent to BMS				

### 3.02 Low Space Temperature Alarm - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate space temperature lower than the cooling setpoint by a "user defined amount"				
2 EXPECTED RESPONSE: Alarm is sent to BMS				



## Sample HVAC Functional Performance Test

PROJECT:  
 LOCATION:

SYSTEM/UNIT: HVAC Equipment/AHU

Tested By:  
 Date:

### 3.03 High Return Air Humidity - AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate RA humidity > 70% (adj.)				
2 EXPECTED RESPONSE: Alarm is sent to BMS				

### 3.04 Low Return Air Humidity - AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate RA humidity < 35% (adj.)				
2 EXPECTED RESPONSE: Alarm is sent to BMS				

### 3.05 Supply Fan Failure - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate supply fan status does not match command				
2 VERIFY: Remaining supply fan(s) ramp up to maintain supply airflow setpoint				
3 EXPECTED RESPONSE: Alarm is sent to BMS				
4 TEST PROCEDURE: Simulate supply fan runtime exceeded				
5 EXPECTED RESPONSE: Alarm is sent to BMS				
6 RECORD: Runtime Alarm Setpoint				

### 3.06 Pre Filter DP Alarm - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate DP across pre filter > pre filter DP setpoint				
2 EXPECTED RESPONSE: Alarm is sent to BMS				

### 3.07 Final Filter DP Alarm - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate DP across final filter > final filter DP setpoint				
2 EXPECTED RESPONSE: Alarm is sent to BMS				

### 3.08 Smoke/Fire Detection Alarm - HVAC Equipment/AHU

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate smoke detected/emergency shutdown signal				
2 EXPECTED RESPONSE: Unit shuts down according to shutdown sequence				
3 EXPECTED RESPONSE: Alarm is sent to BMS				



## Sample Plumbing Systems Functional Performance Test

PROJECT:  
 LOCATION:

SYSTEM/UNIT: Domestic Hot Water System

### 1.00 Sample FPT - Domestic Hot Water System

Verification	Response	Notes	By	Date/Time
1 Sample FPT				

### 1.02 Pre-test Setpoints & Conditions - Domestic Hot Water System

Verification	Response	Notes	By	Date/Time
1 RECORD: WH-A Status				
2 RECORD: WH-B Status				
3 RECORD: Recirculation Pump A Status				
4 RECORD: Recirculation Pump B Status				
5 RECORD: DHWR Temperature				
6 RECORD: DHWS Leaving WH-A Temperature Setpoint/Actual				
7 RECORD: DHWS Leaving WH-B Temperature Setpoint/Actual				
8 RECORD: WH-A Circulation Pump Status				
9 RECORD: WH-B Circulation Pump Status				
10 RECORD: WH-A Temperature Control Valve Position (If available)				
11 RECORD: WH-B Temperature Control Valve Position (If available)				
12 RECORD: HW Temperature to HX				
13 RECORD: HW Temperature Leaving HX				
14 RECORD: Mixing Valve Setpoint/Actual Leaving Water Temperature				

Sample



## Sample Plumbing Systems Functional Performance Test

PROJECT:  
 LOCATION:

**SYSTEM/UNIT: Domestic Hot Water System**

### 2.01 System Enabled - Domestic Hot Water System

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Domestic Water System is enabled				
2 EXPECTED RESPONSE: Domestic Water Recirculation Pumps are energized manually				
3 EXPECTED RESPONSE: Active Water Heater's circulation pump is energized				
4 EXPECTED RESPONSE: Water Heaters Temperature Control Valve modulates to maintain the LWT Setpoint				
5 EXPECTED RESPONSE: Mixing Valve maintains setpoint				
6 TEST PROCEDURE: Water Heater LWT is above or below setpoint				
7 EXPECTED RESPONSE: Water Heaters Temperature Control Valve modulates to maintain the LWT Setpoint				
8 RECORD: DHWS Leaving WH-A Temperature Setpoint/Actual				
9 RECORD: DHWS Leaving WH-B Temperature Setpoint/Actual				
10 EXPECTED RESPONSE: Mixing Valve maintains setpoint				

### 2.02 System Disabled - Domestic Hot Water System

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Domestic Water System is disabled				
2 EXPECTED RESPONSE: Domestic Water Recirculation Pumps are de-energized manually				
3 EXPECTED RESPONSE: Water Heater's circulation pumps are de-energized				
4 EXPECTED RESPONSE: Water Heaters Temperature Control Valves open to bypass				

### 3.01 System Alarm - Domestic Hot Water System

Verification	Response	Notes	By	Date/Time
1 TEST PROCEDURE: Simulate an alarm from the system				
2 EXPECTED RESPONSE: Alarm is sent to BAS				





## Sample Electrical Functional Performance Test

PROJECT:  
 LOCATION:

SYSTEM/UNIT: Lighting Controls

### 1.0 Test Procedure: Occupancy Sensor

Verification	Response	Notes	By	Date/Time
1	VERIFY A minimum of 20% of occupancy sensors are to be functionally tested. Document room tested and results of device tested.			
2	VERIFY by visual response that:			
3	PROCEDURE Device senses space is occupied and turns lights ON.			
4	PROCEDURE Device senses space is un-occupied.			
5	PROCEDURE Device turns lights off after preset time delay. (10-30 minutes)			
6	PROCEDURE Local switch operates properly, if applicable.			
7	PROCEDURE Device location during time of functional testing is indicated below:			

### 1.1 Device Location: Occupancy Sensor

Verification	Response	Notes	By	Date/Time
1	RECORD Devices installed in the following areas were demonstrated to operate, with any issues noted on the MIL. See 'Comments' section for device location.			
2	Level 1			

### 1.2 Device Location: Occupancy Sensor

Verification	Response	Notes	By	Date/Time
1	Level 2			

### 1.3 Device Location: Occupancy Sensor

Verification	Response	Notes	By	Date/Time
1	Level 3			

### 1.4 Device Location: Occupancy Sensor

Verification	Response	Notes	By	Date/Time
1	Level 4			

### 1.5 Device Location: Occupancy Sensor

Verification	Response	Notes	By	Date/Time
1	Level 5			

### 1.6 Device Location: Occupancy Sensor

Verification	Response	Notes	By	Date/Time
1	Level 6			



## Sample Electrical Functional Performance Test

PROJECT:  
 LOCATION:

SYSTEM/UNIT: Lighting Controls

Verification	Response	Notes	By	Date/Time
1	VERIFY the following features are provided:			
2	3.5 inch touch screen			
3	On/Off buttons for each group of fixtures			
4	Dimmer for each group of fixtures			
5				

**2.1 Device Location: Graphic Wall Pod**

Verification	Response	Notes	By	Date/Time
1	RECORD Device(s) installed in the following areas were demonstrated to operate, with any issues noted on the MIL. See 'Comments' section for additional device location.			
2	Level 1			

**2.2 Device Location: Graphic Wall Pod**

Verification	Response	Notes	By	Date/Time
1	Level 2			

**2.3 Device Location: Graphic Wall Pod**

Verification	Response	Notes	By	Date/Time
1	Level 3			

**2.4 Device Location: Graphic Wall Pod**

Verification	Response	Notes	By	Date/Time
1	Level 4			

**2.5 Device Location: Graphic Wall Pod**

Verification	Response	Notes	By	Date/Time
1	Level 5			

**2.6 Device Location: Graphic Wall Pod**

Verification	Response	Notes	By	Date/Time
1	Level 6			

Sample



## Sample Electrical Functional Performance Test

PROJECT:  
 LOCATION:  
 PROJECT #:

SYSTEM/UNIT: Emergency Power System/G1

### 1.0 Load Testing - Emergency Power System/G1

Verification	Response	Notes	By	Date/Time
1	VERIFY Transfer switches are complete, testing coordinated concurrently with generator testing.			
2	VERIFY Load bank provided is fully rated 0.8PF device.			
3	PROCEDURE: From "cold start", disconnect primary power to all ATS's.			
4	RECORD: Time delay on start.			
5	RECORD: Time taken to reach operating speed.			
6	RECORD: Voltage and frequency overshoot.			
7	RECORD: Time taken to achieve steady state condition.			
8	PROCEDURE: 100% full load test allowed to run for 2 hours. (Intent of NFPA 110 is to use building loads).			
9	RECORD: Voltage, frequency, load current, fuel pressure, oil pressure, and coolant temperature recorded at first load acceptance and in 15 minute intervals thereafter.			
10	PROCEDURE: Restore primary power to each ATS.			
11	RECORD: Generator cooldown and shutdown period.			
12	PROCEDURE: Generator allowed to cool for 5 minutes.			
13	PROCEDURE: Generator started individually and closed to 100% nameplate KW.			
14	RECORD: Cranking time until the prime mover starts and runs.			
15	RECORD: Time taken to reach operating speed.			
16	RECORD: Voltage and frequency overshoot.			
17	RECORD: Time taken to achieve steady state condition.			
18	PROCEDURE: 2-hour 100% load test performed.			
19	RECORD: Voltage, frequency, load current, fuel pressure, oil pressure, and coolant temperature recorded at first load acceptance and in 15 minute intervals thereafter.			

Sample



## Sample Electrical Functional Performance Test

PROJECT:  
 LOCATION:  
 PROJECT #:

SYSTEM/UNIT: Emergency Power System/G1

### 2.0 Crank Cycle Test - Emergency Power System/G1

Verification	Response	Notes	By	Date/Time
1	PROCEDURE: Utilize any method recommended by manufacturer to prevent the prime mover from running.			
2	PROCEDURE: Put the control switch into "run" to cause the prime mover to crank.			
3	VERIFY: Starting battery pack is capable of maintaining cranking speed for 75 second cycle per NFPA 110 (15 sec crank, 15 sec rest, 15 sec crank, 15 sec rest, 15 sec crank).			
4	RECORD: Battery voltage at conclusion of test.			

### 3.0 Generator Control Panel - Emergency Power System/G1

Verification	Response	Notes	By	Date/Time
1	VERIFY the proper operation of each function:			
2	3-position selector switch (run/off/auto)			
3	Local emergency stop button			
4	Push-button reset switch			
5	Voltage adjustment potentiometer			
6	Self-diagnostic capabilities with a readout on a digital display panel			
7	Lamp test switch			
8	Panel illumination lights with test switch			
9	Contacts for local and remote common alarm			
10	Verify activation of alarm horn and indicating LED for each alarm and shutdown.			
11	VERIFY the proper operation of each shutdown, alarm, and pre-alarm:			
12	Overcrank shutdown - red			
13	Low coolant temperature alarm - red			
14	High water temperature pre-alarm - amber			
15	High water temperature shutdown - red			
16	Low oil pressure pre-alarm - amber			
17	Low oil pressure shutdown - red			
18	Overspeed shutdown - red			
19	Low fuel main tank			
20	Low coolant level			
21	EPS supplying load			



## Sample Electrical Functional Performance Test

PROJECT:  
 LOCATION:  
 PROJECT #:

SYSTEM/UNIT: Emergency Power System/G1

### 3.0 Generator Control Panel - Emergency Power System/G1

Verification	Response	Notes	By	Date/Time
22	Controls not in auto			
23	High battery voltage			
24	Low cranking voltage			
25	Low battery voltage			
26	Battery charger failure alarm			
27	Ground fault alarm			
28	VERIFY proper operation of each meter and gauge:			
29	Voltmeter			
30	Ammeter			
31	Frequency meter			
32	Power factor			
33	KVAR			
34	KWH			
35	Battery charging voltmeter			
36	Coolant temperature gauge			
37	Oil pressure gauge			
38	Running time meter			
39	Engine RPM			

### 4.0 Remote Annunciator Panel - Emergency Power System/G1

Verification	Response	Notes	By	Date/Time
1	VERIFY activation of alarm horn and indicating LED for each alarm and shutdown:			
2	Overcrank shutdown			
3	Low coolant temperature alarm			
4	High water temperature pre-alarm			
5	High water temperature shutdown			
6	Low oil pressure pre-alarm			
7	Low oil pressure shutdown			
8	Overspeed shutdown			
9	Low fuel main tank			
10	Low coolant level			
11	Controls not in auto			
12	Batt charger AC failure			
13	Ground fault alarm			
14	Lamp test switch			
15	PROCEDURE: Activate remote emergency stop pushbutton			
16	VERIFY: Generator shuts down immediately.			



SAMPLE CONTROL SYSTEM TREND DATA FOR Cx		Equipment ID / Trending Interval (minutes)													
Point Description	Units	Weather Station	Air Handling Units	Chilled Water System	Condenser Water System	Hot Water System	Air Terminal Unit Space Served	Fan Coil Units	Computer Room Air Conditioner	Exhaust Fan	Unit Heater	Electrical Panels	Domestic Water Heating System	Irrigation System	Lighting Control System
Outdoor Air Dry Bulb Temp	F	15													
Outdoor Air Relative Humidity	%RH	15													
SF VFD Power	kWh		15												
SF Airflow	CFM		15												
SF Airflow Setpoint	CFM		15												
Unit Discharge Air Temp	F		15												
Unit DAT Setpoint	F		15												
Space Humidity	%RH		15				15		15						
Space Humidity Setpoint	%RH		15				15		15						
Humidifier Valve Position	% Open		15												
CHW Return Temp	F		15												
CHW Valve Position	% Open		15					15	15						
HW Return Temp	F		15												
AHU HW Valve Position	% Open		15												
Zone Airflow	CFM						15								
Zone Damper Position	% Open		15				15								
Zone HW Discharge Air Temp	F		15				15								
Zone HW Valve Position	% Open		15				15	15	15						
Space Temperature	F		15				15	15	15			15			
Space Temperature Active Setpoint	F		15				15	15	15			15			
Occupied Status (Sensor or Schedule)	On/Off						15	15	15						
RF VFD Power	kWh		15												
RF Airflow	CFM		15												
Space Differential Static Pressure	in. w.c.		15				15								
Space Differential Static Pressure Setpoint	in. w.c.		15				15								
Outdoor Air Damper Position	% Open		15												
Outdoor Airflow	CFM		15												
Outdoor Airflow Setpoint	CFM														
Duct Static Pressure	in. w.c.														
Duct Static Pressure Setpoint	in. w.c.														
Supply Air CO2	ppm														
Space CO2	ppm						15								
Space Differential CO2 Setpoint	ppm						15								
Bldg Supply Temp	F			15											
Bldg Supply Temp Setpoint	F			15											
System Supply Setpoint	F			15	15	15									
System Supply Temp	F			15	15	15							15		
System Return Temp	F			15	15	15									
System Flow	gpm			15	15	15									
System Capacity	MBh			15	15	15									
System Diff Pressure	psi			15	15	15									
System Diff Pressure Setpoint	psi			15	15	15									
Pump VFD Power	kWh			15	15	15									
Chiller CHW Supply Temp	F			15											
Chiller CHW Return Temp	F			15											
Chiller Evaporator Flow	gpm			15											
Chiller Entering CW Temp	F			15											
Chiller Leaving CW Temp	F			15											
Chiller Power (Typical each compressor)	kWh			15											
Cooling Tower VFD Power (Typical each fan)	kWh				15										
Heat Recovery Chiller HW Return Temp	F					15									
Heat Recovery Chiller HW Supply Temp	F					15									
Heat Recovery Chiller HW Supply Temp Setpoint	F					15									
Boiler Status	On/Off					15							15		
Fan Status	On/Off							15	15	15	15				
Pump Status	On/Off												15		
Exhaust Fan VFD Power	kWh									15					
Illuminance	fc														15
Make-up Water Consumption	gpm													15	
Electric Consumption	kWh											15			
Natural Gas Consumption	cu. ft.					15							15		



SAMPLE TREND REPORT FORMAT FOR Cx								
Sample Trend Report is for a typical VAV Box "Forced Trend" of max heating / max cooling over 4-hr period								
Trended Points are examples for Report formatting only. Equipment points to be trended will be determined during Cx FPT Scheduling Meeting.								
Date / Time	Zone Setpoint (deg F)	Zone Temp (deg F)	Supply Airflow Setpoint (cfm)	Supply Airflow (cfm)	Discharge Air Velocity Pressure (in)	Supply Air Damper Output	Heating Output	Discharge Air Temperature
10/20/20 4:10 AM	80	75.567	150	142.602	0.09452248	45.22485	0	57.07278
10/20/20 4:00 AM	80	76.23032	75	71.92915	0.00709486	34.84291	100	102.8144
10/20/20 3:50 AM	80	75.92749	75	71.92915	0.00709486	34.84291	100	102.1922
10/20/20 3:40 AM	80	75.92749	75	71.92915	0.00709486	34.84291	100	102.1836
10/20/20 3:30 AM	80	75.61987	75	71.92915	0.00709486	33.71024	100	102.1836
10/20/20 3:20 AM	80	75.61987	75	71.92915	0.00709486	33.71024	100	102.1836
10/20/20 3:10 AM	80	75.31226	75	71.92915	0.00709486	33.71024	100	102.1836
10/20/20 3:00 AM	80	75.31226	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 2:50 AM	80	75.00943	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 2:40 AM	80	74.70181	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 2:30 AM	80	74.70181	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 2:20 AM	80	74.3942	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 2:10 AM	80	74.3942	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 2:00 AM	80	74.09138	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 1:50 AM	80	73.78376	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 1:40 AM	80	73.45211	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 1:30 AM	80	73.45211	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 1:20 AM	80	73.14928	75	71.92915	0.00709486	33.71024	100	101.885
10/20/20 1:10 AM	80	72.7888	75	71.92915	0.00709486	33.71024	100	101.5866
10/20/20 1:00 AM	80	72.48597	75	71.92915	0.00709486	34.76664	100	101.8868
10/20/20 12:50 AM	80	72.17355	75	71.92915	0.00709486	34.76664	100	102.1986
10/20/20 12:40 AM	80	71.87074	75	71.92915	0.00709486	33.69927	100	102.1986
10/20/20 12:30 AM	80	71.56792	75	71.92915	0.00709486	33.69927	100	102.4994
10/20/20 12:20 AM	80	70.92865	75	71.92915	0.00709486	33.69927	100	102.4994
10/20/20 12:10 AM	80	70.62102	75	71.92915	0.00709486	34.7197	100	100.9305
10/20/20 12:00 AM	80	70.3134	45	47.4287	-0.01075673	30.61368	0	58.21156
10/19/20 4:10 AM	55	68.63589	75	73.47628	0.006408334	38.46322	45.21756	72.7017
10/19/20 4:00 AM	55	67.97258	119.5859	137.9515	0.05859017	55.18406	0	56.25162
10/19/20 3:50 AM	55	67.97258	120.0941	137.9515	0.05859017	55.18406	0	56.25162
10/19/20 3:40 AM	55	67.97258	125.35	137.9515	0.06225204	57.4519	0	56.25162
10/19/20 3:30 AM	55	67.97258	127.7748	137.9515	0.06911814	57.4519	0	56.25162
10/19/20 3:20 AM	55	67.97258	130.4174	137.9515	0.06911814	58.50766	0	56.25162
10/19/20 3:10 AM	55	67.97258	132.3511	137.9515	0.07140672	58.50766	0	56.25162
10/19/20 3:00 AM	55	67.97258	133.8809	137.9515	0.07140672	59.61676	0	56.25162
10/19/20 2:50 AM	55	67.97258	142.378	137.9515	0.08536768	63.46486	0	56.25162
10/19/20 2:40 AM	55	67.97258	144.0649	137.9515	0.08536768	62.02474	0	56.25162
10/19/20 2:30 AM	55	67.97258	149.5942	137.9515	0.09658229	65.4512	0	56.25162
10/19/20 2:20 AM	55	68.27541	150	137.9515	0.09658229	66.84628	0	56.25162
10/19/20 2:10 AM	55	68.27541	150	137.9515	0.09658229	68.91989	0	56.25162
10/19/20 2:00 AM	55	68.27541	150	137.9515	0.09658229	70.00221	0	56.25162
10/19/20 1:50 AM	55	68.61186	150	137.9515	0.09658229	72.25705	0	56.25162
10/19/20 1:40 AM	55	68.61186	150	137.9515	0.09658229	72.25705	0	56.25162
10/19/20 1:30 AM	55	68.91467	150	137.9515	0.09658229	72.25705	0	56.25162
10/19/20 1:20 AM	55	68.91467	150	137.9515	0.09658229	73.39082	0	56.25162
10/19/20 1:10 AM	55	69.2175	150	137.9515	0.09658229	73.39082	0	56.25162
10/19/20 1:00 AM	55	69.2175	150	137.9515	0.09658229	73.39082	0	56.25162
10/19/20 12:50 AM	55	69.52512	150	137.9515	0.09658229	73.39082	0	56.54948
10/19/20 12:40 AM	55	69.83273	150	137.9515	0.09658229	73.39082	0	56.54948
10/19/20 12:30 AM	55	70.44318	150	137.9515	0.09658229	73.39082	0	56.84668
10/19/20 12:20 AM	55	70.77484	150	137.9515	0.09658229	74.4721	0	57.74506
10/19/20 12:10 AM	55	71.39008	150	137.9515	0.09658229	74.4721	0	58.65091
10/19/20 12:00 AM	55	72.4331	45	44.99492	-0.008468151	33.65736	0	59.27457

END OF SECTION 019113

## **SECTION 019115 - BUILDING ENCLOSURE COMMISSIONING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specific Building Enclosure Commissioning requirements are given in this specification. The following specification sections are related to the commissioning work specified in this section:
  - 1. Integrated Exterior Mockups: Refer to 014339.
  - 2. Building Systems Commissioning: Refer to 019113.
  - 3. Building Enclosure Functional Performance Testing: Refer to 019117.
  - 4. Basic Concrete Requirements: Refer to Division 03.
  - 5. Basic Masonry Requirements: Refer to Division 04.
  - 6. Basic Waterproofing, Roofing, Cladding, Air Barrier, Insulation Requirements: Refer to Division 07.
  - 7. Basic Fenestration Systems Requirements: Refer to Division 08.

#### **1.2 SECTION INCLUDES**

- A. Section includes the Commissioning (Cx) requirements for Building Enclosure systems.
  - 1. The Building Enclosure Commissioning requirements are separate from, and in addition to, the Building Systems Commissioning requirements in Section 019113. The Construction Manager and Subcontractors are required to participate in each of the Commissioning processes.
  - 2. The 019115 Building Enclosure Commissioning Agent (BECxA) and 019113 Commissioning Agent (CxA) will provide separate documentation for each Commissioning process.

#### **1.3 GENERAL DESCRIPTION**

- A. Building Enclosure Commissioning is a systematic process of validating and verifying all building enclosure systems responsible for environmental separation perform interactively according to the Owner's Project Requirements. The Building Enclosure Commissioning process is intended to achieve the following specific objectives according to the Contract Documents:
  - 1. Verify and document installation and performance of building enclosure materials and systems.
  - 2. Endeavor to provide the Owner with functional Building Enclosure systems that meet the Project Requirements.
- B. Commissioning does not take away from or reduce responsibility of system designers or installing contractors to provide a finished and fully functioning product per the contract documents.



- C. This section shall in no way diminish the responsibility of Division 03, 04, 05, 07, and 08 Contractors, Subcontractors, and Suppliers in performing all aspects of work and testing as outlined in the Contract Documents. Any requirements outlined in this section are in addition to requirements outlined in Division 03, 04, 05, 07, and 08.

#### 1.4 ABBREVIATIONS

- A. The following are common abbreviations used in this Section (definitions are found further in this Section):
  - 1. A/E – Architect and Design Engineers
  - 2. BECx – Building Enclosure Commissioning
  - 3. BECxA – Building Enclosure Commissioning Agent
  - 4. BECT – Building Enclosure Commissioning Team
  - 5. BETA – Building Enclosure Testing Agency
  - 6. BECx Plan – Building Enclosure Commissioning Plan
  - 7. FPT – Functional Performance Test
  - 8. CM – Construction Manager
  - 9. CT – Commissioning Team
  - 10. CxA – Commissioning Agent for Building Systems - Refer to Section 019113
  - 11. O&M – Operations & Maintenance

#### 1.5 DEFINITIONS

- A. Approval: Acceptance that a material or system has been properly installed and is functioning in tested modes according to the Contract Documents.
- B. Architect/Engineer (A/E): Prime consultant (architect) and sub-consultants who comprise the design team, generally the Architect of Record and any Design Sub-consultants.
- C. Basis of Design (BOD): Documentation of primary thought processes and assumptions behind design decisions made to meet design intent. Describes systems, components, conditions, and methods chosen to meet intent.
- D. Building Enclosure Commissioning Agent (BECxA): Contracted to Owner through the CxA. BECxA directs and coordinates day-to-day Building Enclosure Commissioning activities independently from CxA.
- E. Building Enclosure Commissioning Plan (BECx Plan): Overall plan developed after bidding that provides structure, schedule, and coordination planning for the Building Enclosure commissioning process.
- F. Building Enclosure Testing Agency (BETA): BETA will be represented by or contracted to the BECxA and is responsible for executing building enclosure functional performance testing under the direction of the BECxA.
- G. Building Enclosure Functional Performance Test (FPT): Test of performance of building enclosure materials and systems. Systems are tested under various simulated environmental conditions, such as air or water leakage under pressure differential. Refer to Section 019117.

- H. Commissioning Agent (CxA): Commissioning Agent for Building Systems; refer to Section 019113. Contracted to Owner. CxA directs and coordinates day-to-day Building Systems Commissioning activities independently from BECx activities. CxA reports directly to Owner.
- I. Commissioning (Cx) Database - A “cloud-based” process management platform provided by the CxA utilized to execute the Commissioning process.
- J. Commissioning Observation: Any condition identified by the BECxA that adversely affects the commissionability, operability, maintainability or functionality of a system, equipment or component. Any condition that is in conflict with the project OPR, Contract Documents, performance requirements, manufacturer requirements, and/or accepted industry standard practices of the installed systems and components. (See also – Deficiency, Master Issues Log)
- K. Commissioning Plan: Overall plan developed after bidding that provides structure, schedule and coordination planning for Commissioning process.
- L. Contract Documents: Contract documents include design and construction contracts, price agreements and procedure agreements. Contract Documents also include all final and complete drawings, specifications and all applicable contract modifications or supplements.
- M. Contractor: Contractor or Subcontractors responsible for furnishing and installation of building components and systems.
- N. Deficiency: Condition of a component, piece of equipment or system that is not in compliance with Contract Documents (that is, does not perform properly or is not complying with design intent).
- O. Functional Performance Test (FPT): Test of function and operation of components and systems. Systems are physically tested to verify various performance requirements are met (resistance to water penetration, air leakage rate, adhesive strength, etc.). Refer to 019117 Building Enclosure Functional Performance Testing and testing requirements in related specifications.
- P. Master Issues Log (MIL): On-going list tracking commissioning observations and BECT responses and resolution.
- Q. Mockup: On-building structure which includes representative portions of building enclosure systems, assemblies, and components. Mockups shall be constructed, tested, and reviewed prior to commencement of building enclosure construction. Refer to specification 014339 Integrated Exterior Mockups.
- R. Owner’s Project Requirements (OPR): A written document that details the project requirements and the expectations of how the building and its systems will be used and operated. These include project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.
- S. Specifications: Construction specifications of Contract Documents.
- T. Sub-contractor: Contractors of CM, and their Sub-contractors, who provide and install building enclosure components and systems.
- U. Warranty Period: Warranty period for entire project, including equipment components.

## 1.6 COORDINATION

- A. Building Enclosure Commissioning Team: Members of the Building Enclosure Commissioning Team (BECT) will consist of:
1. Architect and Design Engineers (A/E)
  2. Building Enclosure Commissioning Agent (BECxA)
  3. Building Enclosure Testing Agent (BETA)
  4. Division 03, 04, 07, 08 Contractors who provide and install the systems to be commissioned.
  5. Any other Contractors or Subcontractors who provide and install the systems to be commissioned.
  6. Commissioning Agent (CxA)
  7. Construction Manager (CM)
  8. Owner(s) (OR)
  9. Representatives of the Facility User and Operation and Maintenance Personnel.
  10. Systems Suppliers and Vendors.
- B. Management: Owner will contract services of the BECx. The BECx will direct and coordinate building enclosure commissioning activities and report to the CM and OR. All members of the Building Enclosure Commissioning Team shall cooperate to fulfill contracted responsibilities and objectives of the Contract Documents.
- C. Kick-Off Meeting: BECx will plan, schedule and conduct a Building Enclosure Commissioning Kick-Off Meeting. Membership and responsibilities of the BECT will be clarified at this meeting. BECx Kick-Off Meeting will be conducted no later than 30 days prior to initial installation of any commissioned systems on-site. CxA will distribute meeting minutes to all parties.
- D. Scheduling: BECx will work with the BECT to establish required commissioning activities to incorporate in preliminary commissioning schedule. The CM will integrate commissioning activities into a master construction schedule. Necessary notifications are to be made in a timely manner in order to expedite the commissioning process.
- E. Project Phasing and Project Substantial Completion:
1. Phased completion of the project construction is anticipated. The commissioning processes described herein will be completed for each phase of work.
  2. All BECx work with the exception of the following must be completed for each project phase prior to Owner move-in/occupancy:
    - a. The following BECx work will be completed after Owner move-in/occupancy:
      - 1) Compilation and delivery of Final Commissioning Report.
      - 2) End of Warranty Review Meeting

## PART 2 - PRODUCTS / COMMISSIONING DOCUMENTATION

### 2.1 COMMISSIONING (Cx) DATABASE

- A. The BECx process will be executed utilizing a “cloud-based” process management Cx Database provided by the CxA. Cx Database is accessed by authorized users using any device

running an HTML-5 internet browser (e.g., PC, laptop, tablet, phone) or by an operating system specific (e.g., iOS) application downloaded from corresponding app store.

- B. Cx Database platform will be autonomous from any other database or web-based information platform utilized by the Construction Team throughout project construction.
- C. CxA will provide the Commissioning Team with web access to the Cx Database during the Commissioning process. The CM/Contractors will complete the scoped Commissioning tasks indicated in other Sections of this specification in the Cx Database (e.g., completion of Commissioning activities, such as providing documentation of BECx Master Issues Log deficiency item corrections).

## 2.2 BUILDING ENCLOSURE COMMISSIONING PLAN

- A. BECxA will develop overall plan for execution of the BECx Process.
- B. The BECx Plan will contain:
  - 1. Overview of the commissioning process.
  - 2. Listing of major Commissioning milestones for coordination and inclusion in the master construction schedule.
  - 3. List of BECT members and roles and responsibilities.
  - 4. Description of management and communication for the commissioning process.
  - 5. Master Systems List (list of commissioned component and systems).
  - 6. Functional Performance Test Plan with test procedures and requirements for each commissioned system. The initial Cx Plan will not include the FPTs. Final FPTs will be developed in the Cx Database after related submittals are approved by the A/E.
  - 7. Operation & Maintenance Data Matrix.
  - 8. Warranty Matrix.
  - 9. Owner Training Matrix.
- C. The BECx Plan will be delivered to the BECT in electronic format (Adobe PDF file searchable from the Table of Contents).

## 2.3 MASTER ISSUES LOG (MIL)

- A. Any issues noted by BECxA are tracked in a Master Issues Log (MIL). The MIL will be developed in and accessed/tracked through the Cx Database.

## 2.4 COMMISSIONED SYSTEMS SUBMITTALS AND O&M DATA

- A. CM shall provide CxA with documentation required for Commissioning work. At minimum, documentation shall include: Requirements as described in Section 013000, O&M data, performance data, any performance test procedures, manufacturer's installation manuals, manufacturer's laboratory testing documentation, and Contractor or Owner's-contracted testing documentation related to the systems to be commissioned.

## 2.5 SITE VISIT REPORTS

- A. BECxA will conduct regular site visits to complete scoped commissioning work. BECxA will provide a report for each site visit to members of the BECT.
- B. BECxA Site Visit Report will include the following:
  - 1. Attendees and purpose of site visit.
  - 2. Observations regarding commissioned systems and results of completed commissioning work.
  - 3. "Next Steps" section documenting BECx process status and upcoming BECx work / site visits.
  - 4. Current Master Issues Log (MIL).
  - 5. Picture Report (where applicable).

## 2.6 CM / CONTRACTOR OWNER TRAINING PLAN

- A. CM/Contractors/Vendors will provide complete Owner training in Operation and Maintenance of all commissioned systems/equipment required under contract per specifications.
- B. CM with assistance from responsible Contractors/Vendors shall develop a detailed program for Owner Training per 017000 Execution and Closeout Procedures and 017900 Demonstration and Training.

## 2.7 FUNCTIONAL PERFORMANCE TESTS (FPT)

- A. BECxA will develop the Functional Performance Testing procedures from the Contract Documents and A/E approved submittals. The Functional Performance Test Procedures will be initially described in the BECx FPT Plan and developed in the Cx Database. The Functional Performance Tests will be executed by the BETA with support from the CM/Contractors. The BECxA will witness Functional Performance Tests and document the results in the Cx Database. Reference Specification 019117 Building Enclosure Functional Performance Testing for requirements on tests performed by the BETA.
- B. Development of Test Procedures:
  - 1. The purpose of any given specific test is to verify and document compliance with stated criteria of acceptance given on test form. BECxA shall develop specific test procedures based on standard industry test methods (AAMA, ASTM, etc.). Prior to execution, BECxA shall provide a copy of test procedures to Contractors. Contractor will review tests for feasibility, safety, and warranty protection. BECxA shall submit tests to Owner, CM and A/E and other Commissioning team members for review.
  - 2. Test procedures will indicate general specimen type to be tested. Selection of actual test specimens will be selected by the BECxA and BECT on the day of testing from the available specimens identified by the Contractors as ready for testing on the Certificate of Readiness.
  - 3. Test procedure forms developed by the BECxA will include (but not be limited to) the following information:
    - a. System and equipment or component name(s)
    - b. General location or specimen type
    - c. Date

- d. Project name
  - e. Participating parties
  - f. Specific specified parameters being verified
  - g. Test setup parameters
  - h. Test procedures
  - i. Results section to document test results and observations
  - j. Section for comments
4. Specific FPT items may be added, modified or deleted in the BECx plan delivered to the CT to reflect the final construction document requirements. CM and Contractors shall review final construction documentation for applicable details and specifications related to equipment to be commissioned to fully ascertain all the FPT requirements.

## 2.8 CERTIFICATE OF READINESS FOR FUNCTIONAL PERFORMANCE TESTS (FPT)

- A. BECxA will provide a Certificate of Readiness to be signed by the CM, Contractors and Equipment Vendors/Suppliers (where appropriate) as a prerequisite for scheduling of BECx FPTs. Completed Certificate of Readiness should be received two weeks prior to anticipated testing date.
- B. The Certificate of Readiness will include the following:
  - 1. Project building area
  - 2. Area for CM to indicate FPTs to be scheduled and specimens (e.g. specific window openings) that are ready for testing.
  - 3. Sign-off for CM, Contractors and Vendors (where appropriate) indicating readiness for associated FPTs to be scheduled.
  - 4. Sign-off for CM that test accommodations required by specification 019117 are provided.
- C. The intent of this certificate is for the CM, Contractors and other installers to document (“sign-off”) that the equipment/systems are installed per the contract document requirements and are ready for FPT.
- D. BECxA and BETA will not schedule tests until completed Certificates of Readiness are received. CM shall maintain free and clear access to all test areas, including exclusion and removal of interior finishes if necessary for observation of potential water leakage into concealed cavities, until testing is complete and satisfactory performance is achieved.

## 2.9 FINAL COMMISSIONING REPORT

- A. The BECx Final Commissioning Report will include:
  - 1. Executive Summary including:
    - a. List of Commissioned Equipment/Systems.
    - b. List of participants and roles.
    - c. Summary of the completed Commissioning activities.
    - d. Evaluation regarding status of issue resolution.
  - 2. Design Phase BECx Documentation.
  - 3. Master Issues Log.
  - 4. Site Visit Reports.

5. BECxA executed Functional Performance Tests.
6. Sections will be provided for the following information to be inserted later:
  - a. End of Warranty Meeting Minutes

## PART 3 - EXECUTION

### 3.1 COMMISSIONING OVERVIEW

- A. The following provides a brief overview of typical Building Enclosure Commissioning tasks during construction and general order in which they occur:
  1. BECxA develops project specific Building Enclosure Commissioning Plan in the Cx Database including Functional Performance Test procedures. Building Enclosure Commissioning Team members are provided web access to the Cx Database for review of the Cx Plan prior to BECx Kick-Off meeting.
  2. Commissioning during construction begins with a Kick-Off Meeting conducted by BECxA where membership of Building Enclosure Commissioning Team is established, and responsibilities reviewed. The Building Enclosure Commissioning Plan is reviewed during this meeting.
  3. BECxA schedules subsequent meetings as necessary to plan, coordinate and schedule Commissioning activities. Deficiencies and problem resolution will also be discussed at these meetings.
  4. CM submits copies of submittals for all systems to be commissioned in Procore software to BECxA for review concurrently with A/E review. BECxA reviews submittals and returns review comments in Procore software.
  5. BECxA revises Cx Plan if required based on final A/E approved submittals in Procore software.
  6. Contractors install commissioned systems.
  7. CM/Contractors develop initial outline Owner Training Program and submit to CT for review.
  8. CxA makes regular site visits to observe commissioned system installations. Installations are reviewed against the design drawings and specifications, system manufacturer's requirements, and approved submittals.
  9. Any issues noted by BECxA are tracked in a Master Issues Log (MIL) on the Cx Database platform. CM/Contractors correct issues noted by BECxA and update MIL in Cx Database for BECxA verification of issue corrections.
  10. CM and Contractors coordinate overall schedule of systems installation and notify the BECxA when specimens ready to test by submitting completed Certificates of Readiness. CM and Contractors submit schedules to BECxA so that BETA may schedule and coordinate site visits and testing.
  11. BETA completes testing as required by specification 019117 with support from CM and Contractors. BETA provides documentation of completed FPTs.
  12. CxA conducts Commissioning Functional Testing Schedule Meetings with the Commissioning Team to establish a coordinated approach to the integration of the Functional Performance Testing activities within the Master Construction Schedule.
  13. Items of non-compliance in material, installation or set-up will be corrected and system shall be retested at Contractor expense.
  14. CM/Contractors execute Owner Training exercises per Owner Training Plan.
  15. BECxA issues Final Commissioning Report.
  16. CxA participates in End of Warranty Review meetings with facility maintenance staff to review systems performance. An updated Warranty Phase Issue Log shall be generated,

and the Contractor shall resolve all issues determined by the CT to be subject to Warranty requirements.

### 3.2 SYSTEMS TO BE COMMISSIONED

#### A. Building Enclosure Systems to be commissioned:

1. Below Grade Waterproofing, Vapor Barriers, Air and Moisture Barriers, Exterior Cladding, Fenestration, and Roofing Systems responsible for providing the following functions:
  - a. Air control
  - b. Vapor control
  - c. Insulation/thermal protection
  - d. Waterproofing

### 3.3 RESPONSIBILITIES OF COMMISSIONING TEAM MEMBERS

#### A. Architect/Engineer (A/E)

1. Document design intent of systems. Respond to any issues developed during the commissioning process that may require clarification of design intent.
2. Develop mockup drawings as required for testing within specification section 014339 and 019117.
3. Review and incorporate Building Enclosure Commissioning specification section and Building Enclosure Functional Performance Testing specification section into the construction documents.
4. Attend BECx meetings as requested.
5. Provide construction documents electronically.
6. Review and respond to/incorporate BECxA comments made during design and submittal/shop drawing reviews.
7. Assist in dispute resolution regarding building enclosure systems regarding confirmation of design intent and specification requirements.
8. Review BECxA reports and respond to A/E items.

#### B. Building Enclosure Commissioning Agent (BECxA)

1. Facilitate cooperation of BECT in Commissioning work.
2. Develop and update BECx plan as necessary.
3. Develop the BECx and Building Enclosure FPT specification sections.
4. Review pertinent building enclosure related submittals and shop drawings. Provide submittal review comments to OR and A/E for inclusion in the submittal comments returned to the CM.
5. Conduct BECx kick-off meeting to review BECx Plan and responsibilities of each member of the BECT.
6. Participate in Contractors' pre-installation/coordination meetings for commissioned systems where specified.
7. Review initial outline Owner Training Program developed by CM/Contractors.
8. Perform construction observation visits to observe and document installation of the building enclosure materials, systems, and components, and observe representative field testing.
9. Perform and document functional performance field testing performed by BETA.



10. Witness building enclosure testing performed by others as required by the Contract Documents.
11. Issue reports documenting the BECx process and activities.
12. Maintain the BECx MIL in the Cx Database. Review and respond to Contractors' responses and documentation verifying corrective actions.
13. Attend and chair BECT meetings as required.
14. Provide the final BECx record.

C. General Contractor (CM)

1. The CM leads the commissioning process for the construction team and facilitates cooperation of Contractors in executing and completing the commissioning work. In addition to the specific CM commissioning roles and responsibilities specified herein, the CM is ultimately responsible for ensuring that the Contractor commissioning roles and responsibilities given in other Sections of this specification are executed and completed as specified.
2. Attend BECx coordination/kick-off meetings and other commissioning team meetings. The CM is responsible for all coordination items with Subcontractors.
3. Incorporate and periodically update commissioning activities into the construction schedule.
4. Notify BECT of schedule updates and onsite activities affecting BECx tasks.
5. Facilitate cooperation of Contractors in commissioning work.
6. Submit copies of initial submittals in Procore software to A/E and BECxA for review. Provide final A/E approved submittals in Procore software to BECxA for record purposes.
7. Review and respond to BECxA's submittal review comments.
8. Review BECx Plan, Pre-Functional Checklists, and FPT procedures.
9. Attend BECx Kick-Off Meeting and other BECT Meetings.
10. Verify building enclosure materials and assemblies are ready for functional performance testing. Submit completed FPT Certificate of Readiness to BECT and coordinate scheduling of Building Enclosure FPT with the BECxA and BETA at least two weeks prior to testing.
11. Ensure resolution of non-compliance and deficiencies in construction or test results. Provide written responses and documentation of completion from the appropriate subcontractors and record responses in the MIL. Documentation includes photographs of addressed items prior to concealment by other components.
12. Provide letters of compatibility for adjacent building enclosure materials and assemblies.
13. Provide Test Accommodations required in specification 019117 Building Enclosure Functional Performance Testing.
14. Schedule, coordinate and assist BECT in FPTs. Attend and participate in FPTs as required to insure Contractor and Vendor participation and completion of scheduled FPT activities. At a minimum, the CM should be present at start and completion of daily FPT activities to ensure Contractor/Equipment Vendor participation, coordination, and completion of Functional Testing work.
15. Facilitate all repairs and retesting of failed functional performance testing and pay for all associated costs of retesting and additional testing including costs related to testing observation and documentation by the BECxA.
16. Following failed field testing, provide a plan of repairs to be performed to the BECT for review. A/E shall approve plan of repairs prior to implementation and retesting. All repairs performed to facilitate successful testing must be approved by the A/E and performed comprehensively throughout project.
17. Verify Contractors correct deficiencies identified during Functional Performance Testing.
18. Develop, with cooperation of Sub-Contractors/Vendors, detailed Owner Training Program. Submit initial outline Owner Training Program to BECT for review within 60 days of completion of submittal process (i.e., all equipment/systems approved by A/E). Revise Owner Training Program as required based on BECxA review comments.

19. CM coordinates training sessions and executes training per Owner Training Program through Contractors.
20. Provide all warranty, operations, and maintenance documentation for all commissioned building enclosure systems, materials, and components to the BECxA in Procore software.
21. Schedule, coordinate and attend the End of Warranty Review Meetings to review system/equipment performance. Correct any deficiency issues noted during Warranty Period per the Project Warranty Process.

D. Contractors/Vendors

1. Review Commissioning Plan and building enclosure related specification sections.
2. Provide project-specific submittals/shop drawings as required by the project specifications that clearly indicate how each system is interfaced with adjacent systems. All typical and project-specific interfaces with adjacent systems must be detailed accurately.
3. Provide letters of compatibility for adjacent building enclosure materials and assemblies.
4. Attend BECx coordination/kick-off meetings and other commissioning team meetings.
5. Prepare Owner Training Program with CM where required by specifications.
6. Address all applicable observations in the MIL.
7. Provide written responses and documentation of completion of addressed items as directed by CM to the Cx Database. Documentation includes photographs of addressed items prior to concealment by other components.
8. Attend all required building enclosure functional performance testing and assist BETA in diagnosing testing failures as requested.
9. Ensure installed work is complete, is in compliance with Contract Documents, and is ready for Functional Performance Testing. Notify CM that systems are ready for Functional Performance Testing and coordinate with CM to submit completed FPT Certificate of Readiness two weeks prior to anticipated test date.
10. Correct deficiencies identified during Functional Performance Testing.
11. Provide warranty, operations, and maintenance documentation for all commissioned building enclosure systems, materials, and components to the CM.
12. Participate in the End of Warranty Review Meetings to review system/equipment performance. Correct any deficiency issues noted during warranty period per the Project Warranty Process.

E. Building Enclosure Testing Agency (BETA)

1. Attend BECx coordination/kick-off meetings.
2. Provide technicians and equipment to complete mockup and field FPTs as required in specification 019117 Building Enclosure Functional Performance Testing.
3. Prepare and submit reports at the conclusion of each test.
4. Perform diagnostic testing, retesting, and/or additional testing due to failed tests and prepare corresponding reports.

3.4 BUILDING ENCLOSURE COMMISSIONING TEAM (BECT) MEETINGS

- A. BECx meetings will be held periodically as determined by the BECxA.
- B. Discussions held in BECx meetings shall include, but not be limited to, system/materials, mockup/field progress, scheduling, testing, documentation, deficiencies, and problem resolution.

### 3.5 REPORTING

- A. BECxA will regularly communicate with members of Commissioning team, keeping them apprised of Commissioning progress. The BECxA will provide periodic status reports to Owner, A/E, CM, and CxA.
- B. BECxA will provide reports for site visits to Owner and CM. Site Visit Reports will include BECx Master Issues Log documenting non-compliance and deficiency items.
- C. The BECxA shall submit non-compliance and deficiency reports Owner, A/E, CM, and CxA.
- D. The BECxA shall provide a Final BECx Report to Owner.

### 3.6 SUBMITTAL REVIEWS

- A. A/E or CM shall provide BECxA with documentation required for commissioning work. All building enclosure related submittals and shop drawings as required by the specifications shall be provided to the BECxA for review and comment.
- B. The BECxA shall review building enclosure related submittals and shop drawings prior to or concurrent with the A/E for conformance as it relates to BECx such that the BECxA comments can be incorporated into the returned submittal.
- C. The contractor(s) shall review and address all exterior enclosure related submittal and shop drawing review comments. Revised shop drawing details based on submittal review comments shall be clearly marked on the shop drawing resubmittal to indicate where and what changes have been made. Submittal and shop drawing review comments and responses shall be tracked by the BECxA.
- D. The BECxA review of submittals and shop drawings does not substitute for or alter the responsibility of the A/E to review submittals and/or shop drawings for compliance with the project requirements. Final approval of submittals and shop drawings rests solely with the A/E.
- E. CM shall provide the final A/E approved O&M data for all commissioned equipment/systems to the CxA in Procore software for record purposes.

### 3.7 BUILDING ENCLOSURE FUNCTIONAL PERFORMANCE TESTING

- A. Refer to Section 019117 - Building Enclosure Functional Performance Testing.

### 3.8 DOCUMENTATION, NON-CONFORMANCE AND RESOLUTION

- A. Documentation:
  - 1. The BECxA shall submit observation reports to Owner, A/E, CM, and CxA and log commissioning observations in the Master Issues Log (MIL).
- B. Non-Conformance:
  - 1. Deficiency or non-conformance issues observed during regular site visits and testing visits will be noted and reported to the CM, A/E, and Owner.

2. Corrections of deficiencies identified and immediately repaired by Contractors during site observations and testing may be documented by the BECxA.
  3. Deficiencies are handled in the following manner:
    - a. When there is no dispute on deficiency and Subcontractor accepts responsibility for remedial action:
      - 1) BECxA documents deficiency and Subcontractor response and intentions. BECxA submits report and MIL to Owner, A/E, CM, and CxA. Copy is provided to Subcontractor by CM.
      - 2) Subcontractor corrects deficiency and provides written response and/or documentation on the MIL that the deficiency has been addressed.
    - b. When there is a dispute about a Deficiency Issue, regarding whether it is a deficiency or who is responsible:
      - 1) BECxA documents deficiency and Contractor's response. BECxA submits observation report and MIL to Owner, A/E, CM, and CxA. Copy is provided to Subcontractor by CM.
      - 2) CM facilitates resolution of deficiency. Other parties are brought into discussions as needed. Final interpretive authority is with A/E. Final Acceptance authority is with the Owner/Owner.
      - 3) CM documents resolution process.
      - 4) Once interpretation and resolution has been decided, appropriate party corrects deficiency and provides written response and/or documentation on the MIL that the deficiency has been addressed.
- C. Costs for BECx MIL Issue Corrections and FPT retesting:
1. Cost for Contractor to correct and retest any FPT deficiency item, if they are responsible for deficiency, will be theirs. If Contractor is not responsible, cost recovery for retesting will be negotiated with CM.
  2. BECx MIL issue verifications will not be scheduled until Contractor responsible for issue correction updates issue for "Recheck" in Cx Database. If any BECx MIL issue marked for "Recheck" in the Cx Database is found to remain uncorrected by BECxA on recheck, the CM will pay BECxA labor and expenses for any issue reverifications at a rate of \$5000 per man-day. BECxA will provide a man-hour estimate for any required issue reverifications. CM must pay Cx MIL issue reverification costs to BECxA in advance for BECxA to schedule Cx MIL issue reverification site visits.
  3. FPTs will not be scheduled without signed Certificate of Readiness from CM and Contractors confirming that the work is "complete" and ready for testing. If any portion of the system fails to function as designed, the CM will pay BECxA labor and expenses for any required FPT retesting at a rate of \$5000 per man-day. BECxA will provide a man-hour estimate for any required FPT retesting. CM must pay retesting costs to BECxA in advance for BECxA to schedule FPT retesting site visits.
- D. Costs for BETA and BECxA Functional Performance Additional Testing:
1. Cost for Contractor to correct and retest any PFC or FPT deficiency item, if they are responsible for deficiency, will be theirs. If Contractor is not responsible, cost recovery for retesting will be negotiated with Contractor.
  2. Additional Services for BECxA to complete any Functional Performance Testing during Owner move-in or after Owner occupancy (regardless of whether the testing was attempted prior to that point or not) will be paid for by the CM at a cost of \$5000 per man-

day. CM must pay testing costs to BECxA in advance for BECxA to schedule testing site visits during Owner move-in or after Owner occupancy.

E. Approval:

1. BECxA notes each test result on test form. BECxA recommends acceptance of each test to Owner. A/E and Owner provide formal approval of FPT. The Owner gives final approval, providing a signature to CM and Contractor.

### 3.9 TRAINING OF OWNER PERSONNEL

A. CM/Contractors/Vendors will provide complete training in operation and maintenance of systems if required in the Contract Documents.

B. CM and Contractors will be responsible for

1. Developing Owner Training Program.
2. Scheduling of Owner Training with Owner and Contractors. Owner Training Schedule will be provided to BECxA to allow BECxA to schedule site visits to attend a sampling of the training sessions.
3. Execution of Owner Training.
4. Documentation of completed Owner Training.

C. BECxA will monitor the completion of the Owner Training as follows:

1. BECxA will review Owner Training Program submitted by CM.
2. BECxA will attend a sampling of the Owner Training sessions and review the final executed Owner Training Program documentation.

D. General sequencing of the development of the Owner Training Program and completion of the Owner training is as follows:

1. BECxA will review the Owner training requirements (including preparation of Owner Training Program) with the CM/Contractors at the Commissioning Kick-Off meeting.
2. CM will prepare an outline of the Owner Training Program within 60 days of completion of submittal process (i.e., all equipment/systems approved by A/E). Submit Owner Training Program outline to BECT for review.
3. Schedule for Owner Training sessions will be reviewed and updated as required throughout the project construction by BECT at contractor progress meetings (attended by BECxA during periodic site visits). CM will submit final Owner Training Schedule to BECT 30 days prior to start of training exercises to allow CxA sufficient time to schedule site visit trips to witness a sampling of the Owner training exercises.
4. Contractors/vendors will execute training exercises per Training Program.
5. CM will submit a copy of the final executed Owner Training Program and Owner Training Manuals including all training documentation (sign-in sheets, handouts, training DVDs, etc.) to BECxA on completion of Owner Training exercises (BECxA copy is in addition to any copies required by other specifications for Owner use).

3.10 END OF WARRANTY PERIOD MEETING

- A. CT will participate in an End of Warranty Period Meeting with the Owner and O&M staff to review the facility and its performance. The End of Warranty Period meeting will be held 10-11 months into the one-year warranty period.
- B. The End of Warranty Review meeting shall address:
  - 1. Any outstanding construction deficiencies.
  - 2. Any deficiencies that were noted by the operations staff during the warranty period.
  - 3. Any problems noted by the operations staff related to operating and maintaining the facility as originally intended.
- C. CxA will provide a written report for the Warranty Period Meeting. Report will document the process for resolution of all outstanding issues.
  - 1. Outstanding issues noted during the Warranty Period Meeting will be assigned by the CM to the appropriate Contractor for correction.
  - 2. CM/Contractor will correct the issue and notify the Owner and CxA of correction.

**END OF SECTION 019115**

## **SECTION 019117 - BUILDING ENCLOSURE FUNCTIONAL PERFORMANCE TESTING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Specific building enclosure testing requirements are given in this specification. The following specification sections are related to the testing work specified in this section and may include additional testing requirements beyond those included in this specification:
  - 1. Integrated Exterior Mockups: Refer to 014339.
  - 2. Building Systems Commissioning: Refer to 019113.
  - 3. Building Enclosure Commissioning: Refer to 019115.
  - 4. Basic Concrete Requirements: Refer to Division 03.
  - 5. Basic Masonry Requirements: Refer to Division 04.
  - 6. Basic Waterproofing, Roofing, Cladding, Air Barrier, Insulation Requirements: Refer to Division 07.
  - 7. Basic Fenestration Systems Requirements: Refer to Division 08.

#### **1.2 SECTION INCLUDES**

- A. This section includes functional performance testing requirements for the Building Enclosure systems that will be performed by the Building Enclosure Testing Agency as part of the Building Enclosure Commissioning process.

### **PART 2 - PRODUCTS**

#### **2.1 TESTING AGENCY**

- A. The Building Enclosure Testing Agency (BETA) will be the same entity as the building enclosure commissioning agent (BECxA) for this project and will perform the testing defined in this specification.
- B. The building enclosure Functional Performance Testing (FPT) included within this specification is performed by the BETA under the direction of the Owner and BECxA. Testing outside of this specification is not the responsibility of the BETA and is to be performed by others as required in the Contract Documents.
- C. The BETA shall be responsible for the applicable specified testing outlined herein. The Construction Manager is responsible for any costs associated with retesting and additional testing, including costs related to observation and documentation of retesting and additional testing by the BECxA.

## 2.2 TEST ACCOMMODATIONS

- A. Construction Manager shall provide the following to the BETA to accommodate testing:
  - 1. Access to the interior and exterior sides of the enclosure assemblies, including equipment and operators as needed (i.e., lifts, swing stages, fall protection systems, and/or scaffolding with trained operators to access the interior and exterior).
  - 2. Water sources with standard garden hose connection within 150 feet of each test location with uninterrupted flow at a minimum pressure of 35 psi at the test specimen.
  - 3. Uninterrupted power sources with 120-volt, two minimum 20 amp receptacles within 200 feet of the interior of each test location.
  - 4. Free and clear access to observe the interior and exterior of test specimens, including concealed interior wall cavities. Interior finishes should not be installed around the test locations.

## 2.3 TEST REPORTS

- A. Test reports will be provided by the BETA after each mock-up and field functional performance test.
- B. Reports will include a description of the test method(s) and protocol used as well as all relevant testing parameters and pass/fail criteria. Any deviations from the referenced published testing standards or project documents shall be clearly identified and justification provided by the BETA.
- C. Reports will identify specific testing locations and specimens and include photographs of the test specimens before, during, and after testing.
- D. Reports will include testing results, including any relevant descriptions and photographs of testing failures. Any diagnostic tests performed in response to failures should also be documented in test reports.

## PART 3 - EXECUTION

### 3.1 MOCK-UP TESTS

- A. Mock-ups should be constructed, tested, and accepted prior to commencement of installation of building enclosure systems, assemblies, and components. Refer to project-specific mock-up requirements in Project specification Section 04 20 00 - Unit Masonry and architectural drawings provided by the Architect/Engineer (A/E) detailing mock-up sizes and materials. Mock-ups are anticipated to be an on-site, in-situ mock-up. Components and conditions for inclusion in the mock-up include mortar, accessories, structural backup, wall flashings, windows, curtainwall, and precast as required to show complete wall system. Testing is performed on the installed fenestration systems, air barrier, and any terminations or penetrations through primary air and moisture control components, such as cladding girt fasteners and anchors.
- B. Refer to project specifications for mock-up submittal/shop drawing requirements including requirements for project-specific transition details indicating how fenestration systems, air barrier, and claddings interface with adjacent systems.



- C. Mockup testing to be performed in one round in the following order at locations directed by Architect.
  - 1. Nozzle Water Penetration Test
    - a. Test according to AAMA 501.2-15 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems.
    - b. Test two (2) locations of mockup window systems with no evidence of water penetration.
  - 2. Static Quantitative Air Infiltration Test
    - a. Test according to ASTM E783-02(2018) - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
      - 1) Test two (2) locations of mock-up window systems at 1.5 times the performance rating of the lab tested fenestration product, but not more than 0.09 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.
  - 3. Static Uniform Water Penetration Test
    - a. Test according to ASTM E1105-15 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference, Procedure A.
      - 1) Field testing conducted at two-thirds of the laboratory water penetration resistance performance criteria of the installed fenestration system, but not less than 6.24 lbf/sq. ft.
      - 2) Test specimens must include perimeter transitions and interfaces with adjacent construction with no evidence of water penetration.
- D. The mock-up test performance criteria of “no evidence of water penetration” is defined as follows:
  - 1. Water is contained and drained to the exterior
  - 2. There is no wetting of interior surfaces visible to the building occupants
  - 3. There is no wetting, staining, or other damage or potential damage to completed building equipment, materials, or finishes
- E. The coordination and completion of the mock-up construction is the responsibility of the Construction Manager. The CM shall permit observations of the mock-up by the Building Enclosure Commissioning Agent (BECxA) and any member of the Building Enclosure Commissioning Team throughout construction and testing as required.
- F. The CM shall notify the BECxA/BETA at least two weeks in advance of desired testing date.
- G. In the event of excessive air or observed water leakage through the test sample either during pre-testing or final testing; additional diagnostic and isolation testing should be conducted to determine the cause of failure.
- H. Following failed mock-up testing, CM to provide a plan of repairs to be performed to the BECT for review. A/E shall approve plan of repairs prior to implementation and retesting. All repairs

performed to facilitate successful testing must be approved by the A/E and performed comprehensively throughout project.

- I. Retesting shall be conducted by the BETA. All costs associated with the repair and retesting shall be the responsibility of the contractor, including costs related to performance, observation, and documentation of retesting and additional testing by the BETA and BECxA.

### 3.2 FIELD TEST REQUIREMENTS

- A. Field tests will focus on interfaces and transitions of building enclosure systems, materials, and assemblies. Testing shall be performed prior to the installation of interior insulation, gypsum wall board, interior supplemental sealant joints, and finishes. Specific test locations/specimens will be further developed and identified in the Building Enclosure Commissioning Plan. Specific test locations and conditions will be selected by the A/E and BECxA to include a representative sample of the project. Construction phase field functional performance testing to be performed with general locations/conditions identified as follows:

1. Nozzle Water Penetration Test

- a. Test according to AAMA 501.2-15 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls and Sloped Glazing Systems.
  - 1) Test three (3) locations of glazed aluminum curtain walls prior to ten percent (10%), thirty-five percent (35%), and seventy percent (70%) completion of the curtain wall system completion with no evidence of water penetration.
  - 2) Test three (3) locations of manufactured roof expansion joints with no evidence of water penetration.
  - 3) Test three (3) locations of preformed joint sealants with no evidence of water penetration.
  - 4) Test three (3) locations of exterior expansion joint cover assemblies with no evidence of water penetration.

2. Static Quantitative Air Infiltration Test

- a. Test according to ASTM E783-02(2018) - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
  - 1) Test three (3) locations of glazed aluminum curtain walls prior to ten percent (10%), thirty-five percent (35%), and seventy percent (70%) completion of the curtain wall system completion.
  - 2) Test to an allowable air leakage rate of 0.09 cfm/sq. ft. (0.45 L/s per sq. m) at a static-air-pressure differential of 6.24 lbf/sq. ft. (75 Pa) per Section 084413 2.1 I.4 and 3.7 C.2.

3. Static Water Penetration Test

- a. Test according to ASTM E1105-15 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference, Procedure A. Test specimens must include perimeter transitions and interfaces with adjacent construction.

- 1) Test three (3) locations of glazed aluminum curtain walls prior to ten percent (10%), thirty-five percent (35%), and seventy percent (70%) completion of the curtain wall system completion.
- 2) Field testing conducted at 10 lb/sq. ft., two-thirds of the 15 lb/sq. ft. laboratory water penetration resistance performance criteria of the installed curtain wall system per Section 084413 2.1 F.1 and 3.7 C.3 with no evidence of water penetration.

B. Field functional performance testing shall be conducted to project performance requirements as set forth in the Construction Documents and below:

Performance Test	Test Specimen	Performance Criteria
AAMA 501.2 Water Nozzle Penetration	Glazed aluminum curtain walls, manufactured roof expansion joints, preformed joint sealants, exterior expansion joint covers	No evidence of water penetration
ASTM E783 Air infiltration	Glazed aluminum curtain walls	< 0.09 cfm/sf at 6.24 psf
ASTM E1105 Uniform Static Water Penetration	Glazed aluminum curtain walls	No evidence of water penetration at 10 psf

C. The field test performance criteria of “no evidence of water penetration” is defined as follows:

1. Water is contained and drained to the exterior
2. There is no wetting of interior surfaces visible to the building occupants
3. There is no wetting, staining, or other damage or potential damage to completed building equipment, materials, or finishes

**3.3 TEST FAILURES**

- A. All failed testing areas demonstrating deficient conditions or performance are to be repaired and retested at CM’s expense. Retesting shall be conducted by the BETA. All costs associated with the repair and retesting including all access, equipment, labor, and materials, as well as costs incurred by the BETA and BECxA site visits shall be the responsibility of the contractor.
- B. In addition to re-testing, failed test will result in testing of at least one (1) additional specimen at a location selected by the BECxA at the cost of the contractor. Testing will be concluded only when satisfactory results are achieved. All failed test specimens shall be repaired and retested until passing results are achieved.
- C. Efforts will be made to expedite testing and minimize unnecessary delays, while not compromising integrity of tests. BECxA shall not overlook deficient work or loosen acceptance criteria to satisfy scheduling or cost issues unless directed to do so directly by the Owner.
- D. Where testing indicates that performance requirements are not met, the contractor shall provide a repair plan for review by the BECT. Once the plan of repairs is agreed upon, Subcontractor corrects deficiency and provides written response and/or documentation on the MIL that the deficiency has been addressed and verifies that material or assembly is ready to be retested. CM informs BECT of retesting schedule and reschedules retesting with BECxA and BETA. Testing and resolution process is repeated until satisfactory performance is achieved. CM shall maintain free and clear access to the re-test and additional test areas, including exclusion and removal of interior finishes, until satisfactory performance is achieved.

**END OF SECTION 019117**

## SECTION 064013 – EXTERIOR ARCHITECTURAL WOODWORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Wood cladding for raised garden bed over structure.
- B. Related Sections:
  - 1. Division 03 Section 'Cast in Place Concrete'
  - 2. Division 32 Section 'Unit Paving'
  - 3. Division 32 Section 'Garden Roof Assembly'

#### 1.3 REFERENCE STANDARDS

- A. For Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
  - 2. NLGA: National Lumber Grades Authority.
  - 3. RIS: Redwood Inspection Service.
  - 4. SPIB: The Southern Pine Inspection Bureau.
- B. For other related assembly materials:
  - 1. AWS - American Welding Society
    - a. AWS D1.1-96: Structural Welding Code--Steel
    - b. AWS D1.3-89: Structural Welding Code--Sheet Steel
  - 2. NAAMM - National Association of Architectural Metal Manufacturers
    - a. Metal Finishes Manual for Architectural and Metal Products. 1988.
  - 3. American Society for Testing and Materials
    - a. ASTM A276-96: Specification for Stainless Steel Bars and Shapes
    - b. ASTM A666-96: Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
    - c. C157-03 Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar, and Concrete
    - d. C827-01a Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures
    - e. ASTM C1107-91a: Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
    - f. ASTM F593-95: Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
    - g. ASTM F594-91: Specification for Stainless Steel Nuts
    - h. ASTM C920-95, "Specifications for Use of Elastomeric Joint Sealants"

- i. ASTM C1021-97, Practice for Laboratories Engaged in Testing of Building Sealants"
- j. ASTM C1087-00, "Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems"
- k. ASTM C1193-00, "Guide of Use of Joint Sealants"

#### 1.4 SUBMITTALS

- A. Certificates/Manufacturer's Data: Submit for approval of Landscape Architect the sources of supply and manufacturer's specifications, quality control, product data, test reports, and instructions for handling, storage, installation and protection for the following:
  - 1. Wood for Raised Garden Bed Over Structure:
    - a. MECHANICAL CERTIFICATION: A test report from an independent U.S. testing laboratory indicating conformance to lpe wood mechanical properties in accordance to the procedures outlined in ASTM Test Method D143 shall be submitted with the material bid.
    - b. INSPECTION CERTIFICATION: A Certificate of Grade and Inspection from an independent third party inspection and grading agency, Mallinckrodt or pre-approved equal, indicating compliance with material specifications as to producing mill, Iron Woods FEQ grade, species, dimensions, quantity, condition, packaging, and documentation. Inspection will include the physical examination of 100% of the timber produced against the buyer's order, piece by piece, prior to packaging. Inspections are to take place at the mill throughout production and the certificate is to be submitted with the material prior to delivery.
    - c. For lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by ALSC's Board of Review.
    - d. For metal framing anchors include installation instructions.
- B. Samples: Submit samples of the following materials. Samples shall be representative of the workmanship and finishes to be incorporated in the completed Project.
  - 1. Wood Slats:
    - a. Submit six (6) full-size typical slats, showing the range of variation to be expected in appearance of wood slats.
    - b. The approved samples will set the finish standard for the Work. Greater variation than is represented in the approved samples will not be accepted in the finished work.
    - c. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished comply with requirements.
- C. Shop drawings showing fabrication and installation of custom planters including plans, elevations, details of components, and attachments to other units of Work. Indicate materials and profiles of each member, fitting, joinery, finishes, fasteners, anchorages, and accessory items.
  - 1. Submit complete drawings for entire planter assembly showing shop sizes and shapes, including, thickness, jointing, expansion joints, anchoring, connection with other adjacent work, typical and special anchoring details, and field verified conditions and dimensions. Show electrical connections. Field measurement drawings, as reference only, shall also be submitted with shop drawings.
  - 2. Drawings shall show relationship to adjoining construction after fabrication and, shall indicate the location of each wood unit and metal with a number designation corresponding to number marked on each unit.

- a. Show location layouts and patterns coordinated with design drawings and related survey control points and dimensions. Establish and verify dimensions with concrete work of on-site structures and elements, masonry layouts, patterns of other work, and other like conditions.
  - b. Show location, type, and extent of anticipated field cutting.
  3. Do not fabricate any custom wood elements (except for mockups) until Shop Drawings have been approved for fabrication by the Landscape Architect.
- D. Field Constructed Mock-ups: Construct at the earliest possible time and at approved location, before proceeding with Work and after Landscape Architect's approval of submitted samples. Submit proposed locations for field mockups and receive approval of locations from Landscape Architect prior to construction of field mockups. Provide and construct entire planter assembly as specified herein to show appearance, workmanship, and finish of work, complete and in coordination with work of other Sections as applicable.
1. Install mock-ups of planter assembly unless otherwise directed. Coordinate with materials requirements as specified in other sections.
  2. The field mock-up must be approved by Landscape Architect before all the planter assembly may proceed. Accepted mockup establishes minimum standard of quality and workmanship for work of this Section.
  3. Demolish and remove field mockups at a time approved by Landscape Architect when no longer required to serve as a standard of work. Mock-up may be incorporated as part of Work if conforming to specified requirements, and if accepted by Landscape Architect.
- E. Maintenance Program: Submit a maintenance program to be followed by the Contractor during construction and by the Owner during the Warranty Period, including provisions, such as temporary protection measures, to protect planter assembly.

## 1.5 QUALITY ASSURANCE

- A. The work of this section shall be performed by companies which specialize in the type of wood work required for this Project, certified in writing, with a minimum of 10 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.
- B. Fabrication Qualifications: Fabrications shall be by a firm or firms, which have successfully fabricated each material type and condition, similar to the quality specified, and in the quantity shown for a period of not less than five (5) years.
1. The Landscape Architect and Owner may during the course of the work visit the places of fabrication. The Contractor shall afford these representatives free access and cooperation in the performance of their duties.
- C. Installer Qualifications: Installers shall have a minimum of ten (10) years successful experience, either in the present business form or by having principal personnel with equivalent experience elsewhere, in the installation of the wood materials specified, and the products, systems, and scope specified. An experienced (10 years experience) field foreman shall oversee all work. Include evidence of experience including project list.
- D. Forest Certification: All wood shall be harvested from forests certified by the Forest Stewardship Council (FSC) and all wood products shall be Chain of Custody certified.
1. "Certified Forest Products Council" Purchasing Policy Guidelines: In an effort to promote sustainable forest management, the material supplier will provide proof of membership in

- the Certified Forest Products Council as confirmation of their commitment to the development of sustainable forest resources.
2. "Forest Stewardship Council" Endorsed Third Party Certification: In an effort to promote sustainable forest management, the supplier will provide proof of Chain Of Custody Certification status in an FSC endorsed certification program as an example: Rainforest Alliance SmartWood© Program or approved equal.
- E. Welding Standards: Refer to Division 05 "Metal Fabrications".
- F. Field Measurements and Coordination: Verify dimensions with existing conditions and with work specified in other sections which adjoins the work herein specified or to which this work will be attached.
1. Coordinate with related work of other sections, including work of other separate contracts.
  2. Field Measurement Drawings: Measurements of adjoining work shall be taken, so that work specified in this Section shall fit closely into spaces provided, and shall allow correct access and clearance at conditions. Measurements shall include both horizontal dimensions and vertical grades. Employ a qualified surveyor as required. Contractor shall prepare a field measurement drawing at a scale of 1/2" = 1' 0" or larger showing existing adjoining work, including, but not limited to conduits and all foundations for structural elements. Drawings will be prepared prior to preparation of shop drawings, and shall be submitted, for reference only, with shop drawing submittal.
  3. If any unusual conditions are encountered, the nature and location of conditions shall be shown on shop drawings submitted to the Landscape Architect for determination and approval prior to fabrication.
  4. Furnish all necessary templates and patterns required by work of other sections. Furnish components of assemblies that are to be built into work specified as part of other sections.
- G. Shop Assembly: To the extent practicable, fitting and assembly of work shall be done in the shop. All work shall be accurately and neatly fabricated, assembled and erected with smooth finish surfaces.
1. Work that cannot be permanently shop-assembled, shall be completely assembled, marked for re-assembly and disassembled in shop before shipment to insure correct assembly in the field.
  2. Shop assemble work in largest practical sizes to minimize field work.
  3. Shop fabricated items shall properly fit the field condition. In the event that shop fabricated items do not fit the field condition, the item shall be returned to the shop for correction.
  4. Connections in the field shall be with approved mechanical fasteners. Welding of assemblies or components in the field shall not be permitted, unless approved in writing by the Landscape Architect and correct protective measures are implemented.
- H. Pre-installation Meeting: Before beginning work, schedule and conduct a meeting at the site to review the Contract Documents, the approved submittals and other pertinent matters of the particular installation. Present shall be the Owner, Landscape Architect, Contractor, the installers, and the installers' field foremen. Inform the Landscape Architect ten (10) business days in advance of the scheduled meeting time.

## 1.6 REGULATORY REQUIREMENTS

- A. Comply with all rules, regulations, laws and ordinances of government authorities having jurisdiction. Provide labor, materials, equipment and services necessary to make Work comply with such requirements without additional cost to Owner.
- B. Investigate the conditions of public thoroughfares and roads as to availability, clearances, loads, limits, restrictions, and other limitations affection transportation to and ingress and egress at the site. Conform to all governmental regulations regarding the transportation of materials and secure, in advance, any necessary permits.
- C. Procure and pay for permits and licenses required for Work.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store wood elements inside a well-ventilated area, away from uncured concrete and masonry, and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity. Store products on elevated platforms in a dry location.
- B. Deliver wood planter assemblies wrapped in protective coverings or in heavy-duty cartons. Remove protective coverings before they stain or bond to finished surfaces.

## 1.8 PROJECT CONDITIONS

- A. Field Measurements: Where wood elements are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

## 1.9 EXTRA MATERIALS

- A. Furnish extra materials described below that match materials installed and that are packaged for storage and identified with labels describing contents.
  - 1. Wood Slats: Twelve (12) extra pieces of each type
- B. Packing requirements: Extra materials shall be packed in heavy duty corrugated cardboard boxes. Label each box with list of contents.

## PART 2 - PRODUCTS

### 2.1 FINISH WOOD

- A. All finish wood surfaces for all planters shall be: Ipe (Handroanthus spp), unless otherwise specifically indicated on drawings. Available manufacturers as available below or approved equal:
  - 1. Ironwoods | Timber Holdings USA  
Tel: 414-445-8989  
Email: info@ironwoods.com



- B. Finish Wood Lumber Grade: All lumber shall be third party graded and inspected to (Premium Select Clear All Heart) grading rules, defined as follows:
1. Lumber shall be graded four faces, and four edges.
  2. Lumber shall be straight grained and parallel cut without heart center.
  3. Lumber shall be all heartwood, no sapwood allowed.
  4. Lumber shall be in sound condition, free from worm holes or knots.
  5. Sawn ends shall be finished with Anchor sealer.
  6. Allowable Imperfections defined as - Small drying cracks, small end splits (less than 5/32 inches in width), that do not impair the strength of the material or fastening, Discoloration caused by weathering or chemical reaction, Bow or twist which can be removed using normal installation methods and tools, Roey/Scale grain (one face only).
  7. Not Allowable Imperfections defined as - Longitudinal heart cracks, Internal cracks, Firm or soft sap wood, Fungi Affects - (blue to gray, brown to red, white to yellow, or incipient decay), Bow or twist which cannot be removed by normal installation methods and tools.
  8. Mechanical Properties: Wood supplied shall meet or exceed mechanical properties as defined by U.S. Forest Product Laboratories testing methods. The values for mechanical properties based on the 2" standard are as follows:

<b>Ipe (<i>Handroanthus spp</i>)</b>			
<u>Moisture Content</u>	<u>Bending Strength</u>	<u>Modulus of Elasticity</u>	<u>Max. Crush Strength</u>
12%	25,400 psi	3,140,000 psi	13,010 psi
Janka side hardness is 3,680 lb. at 12% M.C.			
Average air dry density is 66 to 75 pcf.			
Basic specific gravity is 0.85-0.97			

- C. Finish: No finish shall be applied; finish shall be natural.

2.2 MISCELLANEOUS MATERIALS

- A. Wood Coping Fasteners: Provide Type 316L stainless steel fasteners, complying with requirements of ASTM F593-95 and ASTM F594-91. Select fasteners for type, grade, and class required.
1. Provide concealed fasteners for interconnection of components and for their attachment to other work, except where otherwise indicated.
  2. Provide vandal proof flat-head machine screws for exposed fasteners, unless otherwise indicated.
- B. All other fasteners and supports shall be stainless steel.

2.3 FABRICATION

- A. Form custom fabrications to required shapes and sizes, with true curves, lines, and angles.

- B. Provide necessary rebates, lugs, and brackets to assemble units and to attach to other work. Drill and tap for required fasteners, unless otherwise indicated. Use concealed fasteners wherever possible.
- C. Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing wood planters, as applicable to each unit of work.
- D. Mill joints to a tight, hairline fit. Cope or miter corner joints. Form joints exposed to weather to exclude water penetration.
- E. Finish exposed surfaces, including welds, to smooth, sharp, well-defined lines and arises.
- F. Assemble items in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Inspection: Verify the conditions, elevations, and measurements affecting the work of this Section prior to installation. Examine locations to receive planter and do not proceed until any defects detrimental to the finished work are corrected. Take proper precautions so as not to disturb or damage subsurface elements of utilities, conduits, underdrainage systems, water proofing, insulation, or foam fill.

#### 3.2 PREPARATION

- A. Coordinate and furnish anchorages and setting drawings, diagrams, templates, instructions, and directions for installing items having integral anchors that are to be embedded in concrete construction. Coordinate delivery of such items to the Project site.

#### 3.3 INSTALLATION

- A. Provide anchorage devices and fasteners where necessary for securing miscellaneous metal items to in-place construction.
- B. Perform cutting, drilling, and fitting required to install custom fabrications. Set products accurately in location, alignment, and elevation, plumb, level, and true, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- C. Fit exposed connections accurately together to form tight, hairline joints or, where indicated, with uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of miscellaneous metal items, restore finishes to eliminate any evidence of such corrective work.

- D. Do not cut or abrade finishes that cannot be completely restored in the field. Return items with such finishes to the shop for required alterations, followed by complete refinishing, or provide new units as required.
- E. Restore protective coverings that have been damaged during shipment or installation. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at the same location.
  - 1. Retain protective coverings intact and remove simultaneously from similarly finished items to preclude non-uniform oxidation and discoloration.
- F. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

### 3.4 PROTECTION

- A. Protect finishes of planters from damage during construction period with temporary protective coverings approved by fabricator. Remove protective covering at the time of Substantial Completion.
- B. Restore finishes damaged during installation and construction so that no evidence remains of correction work. Return items that cannot be refinished in the field as determined by the Landscape Architect to the shop; make required alterations and refinish entire unit; or provide new units as required.

### 3.5 CLEANUP

- A. Legally dispose of off-site all refuse and debris from these operations. Remove or neatly store material at the end of each day's work. Burning of material or dumping on the site is prohibited.
- B. Maintain the site in an orderly condition during the progress of Work. Continuously and promptly remove excess and waste materials; keep lawn areas, walks and roads clear. Store materials and equipment where directed. Immediately remove rejected materials from the property. Promptly remove equipment, surplus material, and debris and trash resulting from operations under this Contract upon completion and prior to initial acceptance of Work. Leave the site in a neat, orderly, "broom clean" condition.

**END OF SECTION 321170**

## SECTION 074213.13 – FORMED METAL WALL PANELS

### PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Exposed fastener metal wall panels, as part of the assembly described in Section 2.1.

#### 1.2 RELATED REQUIREMENTS

- A. Division 01 Section "Sustainable Design Requirements" for related requirements.
- B. Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal copings, flashings, reglets and roof drainage items.
- C. Division 07 Section "Joint Sealants" for field-applied joint sealants.

#### 1.3 REFERENCES

- A. American Architectural Manufacturer's Association (AAMA):
  - 1. AAMA 620 - Voluntary Specification for High Performance Organic Coatings on Coil Coated Architectural Aluminum Substrates.
- B. American Society of Civil Engineers (ASCE):
  - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. ASTM International (ASTM):
  - 1. ASTM B 209 - Specification for Aluminum and Aluminum Alloy Sheet and Plate.
  - 2. ASTM C 754 - Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products.
  - 3. ASTM C 920 - Specification for Elastomeric Joint Sealants.
  - 4. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
  - 5. ASTM E 283 - Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen.
  - 6. ASTM E 331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- D. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA):
  - 1. Architectural Sheet Metal Manual.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Provide metal wall panel assemblies meeting performance requirements as determined by application of specified tests by a qualified testing agency on manufacturer's standard assemblies.

- B. Air Infiltration: When installed over Insulated Composite Backup Panels, maximum 0.06 cfm/sq. ft. (0.3 L/s per sq. m) per ASTM E 283 at a static-air-pressure difference of 1.57 lbf/sq. ft. (75 Pa), using minimum 10-by-10 foot (3050-by-3050 mm) test panel that includes side joints.
- C. Water Penetration, Static Pressure: When installed over Insulated Composite Backup Panels, no uncontrolled water penetration per ASTM E 331 at a minimum static differential pressure of 6.24 lbf/sq. ft. (299 Pa), using minimum 10-by-10 foot (3050-by-3050 mm) test panel that includes side joints.
- D. Maximum allowable deflection limitation.
  - 1. Single Skin Panels greater than 1-inch (25-mm) in Depth: Limited to L/120 deflection of panel perimeter normal to plane of wall.
- E. Secondary Metal Framing: Design secondary metal framing for metal wall panel assembly according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."
- F. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction.
- G. Wall systems that incorporate foam plastic insulation must be tested by the foam plastic supplier in accordance with NFPA-285.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer/Source: Provide metal wall panel and panel accessories from a single manufacturer.
- B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum 10 years experience in manufacture of similar products in successful use in similar applications.
- C. Wall Systems Installer Qualifications: Experienced Installer with minimum of 5 years experience with successfully completed projects of a similar nature and scope.

#### 1.6 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct preinstallation meeting at site attended by Owner, Architect, manufacturer's representative, and other trade contractors.
  - 1. Coordinate building framing in relation to metal wall panel assembly.
  - 2. Coordinate installation of building air and water barrier behind metal wall panel assembly.
  - 3. Coordinate window, door and louver, and other openings and penetrations of metal wall panel assembly.

#### 1.7 ACTION SUBMITTALS

- A. Product Data: Manufacturer's data sheets, for specified products.
  - 1. Include data indicating compliance with performance requirements.
- B. Shop Drawings: Provide shop drawings prepared by manufacturer or manufacturer's authorized installer. Include full elevations showing openings and penetrations. Include details

of each condition of installation and attachment. Provide details at a minimum scale 1-1/2-inch per foot (1:8) of all required trim and extrusions needed for a complete installation.

1. Indicate points of supporting structure that must coordinate with metal wall panel assembly installation.

C. Samples for Initial Selection: For each product specified. Provide representative color charts of manufacturer's full range of colors.

D. Samples for Verification: Provide 12-inch (300 mm) section of panel(s) showing finishes. Provide 12-inch (300 mm) long pieces of trim pieces and other exposed components.

#### 1.8 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Indicating compliance of products with requirements, from a qualified independent testing agency.

B. Qualification Information: For Installer firm.

C. Manufacturer's warranty: Submit sample warranty.

#### 1.9 CLOSEOUT SUBMITTALS

A. Maintenance data.

#### 1.10 DELIVERY, STORAGE, AND HANDLING

A. Protect metal wall panel products during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage.

1. Deliver, unload, store, and erect metal wall panel products and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.

#### 1.11 WARRANTY

A. Special Manufacturer's Warranty: On manufacturer's standard form, in which manufacturer agrees to repair or replace components of metal wall panel assemblies that fail in materials and workmanship within two years from date of Substantial Completion.

B. Special Panel Finish Warranty: On manufacturer's standard form, in which manufacturer agrees to repair or replace metal wall panels that display evidence of deterioration of finish within 20 years from the date of substantial completion.

### **PART 2 - PRODUCTS**

#### 2.1 SYSTEM DESCRIPTION

A. Metal Wall Panels over Outside-Insulated Framed Wall System: Single-skin exposed fastener metal wall panels applied as exterior rainscreen cladding over wall framing specified in Division 05 Section "Cold-Formed Metal Framing" with exterior sheathing specified in Division 06 Section "Sheathing", an applied membrane that provides air, moisture, and water vapor control

specified in Division 07 Section "Fluid-Applied Membrane Air Barriers", and insulation applied outboard of the sheathing specified in Division 07 Section "Thermal Insulation." Metal wall panel installation specified in this Section includes secondary metal subgirt framing for panel attachment.

- B. Metal Wall Panels over Uninsulated Framed Screen Wall System: Single-skin exposed fastener metal wall panels applied as exterior barrier cladding over wall framing specified in Division 05 Section "Cold-Formed Metal Framing". Metal wall panel installation specified in this Section may include secondary metal subgirt framing for panel attachment.

## 2.2 MANUFACTURERS

- A. Basis of Design Product: Subject to compliance with requirements, provide CENTRIA, a Nucor Brand; Exposed Fastener Series Metal Wall Panels BR5-36 or comparable product approved by one of the following;
  - 1. Elevate; Holcim Building Envelope.
  - 2. PAC-CLAD; Petersen; a Carlisle company.

## 2.3 METAL WALL PANEL MATERIALS

- A. Aluminum Face Sheet: Smooth surface coil-coated, ASTM B 209, 3003-H14 or 5052-H32 alloy.
  - 1. Face Sheet: 0.050 inch (1.27 mm) nominal thickness.
  - 2. Surface: Smooth.

## 2.4 EXPOSED FASTENER PROFILE METAL WALL PANELS

- A. Metal Wall Panels, General: Factory-formed, Exposed fastener panels with interconnecting side joints, fastened to supports with exposed fasteners, with field-applied sealants in side laps when required to meet performance requirements.
- B. Ribbed profile with lap joint (MP-4):
  - 1. Basis of Design Product: CENTRIA, BR5-36.
  - 2. Panel Coverage: 36 inches (914 mm).
  - 3. Panel Height: 1.50 inches (38 mm).
  - 4. Rib Spacing: 5 at 7.20 inches (183 mm) o.c.
- A. Exposed Coil-Coated Finish System:
  - 1. Fluoropolymer Three-Coat System: 0.8 mil primer with 0.8 mil 70 percent PVDF fluoropolymer color coat, and a 0.8 mil 70 percent PVDF fluoropolymer clear coat, AAMA 621 & 2605.
    - a. Basis of Design: CENTRIA Duragard Plus.
- B. Color:
  - 1. Exterior Surface: Custom color to match MP-2.

## 2.5 METAL WALL PANEL ACCESSORIES

- A. Metal Wall Panel Accessories, General: Provide complete metal wall panel assembly incorporating trim, copings, fasciae, parapet caps, soffits, sills, inside and outside corners, and miscellaneous flashings. Fabricate accessories in accordance with SMACNA Manual. Provide manufacturer's factory-formed clips, shims, flashings, gaskets, lap strips, closure strips, and caps for a complete installation as required for the following:
1. Single-skin application over metal framing and secondary framing.
  2. Single-skin application over insulated, sheathed frame wall with air and water resistant barrier.
- B. Extruded Trim: Manufacturer's complementary aluminum extrusions for head, jamb, sill, base, flush, reveal, inside and outside corner, end wall, and expansion joint details. Finish to match metal wall panels.
1. Basis of Design: CENTRIA, Microline Extrusions.
- C. Mitered Corners: Structurally-bonded horizontal interior and exterior trimless corners matching metal wall panel material, profile, and factory-applied finish, fabricated and finished by metal wall panel manufacturer.
1. Welded, riveted, fastened, or field-fabricated corners do not meet the requirements of this specification.
  2. Basis of Design: CENTRIA, MicroSeam Corners.
- D. Formed Flashing and Trim: Match material, thickness, and color of metal wall panel face sheets.
- E. Sealants: Type recommended by metal wall panel manufacturer for application, meeting requirements of Division 07 Section "Joint Sealants."
- F. Flashing Tape: 4-inch wide self-adhering butyl flashing tape.
- G. Fasteners: Self-tapping screws, bolts, nuts, and other acceptable fasteners recommended by panel manufacturer. All exposed fasteners must be stainless steel with heads matching color of metal wall panels by means of factory-applied coating.

## 2.6 SECONDARY METAL FRAMING

- A. Miscellaneous Framing Components, General: Cold-formed metallic-coated steel sheet, ASTM A 653/A 653M, G90 (Z180).
1. Hat Channels: 0.06 inch/16 ga. (1.52 mm) minimum – nominal thickness.
  2. Sill Channels: 0.06 inch/16 ga. (1.52 mm) minimum – nominal thickness.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine metal wall panel substrate with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal wall panels.



- B. Wall Substrate: Confirm that wall substrate is within tolerances acceptable to metal wall panel system manufacturer.
  - 1. Maximum deviations acceptable:
    - a. 1/4-inch in 20 feet (6.4 mm in 6 m) vertically or horizontally from face plane of framing.
    - b. 1/2-inch (12.7 mm) across building elevation.
    - c. 1/8-inch in 5 feet (3.2 mm in 1.5 m).
- C. Framing: Inspect framing that will support metal wall panels to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable framing members at recommended spacing to match installation requirements of metal wall panels.
- D. Openings: Verify that windows, doors, louvers and other penetrations match layout on shop drawings.
- E. Air/Moisture Barriers: Confirm that work has been completed, inspected, and tested as required.
- F. Advise G.C, in writing, of out-of-tolerance work and other deficient conditions prior to proceeding with metal wall panel system installation.
- G. Correct out of tolerance work and other deficient conditions prior to panel installation.

### 3.2 SECONDARY FRAMING INSTALLATION

- A. Secondary Metal Framing: Install secondary metal framing components to tolerances indicated, as shown on approved shop drawings. Install secondary metal framing and other metal panel supports per ASTM C 1007 and metal wall panel manufacturer's recommendations.

### 3.3 METAL WALL PANEL INSTALLATION

- A. General: Install metal wall panels in accordance with approved shop drawings and manufacturer's recommendations. Install metal wall panels in orientation, sizes, and locations indicated. Anchor metal wall panels and other components securely in place.
- B. Attach panels to metal framing using recommended screws, fasteners, sealants, and adhesives indicated on approved shop drawings.
  - 1. Fasteners for Steel Wall Panels: Stainless-steel for exterior locations and locations exposed to moisture; carbon steel for interior use only.
  - 2. Provide weatherproof escutcheons for pipe and conduit penetrating exterior walls.
  - 3. Dissimilar Materials: Where elements of metal wall panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.
- C. Joint Sealers: Install joint sealants where indicated on approved shop drawings.

### 3.4 ACCESSORY INSTALLATION

- A. General: Install metal wall panel accessories with positive anchorage to building. Coordinate installation with flashings and other components.

1. Install related flashings and sheet metal trim per requirements of Division 07 Section "Sheet Metal Flashing and Trim."
2. Install components required for a complete metal wall panel assembly, including trim, copings, corners, lap strips, flashings, sealants, fillers, closure strips, and similar items.
3. Comply with performance requirements and manufacturer's written installation instructions.
4. Set units true to line and level as indicated.

### 3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a service representative authorized by metal wall panel manufacturer to inspect completed installation. Submit written report.
- B. Correct deficiencies noted in manufacturer's report.

### 3.6 CLEANING AND PROTECTION

- A. Remove temporary protective films. Clean finished surfaces as recommended by metal wall panel manufacturer. Clear weep holes and drainage channels of obstructions, dirt, and sealant. Maintain in a clean condition during construction.
- B. Replace damaged panels and accessories that cannot be repaired by finish touch-up or minor repair.

**END OF SECTION 074213.13**

## **SECTION 074213.23 - METAL COMPOSITE MATERIAL WALL PANELS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. Section Includes:

- 1. Metal composite material (MCM) panels.
- 2. Metal composite material (MCM) system.

- B. Related Requirements:

- 1. Section 014339 "Mockups" for integrated exterior mockup requirements.
- 2. Section 070543.11 Composite Metal Hybrid (CMH) Continuous Insulation Sub-Framing Support Systems.
- 3. Section 019115 "Building Enclosure Commissioning."

#### **1.3 DEFINITIONS**

- A. DBVC: Drained and back-ventilated cavity rainscreen system designed to drain and dry water entering cavity through drainage channels, weeps, and air ventilation.
- B. MCM: Metal composite material; cladding material formed by joining two thin metal skins to polyethylene or fire-retardant core and bonded under precise temperature, pressure, and tension.

#### **1.4 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

- 1. Meet with Owner, Architect, Owner's insurer if applicable, MCM system Installer, MCM system manufacturer's representative, and installers whose work interfaces with or affects MCM panels, including installers of doors, windows, and louvers.
- 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- 3. Review methods and procedures related to MCM system installation, including manufacturer's written instructions.
- 4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
- 5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affect MCM system.

6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
7. Review temporary protection requirements for system assembly during and after installation.
8. Review procedures for repair of panels damaged after installation.
9. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

## 1.5 ACTION SUBMITTALS

- A. Product Data: Include construction details, manufacturer's installation instructions, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel, system, and accessory.
  1. Metal composite material (MCM) panels.
  2. Metal composite material (MCM) system.
- B. Shop Drawings: Submit project specific shop drawings prepared by, or under supervision of, Structural Design Engineer as specified in Quality Assurance article below and including Structural Design Engineer's stamp or seal on all shop drawings including system attachments and anchors.
  1. Include fabrication and installation layouts of MCM system; project specific details of edge conditions, joints, panel profiles, corners, anchorages, attachment assembly, trim, flashings, closures, accessories, and special details. Include details showing integration of metal composite material wall panel system with air barrier system such as back-sealing of fastener penetrations. Include integration with adjacent construction.
  2. Accessories: Include project specific details of flashing, trim, and anchorage, at a scale of not less than 1-1/2 inches per 12 inches (1:10).
  3. Provide signed and sealed drawings, by a qualified design professional in Project jurisdiction, of MCM system showing compliance with performance requirements and design criteria identified for this Project.
- C. Samples for Initial Selection: For each type of MCM panel indicated, with factory-applied color finishes.
  1. Size: Manufacturers' standard size.
  2. Include Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of MCM panel and MCM system required, with factory-applied color finishes.
  1. MCM Panel: Manufacturers' standard size.
  2. MCM System: 12 inches (305 mm) long by actual panel width, fabricated into panel systems indicated. Include fasteners, closures, and other MCM panel accessories. Panel sample need not be provided in the specified color.
- E. Delegated Design Submittals: For MCM system, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- F. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
2. Environmental Product Declaration: For each product.
3. Health Product Declaration: For each product.
4. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Exterior elevations, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
  1. Wall panels and attachments.
  2. Girts.
  3. Wall-mounted items including doors, windows, louvers, and lighting fixtures.
  4. Penetrations of wall by pipes and utilities.
- B. Test and Evaluation Reports:
  1. Product Test Reports: For each MCM system, for tests performed by qualified testing agency.
    - a. MCM Panel Manufacturer's Material Test Reports: Certified test reports showing compliance with specific performance or third-party listing documenting compliance in accordance with the IBC.
    - b. Fabricator's MCM System Test Reports: Certified test reports showing system compliance with specific performance or third-party listing documenting compliance in accordance with the IBC.
      - 1) DBVC System: Tested to AAMA 509.
  2. Research Reports: For MCM systems, from ICC-ES showing compliance with .
- C. Field Quality-Control Submittals:
  1. Field quality-control reports.
- D. Qualification Statements: For manufacturer, fabricator, Installer and testing agency.
- E. Delegated design engineer qualifications.
- F. Sample warranties.
- G. Manufacturer's Certificates:
  1. Certification from manufacturers that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
  2. Provide certificates from manufacturer for each product required indicating that product complies with specified product requirements and is suitable for use indicated.

## 1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For MCM panels.

- B. Warranty Documentation:
  - 1. Manufacturers' special warranties.
  - 2. Installer's special warranties.

## 1.8 QUALITY ASSURANCE

- A. Single Source Responsibility: Furnish each product from one manufacturer, unless otherwise acceptable to Architect.
- B. Manufacturer Qualifications: Minimum 5 years' experience. Provide representation by manufacturer's field representative during construction and provide written acceptance of installer and fabricator.
- C. Fabricator Qualifications: An entity specializing in fabrication of specified metal composite material wall panel components as indicated for installation as part of this project and who is acceptable to metal composite material wall panel manufacturer. Fabricator shall meet the standards of the Premium MCM Fabricator Certification program and be certified by Metal Construction Association (MCA) as a Premium MCM Fabricator.
- D. Installer Qualifications: An entity specializing in installation of metal composite material wall panel systems that employs installers and supervisors who are trained, licensed, certified and approved by manufacturer.
- E. Delegated Design Engineer Qualifications: A professional engineer who is legally qualified to practice in state where Project is located and who is experienced in providing engineering services of the type indicated.
- F. Testing Agency Qualifications: An agency acceptable to authorities having jurisdiction.

## 1.9 MOCKUPS

- A. Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects and to set quality standards for fabrication and installation.
  - 1. Build mockup as indicated on Drawings, including corner, soffits, supports, attachments, and accessories. Include integration with adjacent construction. Refer to Section 014339 "Mockups" for additional requirements.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Owner specifically approves such deviations by Change Order.

## 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, MCM panels, and other manufactured items so as not to be damaged or deformed. Package MCM panels for protection during transportation and handling.
- B. Unload, store, and erect MCM panels in a manner to prevent bending, warping, twisting, and surface damage.

- C. Stack MCM panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store MCM panels to ensure dryness, with positive slope for drainage of water. Do not store MCM panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on MCM panels during installation.
- E. Zinc Panels: Wear gloves and long sleeves when handling to prevent fingerprints and soiling of surface.

#### 1.11 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of MCM panels to be performed in accordance with manufacturers' written instructions and warranty requirements.
- B. Field Measurements: Take field measurements prior to completion of shop fabrication of metal composite material wall panels. Coordinate panel fabrication schedule with construction progress schedule as established by Contractor to avoid delay in construction.
- C. Field Modifications: Metal composite material wall panels may be modified in field as required to ensure proper fit as acceptable to panel manufacturer and Architect. Keep field modifications to absolute minimum, ensuring majority of fabrication accomplished under manufacturer and fabricator-controlled conditions.

#### 1.12 COORDINATION

- A. Coordinate MCM panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.
- B. Coordinate metal composite material panel system installation in manner to ensure integrity of air barrier system is not disrupted. Provide monitoring and inspection of metal composite material panel system installation by air barrier system installer and manufacturer's representative.

#### 1.13 WARRANTY

- A. Panel Integrity Warranty: Manufacturer agrees to repair or replace components of MCM panels that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including rupturing, cracking, or puncturing.
    - b. Deterioration of metals and other materials beyond normal weathering.
  - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Panel Finish Warranty: Manufacturer agrees to repair finish or replace MCM panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

- a. Color fading more than 5 Hunter units when tested in accordance with ASTM D2244.
  - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
  - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. MCM System Warranty: System manufacturer's standard form in which manufacturer agrees to repair or replace components of MCM systems that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Metal-faced composite wall panel assemblies shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Delegated Design: Design metal-faced composite wall panel assembly, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 15 percent.
- D. Structural Performance: MCM systems to withstand the effects of the following loads, based on testing in accordance with ASTM E330/E330M:
1. Wind Loads: As indicated on Drawings.
  2. Other Design Loads: As indicated on Drawings.
  3. Deflection Limits: For wind loads, no greater than 1/180 of the span.
- E. Provide DBVC system with V-axis classification number greater than or equal to W-axis classification number in accordance with AAMA 509.
- F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- G. Fire Propagation Characteristics: MCM system passes NFPA 285 testing.
- H. Air and Vapor Barrier: Where penetrations are to be made in the air and vapor barrier, provide testing or demonstrate how this system will maintain the integrity of the air and vapor barrier.



## 2.2 METAL COMPOSITE MATERIAL (MCM) WALL PANELS

- A. Metal Composite Material (MCM) Wall Panels: Provide MCM panels fabricated from two metal facings bonded to a solid, extruded thermoplastic core. Provide system where panels anchored to supporting construction without exposed fasteners.
1. Basis-of-Design Product (MP-1): Subject to compliance with requirements, provide ALPOLIC Materials; Mitsubishi Chemical Composites; ALPOLIC/fr Natural Metals Series or a comparable product by one of the following:
    - a. ALUCOBOND; 3A Composites USA, Inc.; ALUCOBOND PLUS.
    - b. Arconic; Reynobond.
    - c. ACMpanelworx.
  2. Basis-of-Design Product (MP-2, MP-3): Subject to compliance with requirements, provide ALUCOBOND; 3A Composites USA, Inc.; ALUCOBOND PLUS Route & Return or a comparable product by one of the following:
    - a. Arconic; Reynobond.
    - b. Mitsubishi Chemical Composites; ALPOLIC.
    - c. ACMpanelworx.
  3. Core: FR.
  4. Panel Thickness: 0.157 inch (4 mm).
  5. Bond Strength: 22.5 in-lb/in. (100 N x mm/mm) when tested for bond integrity in accordance with ASTM D1781.
- B. MCM Panel Materials:
1. Zinc-Faced Panels (MP-1): ASTM B69 with 0.020-inch- (0.50-mm-) thick, zinc sheet facings.
    - a. Exterior Finish: ALPOLIC Natural Metal Series, Zinc Metal Plate; VM ZINC Quartz Natural Zinc Finish.
  2. Aluminum-Faced Panels (MP-2, MP-3): ASTM B209/B209M alloy as standard with manufacturer, temper as required to suit finish and forming operations with 0.020-inch- (0.50-mm-) thick, aluminum sheet facings.
    - a. Exterior Finish: Two-coat metallic fluoropolymer.
      - 1) Color (MP-2): Light Gray, Beachstone Gray Metallic.
      - 2) Color (MP-3): Dark Gray, **Basalt Gray**.

## 2.3 METAL COMPOSITE MATERIAL (MCM) SYSTEM

- A. DBVC MCM System: Provide factory-formed and -assembled, MCM panels formed into profile for DBVC system installation, drained at horizontal joints and at base of wall. Include attachment assembly components, panel stiffeners, and accessories required for weathertight system.
- B. System Panel Depth: As indicated on drawings.

- C. Attachment Assembly Components: Manufacturer's standard formed from material compatible with panel facing.
- D. Labeling: Comply with labeling requirement of applicable building code.

## 2.4 ACCESSORIES

- A. Metal Subframing and Furring: ASTM C955 cold-formed, metallic-coated steel sheet ASTM A653/A653M, G90 (Z275) hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 (Class AZM150) aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard non-conductive sections as required for support and alignment of MCM system.
- B. System Accessories: Provide components required for a complete, weathertight wall system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, backer plates and similar items. Match material and finish of MCM panels unless otherwise indicated.
- C. Backer plates: Provide metal backing plates at panel edges, terminations, openings, splices, and where recommended by manufacturer, consisting of Zinc Plus or stainless steel sheet goods formed in configuration and thickness recommended by manufacturer.
- D. Flashing and Trim: Provide flashing and trim formed from same material as MCM panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent MCM panels.
- E. Panel Sealants: ASTM C920; silicone sealant; of type, grade, class, and use classifications required to seal joints at adjacent materials, flashings, copings, etc. and remain weathertight; and as recommended in writing by MCM system manufacturer. Color to match panel.

## 2.5 FABRICATION

- A. Composite Panel Fabricators.
  - 1. Approved Fabricators:
    - a. Royalton Architectural Fabrication, Inc.
    - b. Sobotec, Ltd., Ontario, Canada.
    - c. East Coast Metal Systems.
    - d. Universe Corporation.
- B. Fabricate and finish MCM panels at the factory, by panel manufacturer's standard procedures and processes, as necessary to fulfill indicated panel performance requirements demonstrated by laboratory testing.
- C. Shop-fabricate MCM systems and accessories by fabricator's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with requirements of MCM panel manufacturer, of indicated system profiles, and with dimensional and structural requirements.

1. Fabricate panels to dimensions indicated on Drawings based on an assumed design temperature of 70 deg F (21 deg C). Allow for ambient temperature range at time of fabrication.
  2. Formed MCM panel lines, breaks, and angles to be sharp and straight, with surfaces free from warp or buckle.
  3. Fabricate panels with sharply cut edges and no displacement of face sheet or protrusion of core.
  4. Fabricate panels with panel stiffeners, as required to comply with deflection limits, attached to back of panels with structural silicone sealant or bond tape.
  5. Fabricated Panel Tolerances: Shop-fabricate panels to sizes and joint configurations indicated on Drawings.
    - a. Width: Plus or minus 0.079 inch (2 mm) at 70 deg F (21 deg C).
    - b. Length: Plus or minus 0.079 inch (2 mm) at 70 deg F (21 deg C).
    - c. Squareness: Plus or minus 0.079 inch (2 mm) at 70 deg F (21 deg C).
    - d. Panel Bow: 0.8 percent maximum of panel length or width.
  6. Fabricate MCM panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
  7. Attach routed-and-turned panel flanges to panel clips with manufacturer's standard fasteners.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
1. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
  2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams.
  4. Sealed Joints: Form non-expansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
  5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
  6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal manufacturer.
    - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal manufacturer for application, but not less than thickness of metal being secured.

## 2.6 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

- C. Coil-Coated Metal Finish:
  - 1. PVDF Fluoropolymer: AAMA 2605, two-coat metallic fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
- D. Zinc Finish: As noted above.

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, MCM system supports, and other conditions affecting performance of the Work.
  - 1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by MCM system manufacturer.
  - 2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by MCM system manufacturer.
    - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and assemblies penetrating MCM system to verify actual locations of penetrations relative to seam locations of MCM panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION OF MCM SYSTEM**

- A. General: Install MCM system in accordance with system manufacturer's written instructions in orientation, sizes, and locations indicated on Drawings. Install panels perpendicular to supports unless otherwise indicated. Anchor MCM system securely in place, with provisions for thermal and structural movement.
  - 1. Shim or otherwise plumb substrates receiving MCM system.
  - 2. Flash and seal MCM system at perimeter of all openings. Fasten with self-tapping screws.
  - 3. Install screw fasteners in predrilled holes.
  - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
  - 5. Install flashing and trim as MCM system work proceeds.
  - 6. Align bottoms of MCM panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
  - 7. Provide weathertight escutcheons for all items penetrating system.
  - 8. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by MCM system manufacturer.

9. Attach MCM panels to supports at locations, spacings, and with fasteners recommended by manufacturer to meet listed performance requirements.
- B. Attachment Assembly, General: Install attachment assembly required to support MCM panels and to provide a complete weathertight wall system, including tracks, drainage channels, anchor channels, perimeter extrusions, and panel clips.
1. Install subframing, furring, and other panel support members and anchorages in accordance with ASTM C955.
  2. Install support system at locations, at spacings, and with fasteners recommended by MCM system manufacturer to meet listed performance requirements.
  3. Air Barrier: After installation of attachment assembly and prior to installing metal composite material wall panels and at no additional cost to owner, provide the following;
    - a. In accordance with recommendations of air barrier manufacturer and as directed by air barrier installer, seal penetrations in air barrier created by screws used to secure wall panel system support structure as required to ensure air barrier warranty is not compromised.
    - b. In accordance with recommendations of air barrier manufacturer and as directed by air barrier installer, seal holes or tears in air barrier created by installation of metal composite material wall panels as required to ensure air barrier warranty is not compromised.
    - c. After repairs to air barrier system, retest air barrier system for air and water tightness in accordance with requirements in Specification Section where applicable air barrier is specified and submit field reports of all retesting demonstrating compliance with requirements specified in Specification Section where applicable air barrier is specified.
    - d. Prior to proceeding with metal composite material wall panel installation:
      - 1) Repeat repair and testing process until testing results comply with requirements specified in Specification Section where applicable air barrier is specified as acceptable to Architect.
      - 2) Arrange for inspection of all repairs to air barrier by air barrier manufacturer and air barrier installer and obtain written acceptance of air barrier system with repairs.
- C. DBVC MCM System: Install vertical tracks or drain channels and horizontal tracks or channels at locations, at spacings, and with fasteners recommended by system manufacturer.
1. Insert matching MCM spline into tracks at joint reveal locations.
- D. Install panels to allow individual panels to "free float" and be installed and removed without disturbing adjacent panels.
- E. Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install accessory components required for a complete MCM system assembly including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by MCM system manufacturer.
- F. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.

1. Install exposed flashing and trim that is without buckling and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install trim to fit substrates and to result in waterproof performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 ft. (3 m) with no joints allowed within 24 inches (605 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

G. Provide separation between zinc panels and aluminum.

### 3.3 INSTALLATION TOLERANCES

- A. Shim and align MCM panels within installed tolerance of 1/4 inch in 20 ft. (6 mm in 6 m), non-accumulative, on level, plumb, and location lines as indicated, and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles. Locate shims on the surface of the girts where possible. If shims are required to be located on the surface of the AVB they must be solid shims to gasket the penetrations.

### 3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect completed MCM system installation, including accessories.
- B. MCM system will be considered defective if it does not pass inspections.
- C. Prepare inspection reports.

### 3.5 CLEANING

- A. Remove temporary protective coverings and strippable films as MCM panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, clean finished surfaces as recommended by MCM panel manufacturer. Maintain in a clean condition during construction. Do not mark on protective film as this can stain zinc panels.
- B. After installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.

### 3.6 PROTECTION

- A. Replace MCM panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

**END OF SECTION 074213.23**

## SECTION 077100 - ROOF SPECIALTIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

1. Copings.
2. Roof-edge specialties.
3. **Roof-edge drainage systems.**
4. Counterflashings.

- B. Related Requirements:

1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
2. Section 076200 "Sheet Metal Flashing and Trim" for custom- and site-fabricated sheet metal flashing and trim.
3. Section 077129 "Manufactured Roof Expansion Joints" for manufactured roof expansion-joint cover assemblies.
4. Section 077200 "Roof Accessories" for roof hatches and other manufactured roof accessory units.
5. Section 079200 "Joint Sealants" for field-applied sealants between roof specialties and adjacent materials.

- C. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, roofing-system testing and inspecting agency representative, roofing Installer, roofing-system manufacturer's representative, Installer, structural-support Installer, and installers whose work interfaces with or affects roof specialties, including installers of roofing materials and accessories.
2. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
3. Review special roof details, roof drainage, and condition of other construction that will affect roof specialties.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

- B. Sustainable Design Submittals:

1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
- C. Shop Drawings: For roof specialties.
1. Include project specific plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.
  2. Include details for expansion and contraction; locations of expansion joints, including direction of expansion and contraction.
  3. Indicate profile and pattern of seams and layout of fasteners, cleats, clips, and other attachments.
  4. Detail termination points and assemblies, including fixed points.
  5. Include details of special conditions.
  6. Include details for saddle flashings at roofing/coping terminations into adjacent walls.
- D. Samples for Initial Selection: For each type of roof specialty indicated with factory-applied color finishes.
- E. Samples for Verification:
1. Include Samples of each type of roof specialty to verify finish and color selection, in manufacturer's standard sizes.
  2. Include copings, roof-edge specialties, **roof-edge drainage systems** and counterflashings made from 12-inch (300-mm) lengths of full-size components in specified material, and including fasteners, cover joints, accessories, and attachments.
- 1.4 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For manufacturer.
- B. Product Certificates: For each type of roof specialty.
- C. Product Test Reports: For copings and roof-edge flashings, for tests performed by a qualified testing agency.
- D. Sample Warranty: For manufacturer's special warranty.
- E. Manufacturer's Certificates:
1. Certification from manufacturers that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
  2. Provide certificates from manufacturer for each product required indicating that product complies with specified product requirements and is suitable for use indicated.
- 1.5 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For roofing specialties to include in maintenance manuals.



## 1.6 QUALITY ASSURANCE

- A. **Manufacturer Qualifications:** A qualified manufacturer offering products meeting requirements that are FM Approvals listed for specified class and SPRI ES-1 tested to specified design pressure.
- B. **Source Limitations:** Obtain roof specialties approved by manufacturer providing roofing-system warranty.
- C. **Mockups:** Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and set quality standards for fabrication and installation.
  - 1. Build mockup of typical roof edge and saddle flashing condition as shown on Drawings.
  - 2. Build mockup of typical roof edge, including copings, gutters and downspouts, approximately 10 feet (3.0 m) long, including supporting construction, seams, attachments, underlayment, and accessories. Mockup to include transitions of primary air and water control layers with the exterior wall construction.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof-specialty installation.

## 1.8 FIELD CONDITIONS

- A. **Field Measurements:** Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication, and indicate measurements on Shop Drawings.
- B. **Coordination:** Coordinate roof specialties with flashing, trim, and construction of parapets, roof deck, roof and wall panels, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

## 1.9 WARRANTY

- A. **Roofing-System Warranty:** Roof specialties are included in warranty provisions in Section 075419 "Polyvinyl-Chloride (PVC) Roofing."
- B. **Special Warranty on Painted Finishes:** Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. **Fluoropolymer Finish:** Deterioration includes, but is not limited to, the following:

- a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
  - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
  - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

## **PART 2 - PRODUCTS**

### **2.1 PERFORMANCE REQUIREMENTS**

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- C. FM Approvals' Listing: Manufacture and install copings and roof-edge specialties that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-120. Identify materials with FM Approvals' markings.
- D. SPRI Wind Design Standard: Manufacture and install copings and roof-edge specialties tested according to SPRI ES-1 and capable of resisting the following design pressures:
  1. Design Pressure: As indicated on Drawings.
- E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
  1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

### **2.2 COPINGS**

- A. Cantilevered Metal Copings (SMF-1): Manufactured coping system consisting of metal coping cap in section lengths not exceeding 12 feet (3.6 m), concealed anchorage; with corner units, end cap units, and concealed splice plates with finish matching coping caps.
  1. Basis-of-Design Product: Subject to compliance with requirements, provide Metal-Era, Inc.; Perma-Tite Cantilever Coping or a comparable product by one of the following:
    - a. Elevate; Holcim Building Envelope; Elevate Cantilever Coping
    - b. Hickman; an MTL Company; PermaSnap Cantilever Coping.
    - c. PAC-CLAD; Petersen; a Carlisle company.
  2. Formed Aluminum Sheet Coping Caps: Aluminum sheet, 18 ga. or thickness as required to meet performance requirements.

- a. Surface: Smooth, flat finish.
  - b. Finish: Two-coat mica fluoropolymer.
  - c. Color: Custom color to match MP-2.
3. Corners: Factory mitered and mechanically clinched and sealed watertight.
  4. Special Fabrications: As indicated on Drawings.
  5. Coping-Cap Attachment Method: Snap-on, fabricated from coping-cap material.
    - a. Snap-on Coping Anchor Plates: Concealed, galvanized-steel sheet, 12 inches (300 mm) wide, with integral cleats.

### 2.3 ROOF-EDGE SPECIALTIES

- A. Roof-Edge Fascia (SMF-2, SMF-4, & SMF-6): Manufactured, two-piece, roof-edge fascia consisting of snap-on metal fascia cover in section lengths not exceeding 12 feet (3.6 m) and a continuous metal receiver with integral drip-edge cleat to engage fascia cover and secure single-ply roof membrane. Provide matching corner units.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Hickman; an MTL Company; TerminEdge EX Fascia or a comparable product by one of the following:
    - a. Elevate; Holcim Building Envelope; Elevate AnchorGard SP Fascia.
    - b. Metal-Era, Inc.
    - c. PAC-CLAD; Petersen; a Carlisle company; PAC-TITE Angular Fascia FA.
  2. Formed Aluminum Sheet Fascia Covers: Aluminum sheet, 18 ga. or thickness as required to meet performance requirements.
    - a. Surface: Smooth, flat finish.
    - b. Finish: Two-coat mica fluoropolymer.
    - c. Color: Custom color to match MP-2 (@ SMF-1) & custom color to match MP-3 (@ SMF-6). Zinc finish to match MP-1 (@ SMF-4).
  3. Corners: Factory mitered and mechanically clinched and sealed watertight.
  4. Splice Plates: Concealed, of same material, finish, and shape as fascia cover.
  5. Receiver: Extruded aluminum, 0.080 inch (2.03 mm) thick.
  6. Special Fabrications: As indicated on Drawings.

### 2.4 ROOF-EDGE DRAINAGE SYSTEMS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Elevate; Holcim Building Envelope
  2. Hickman; an MTL Company;
  3. Metal-Era, Inc.
  4. PAC-CLAD; Petersen Aluminum Corporation; a Carlisle company.
- B. Gutters: Manufactured in uniform section lengths not exceeding 12 feet (3.6 m), with matching corner units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch (25 mm) above front edge. Furnish flat-stock gutter straps, gutter brackets, expansion joints, and expansion-joint covers fabricated from same metal as gutters.

1. Aluminum Sheet: 0.050 inch (1.27 mm) thick.
2. Gutter Profile: As indicated on Drawings.
3. Corners: Factory mitered and mechanically clinched and sealed watertight.
4. Gutter Supports: Gutter brackets with finish matching the gutters.

C. Downspouts: Plain rectangular complete with mitered elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.

1. Formed Aluminum: 0.050 inch (1.27 mm) thick.

## 2.5 COUNTERFLASHINGS

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

1. ATAS International, Inc.
2. Berridge Manufacturing Company.
3. Fry Reglet Corporation.
4. Heckmann Building Products, Inc.
5. Keystone Flashing Company, Inc.
6. Metal-Era, Inc.

B. Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches (100 mm) and in lengths not exceeding 12 feet (3.6 m) designed to snap into through-wall-flashing receiver and compress against base flashings with joints lapped, from the following exposed metal:

1. Stainless Steel: 0.0250 inch (0.635 mm) thick.

C. Accessories:

1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where reglet is provided separate from metal counterflashing.
2. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.

D. Stainless Steel Finish: ASTM A480/A480M No. 2B (bright, cold rolled, unpolished).

## 2.6 MATERIALS

A. Aluminum Sheet: ASTM B209 (ASTM B209M), alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.

B. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304.

## 2.7 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils (0.76 to 1.0 mm) thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl adhesive,

with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: ASTM D1970/D1970M; stable after testing at 240 deg F (116 deg C).
2. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F (29 deg C).

## 2.8 MISCELLANEOUS MATERIALS

- A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:
  1. Fasteners for Aluminum: Aluminum or Series 300 stainless steel.
  2. Fasteners for Stainless Steel Sheet: Series 300 stainless steel.
- B. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant of type, grade, class, and use classifications required by roofing-specialty manufacturer for each application.
- C. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type joints with limited movement.
- D. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- E. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

## 2.9 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Coil-Coated Aluminum Sheet Finishes:
  1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - a. Two-Coat Mica Fluoropolymer: AAMA 2605. Fluoropolymer finish with suspended mica flakes containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
    - b. Concealed Surface Finish: Apply pretreatment and manufacturer's standard acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Examine walls, roof edges, and parapets for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION OF UNDERLAYMENT**

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.
  - 1. Apply continuously under copings, roof-edge specialties and counterflashings.
  - 2. Coordinate application of self-adhering sheet underlayment under roof specialties with requirements for continuity with adjacent air barrier materials. Confirm compatibility of materials.

### **3.3 INSTALLATION, GENERAL**

- A. Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.
  - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Provide uniform, neat seams with minimum exposure of solder and sealant.
  - 3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
  - 4. Torch cutting of roof specialties is not permitted.
  - 5. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
  - 1. Coat concealed side of uncoated aluminum and stainless steel roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
  - 2. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.

- C. Expansion Provisions: Allow for thermal and building expansion and contraction of exposed roof specialties. Laps and splices are to be fabricated and installed in accordance with SMACNA provisions.
  - 1. Space movement joints at a maximum of 10 feet with no joints within 18 inches (450 mm) of corners or intersections unless otherwise indicated on Drawings.
  - 2. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
- D. Fastener Sizes: Use fasteners of sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal concealed joints with butyl sealant as required by roofing-specialty manufacturer.
- F. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F (4 deg C).
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches (38 mm); however, reduce pre-tinning where pre-tinned surface would show in completed Work. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.

### 3.4 INSTALLATION OF COPINGS

- A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor copings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.
  - 1. Interlock face and back leg drip edges of snap-on coping cap into cleated anchor plates anchored to substrate at manufacturer's required spacing that meets performance requirements.

### 3.5 INSTALLATION OF ROOF-EDGE SPECIALITIES

- A. Install cleats, cants, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor roof edgings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.

### 3.6 INSTALLATION OF ROOF-EDGE DRAINAGE-SYSTEM

- A. Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.

**B. Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports spaced not more than 24 inches (610 mm) apart. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.**

**1. Install gutter with expansion joints at locations indicated but not exceeding 50 feet (15.2 m) apart. Install expansion-joint caps.**

**C. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c.**

**1. Provide elbows at base of downspouts at grade to direct water away from building.**

### 3.7 INSTALLATION OF COUNTERFLASHINGS

- A. Coordinate installation of counterflashings with installation of base flashings.
- B. Counterflashings: Insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap 4 inches (100 mm) over top edge of base flashings. Lap counterflashing joints a minimum of 4 inches (100 mm) and bed with butyl sealant. Fit counterflashings tightly to base flashings.

### 3.8 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- D. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

## END OF SECTION 077100



## SECTION 077200 - ROOF ACCESSORIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:

1. Roof curbs.
2. Roof hatches.
3. Aluminum roof walkway system.

- B. Related Requirements:

1. Section 055000 "Metal Fabrications" for metal vertical ladders, ships' ladders, and stairs for access to roof hatches.
2. Section 076200 "Sheet Metal Flashing and Trim" for shop- and field-formed metal flashing and miscellaneous sheet metal trim and accessories.
3. Section 077100 "Roof Specialties" for manufactured fasciae, copings, gravel stops, and counterflashing.
4. Section 077129 "Manufactured Roof Expansion Joints" for manufactured roof expansion-joint covers.

#### 1.3 COORDINATION

- A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.
- B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of roof accessory.
  1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For roof accessories.

1. Include project specific plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work. Include manufacturer's installation instructions.
- C. Samples: For each exposed product and for each color and texture specified, prepared on Samples of size to adequately show color.
- D. Delegated-Design Submittal: For **roof curbs and** roof walkway system indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Detail mounting, securing, and flashing of roof-mounted items to roof structure. Indicate coordinating requirements with roof membrane system.
2. Wind-Restraint Details: Detail fabrication and attachment of wind restraints. Show anchorage details and indicate quantity, diameter, and depth of penetration of anchors.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Roof plans, drawn to scale, and coordinating penetrations and roof-mounted items. Show the following:
  1. Size and location of roof accessories specified in this Section.
  2. Method of attaching roof accessories to roof or building structure.
  3. Other roof-mounted items including mechanical and electrical equipment, ductwork, piping, and conduit.
  4. Required clearances.
- B. Sample Warranties: For manufacturer's special warranties.
- C. Manufacturer's Certificates:
  1. Certification from manufacturers that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
  2. Provide certificates from manufacturer for each product required indicating that product complies with specified product requirements and is suitable for use indicated.

#### 1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in manufacturer's original packaging. Store materials in a dry, protected, well-vented area. Inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design roof walkway system and roof curbs to comply with wind performance requirements, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Wind-Restraint Performance: As indicated on Drawings.

### 2.2 ROOF CURBS (RF ACC-2)

- A. Roof Curbs: Internally reinforced roof-curb units capable of supporting superimposed live and dead loads, including equipment loads and other construction indicated on Drawings, bearing continuously on roof structure, and capable of meeting performance requirements; with welded or mechanically fastened and sealed corner joints, straight sides, and integrally formed deck-mounting flange at perimeter bottom.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. ATAS International, Inc.
    - b. Greenheck Fan Corporation.
    - c. Pate Company (The).
    - d. Roof Products, Inc.
- B. Size: Custom size. Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.
- C. Supported Load Capacity: Coordinate load capacity with information on Shop Drawings of equipment to be supported.
- D. Material: Aluminum sheet, 0.125 inch (3.17 mm) thick.
  - 1. Finish: Mill.
- E. Construction:
  - 1. Curb Profile: Profile as indicated on Drawings compatible with roofing system.
  - 2. Fabricate curbs to minimum height of 12 inches (305 mm) above roofing surface unless otherwise indicated.
  - 3. Top Surface: Level top of curb, with roof slope accommodated by sloping deck-mounting flange or by use of leveler frame.
  - 4. Sloping Roofs: Where roof slope exceeds 1:48, fabricate curb with perimeter curb height tapered to accommodate roof slope so that top surface of perimeter curb is level. Equip unit with water diverter or cricket on side that obstructs water flow.
  - 5. Insulation: Factory insulated with 1-1/2-inch- (38-mm-) thick glass-fiber board insulation.

6. Liner: Same material as curb, of manufacturer's standard thickness and finish.
7. Nailer: Factory-installed wood nailer under top flange on side of curb, continuous around curb perimeter.
8. Wind Restraint Straps and Base Flange Attachment: Provide wind restraint straps, welded strap connectors, and base flange attachment to roof structure at perimeter of curb, of size and spacing required to meet wind uplift requirements.
9. Platform Cap: Where portion of roof curb is not covered by equipment, provide weathertight platform cap formed from 3/4-inch- (19-mm-) thick plywood covered with metal sheet of same type, thickness, and finish as required for curb. Delegated design for traffic-rated internal support structure.
10. Metal Counterflashing: Manufacturer's standard, removable, fabricated of same metal and finish as curb.

### 2.3 ROOF HATCHES (RH-1 & RH-2)

- A. Roof Hatches: Metal roof-hatch units with lids and insulated double-walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, straight sides, and integrally formed deck-mounting flange at perimeter bottom.
1. Basis-of-Design Product: Subject to compliance with requirements, provide BILCO Company (The); TYPE SS-50TB Special Size, Single-Leaf, Thermally-Broken Aluminum Roof Hatch (RH-1) & TYPE D-50T Double-Leaf Aluminum Roof Hatch (RH-2) or a comparable product by one of the following:
    - a. Activar Construction Products Group, Inc. - JL Industries.
    - b. ACUDOR Products, Inc.
    - c. Babcock-Davis.
    - d. Milcor; a division of Hart & Cooley, Inc.
    - e. O'Keeffe's Inc.
    - f. Pate Company (The).
- B. Type and Size: Single-leaf lid, 48 by 96 inches (RH-1) & Double-leaf lid, 60 by 60 inches (RH-2).
- C. Loads: Minimum 40-lbf/sq. ft. (1.9-kPa) external live load and 20-lbf/sq. ft. (0.95-kPa) internal uplift load.
- D. Hatch Material: Aluminum sheet.
1. Thickness: 11 ga.
  2. Finish: Mill.
- E. Construction:
1. Insulation: 3-inch- thick, polyisocyanurate board.
  2. Hatch Lid: Opaque, insulated, and double walled, with manufacturer's standard metal liner of same material and finish as outer metal lid.
  3. Curb Liner: Manufacturer's standard, of same material and finish as metal curb. Integral cap flashing.
  4. On ribbed or fluted metal roofs, form flange at perimeter bottom to conform to roof profile.
  5. Fabricate curbs to minimum height of 12 inches (305 mm) above roofing surface unless otherwise indicated.

6. Sloping Roofs: Where slope or roof deck exceeds 1:48, fabricate curb with perimeter curb height that is tapered to accommodate roof slope so that top surfaces of perimeter curb are level. Equip hatch with water diverter or cricket on side that obstructs water flow.
- F. Hardware: Spring operators, hold-open arm, stainless steel spring latch with turn handles, stainless steel butt- or pintle-type hinge system, and padlock hasps inside and outside. Heavy-duty components.
1. Provide two-point latch on lids larger than 84 inches (2130 mm).
  2. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.
- G. Safety Railing System: Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with 29 CFR 1910.23 requirements and authorities having jurisdiction.
1. Height: 42 inches (1060 mm) above finished roof deck.
  2. Posts and Rails: Galvanized-steel pipe, 1-1/4 inches (31 mm) in diameter or galvanized-steel tube, 1-5/8 inches (41 mm) in diameter.
  3. Flat Bar: Galvanized steel, 2 inches (50 mm) high by 3/8 inch (9 mm) thick.
  4. Maximum Opening Size: System constructed to prevent passage of a sphere 21 inches (533 mm) in diameter.
  5. Chain Passway Barrier: Galvanized proof coil chain with quick link on fixed end.
  6. Self-Latching Gate: Fabricated of same materials and rail spacing as safety railing system. Provide manufacturer's standard hinges and self-latching mechanism.
  7. Post and Rail Tops and Ends: Weather resistant, closed or plugged with prefabricated end fittings.
  8. Provide weep holes or another means to drain entrapped water in hollow sections of handrail and railing members.
  9. Fabricate joints exposed to weather to be watertight.
  10. Fasteners: Manufacturer's standard, finished to match railing system.
  11. Finish: Manufacturer's standard.
- a. Color: As selected by Architect from manufacturer's full range.

## 2.4 ALUMINUM ROOF WALKWAY SYSTEM (RF ACC-1)

- A. Basis-of-Design Product: Subject to compliance with requirements, provide FixFast USA; KATT GW23 Walkway System or approved equal.
1. Walkway: 48" wide, mill finish, prefabricated high tensile expanded aluminum grating.
    - a. Working Load Limit; 1,000 pound industrial rated, suited for high frequency use.
    - b. Design and manufacture to meet applicable OSHA and ANSI regulations.
    - c. Provide structure to support walkway including, but not limited to, receiver track, support posts, toe boards, caps, bracing, and fasteners.
    - d. Provide rubber non-penetrating pads and aluminum outriggers as needed to accommodate roof slope.
    - e. Install in accordance with Manufacturers written instructions, recommendations and approved shop drawings. Provide protection board or membrane between baseplates and roof membrane (typical).
    - f. Refer to Drawings for location.

## 2.5 METAL MATERIALS

- A. Aluminum Sheet: ASTM B209 (ASTM B209M), manufacturer's standard alloy for finish required, with temper to suit forming operations and performance required.
  - 1. Mill Finish: As manufactured.
  - 2. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester-backer finish consisting of prime coat and wash coat, with a minimum total dry film thickness of 0.5 mil (0.013 mm).
- B. Aluminum Extrusions and Tubes: ASTM B221 (ASTM B221M), manufacturer's standard alloy and temper for type of use, finished to match assembly where used; otherwise mill finished.
- C. Stainless Steel Sheet and Shapes: ASTM A240/A240M or ASTM A666, Type 304.
- D. Steel Shapes: ASTM A36/A36M, hot-dip galvanized according to ASTM A123/A123M unless otherwise indicated.
- E. Steel Tube: ASTM A500/A500M, round tube.
- F. Galvanized-Steel Tube: ASTM A500/A500M, round tube, hot-dip galvanized according to ASTM A123/A123M.
- G. Steel Pipe: ASTM A53/A53M, galvanized.

## 2.6 MISCELLANEOUS MATERIALS

- A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
- B. Polyisocyanurate Board Insulation: ASTM C1289, thickness and thermal resistivity as indicated.
- C. Underlayment:
  - 1. Felt: ASTM D226/D226M, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
  - 2. Polyethylene Sheet: 6-mil- (0.15-mm-) thick polyethylene sheet complying with ASTM D4397.
  - 3. Slip Sheet: Building paper, 3 lb/100 sq. ft. (0.16 kg/sq. m) minimum, rosin sized.
  - 4. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils (0.76 to 1.0 mm) thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
- D. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide nonremovable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:
  - 1. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
- E. Gaskets: Manufacturer's standard tubular or fingered design of neoprene, EPDM, PVC, or silicone or a flat design of foam rubber, sponge neoprene, or cork.

- F. Elastomeric Sealant: ASTM C920, elastomeric silicone polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.
- G. Butyl Sealant: ASTM C1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for expansion joints with limited movement.
- H. Asphalt Roofing Cement: ASTM D4586/D4586M, asbestos free, of consistency required for application.

## 2.7 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- C. Verify dimensions of roof openings for roof accessories.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 INSTALLATION

- A. Install roof accessories according to manufacturer's written instructions.
  - 1. Install roof accessories level; plumb; true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
  - 2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
  - 3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
  - 4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Coat concealed side of uncoated aluminum roof accessories with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing roof accessories directly on cementitious or wood substrates, install a course of underlayment and cover with manufacturer's recommended slip sheet.
3. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof accessories for waterproof performance.

**C. Roof Curb Installation: Install each roof curb so top surface is level.**

- D. Roof-Hatch Installation:
1. Verify that roof hatch operates properly. Clean, lubricate, and adjust operating mechanism and hardware.
  2. Attach safety railing system to roof-hatch curb.
- E. Seal joints with elastomeric or butyl sealant as required by roof accessory manufacturer.

**3.3 REPAIR AND CLEANING**

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A780/A780M.
- B. Clean exposed surfaces according to manufacturer's written instructions.
- C. Clean off excess sealants.
- D. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

**END OF SECTION 077200**



## **SECTION 088000 – GLAZING - EXTERIOR**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes:
1. Glass products.
  2. Insulating glass.
  3. Glazing sealants.
  4. Glazing tapes.
  5. Miscellaneous glazing materials.

- B. Related Requirements:
1. Section 084413 "Glazed Aluminum Curtain Walls".

#### **1.2 DEFINITIONS**

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters in accordance with ASTM C1036.
- C. IBC: International Building Code.
- D. Interspace: Space between lites of an insulating-glass unit.

#### **1.3 COORDINATION**

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances to achieve proper safety margins for glazing retention under each design load case, load case combination, and service condition.

#### **1.4 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.
1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  2. Review temporary protection requirements for glazing during and after installation.

## 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include sealant manufacturer's temperature and substrate requirements.
- B. Sustainable Design Submittals:
  - 1. Product Data: For sealants, indicating VOC content.
  - 2. Laboratory Test Reports: For sealants, indicating compliance with requirements for low-emitting materials.
- C. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12 inches (300 mm) square. For insulating glass units, provide assemblies representative of units to be used in the finished work, including coatings, spacers, edge seals, and edge deletion. Include gaskets, setting blocks, shims, and other glazing accessories.
- D. Glazing Accessory Samples: For sealants and colored spacers, in 12-inch (300-mm) lengths. Install sealant Samples between two strips of material representative in color of adjoining framing system.
- E. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- F. Delegated Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by qualified professional engineer responsible for their preparation.

## 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer, manufacturers of fabricated glass units, glass testing agency and sealant testing agency.
- B. Product Certificates: For glass.
- C. Product Test Reports: For fabricated glass and glazing sealants, for tests performed by a qualified testing agency.
  - 1. For glazing sealants, provide test reports based on testing current sealant formulations within previous 36-month period.
  - 2. Include the glass fabricator/manufacturer's calculations for wind pressure and thermal stress showing that the specified probabilities of breakage are not exceeded.
- D. Preconstruction adhesion and compatibility test report.
- E. Sample Warranties: For special warranties.
- F. Manufacturer's Certificates:
  - 1. Certification from manufacturers that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
  - 2. Provide certificates from manufacturer for each product required indicating that product complies with specified product requirements and is suitable for use indicated.

## 1.7 QUALITY ASSURANCE

- A. Fabricated-Glass Manufacturer Qualifications: A qualified manufacturer of fabricated glass units who is approved and certified by primary glass manufacturer.
- B. Installer Qualifications: A qualified glazing contractor for this Project who is certified under the North American Contractor Certification Program (NACC) for Architectural Glass & Metal (AG&M) contractors and who employs glazing technicians certified under the Architectural Glass and Metal Technician (AGMT) certification program.
- C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.
- E. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.
  - 1. Install glazing in mockups specified in Section 084413 "Glazed Aluminum Curtain Walls" to match glazing systems required for Project, including glazing methods.
  - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

## 1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.
  - 1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.
  - 2. Use ASTM C1087 to determine whether priming and other specific joint-preparation techniques are required to obtain rapid, optimum adhesion of glazing sealants to glass, tape sealants, gaskets, and glazing channel substrates.
  - 3. Test no fewer than eight Samples of each type of material, including joint substrates, shims, sealant backings, secondary seals, and miscellaneous materials.
  - 4. Schedule enough time for testing and analyzing results to prevent delaying the Work.
  - 5. For materials failing tests, submit sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.

## 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials in accordance with manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

## 1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F (4.4 deg C).

## 1.11 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
  - 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is obstruction of vision by dust, moisture, or film on interior surfaces of glass.
  - 1. Warranty Period: 10 years from date of Substantial Completion.
- C. Manufacturer's Special Warranty for Heat-Soaked Tempered Glass: Manufacturer agrees to replace heat-soaked tempered glass units that spontaneously break due to nickel sulfide (NiS) inclusions at a rate exceeding 0.3 percent (3/1000) within specified warranty period. Coverage for any other cause is excluded.
  - 1. Warranty Period: 10 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Cardinal Glass Industries.
  - 2. Guardian Glass; SunGuard.
  - 3. Pilkington North America.
  - 4. Viracon, Inc.
  - 5. Vitro Architectural Glass.
- B. Source Limitations for Glass: Obtain coated glass from single source from single manufacturer.

- C. Source Limitations for Glazing Accessories: For each product and installation method, obtain from single source from single manufacturer.

## 2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazing.
- C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined in accordance with the IBC and ASTM E1300:
  - 1. Design Wind Pressures: As indicated on Drawings Determine design wind pressures applicable to Project in accordance with ASCE/SEI 7, based on heights above grade indicated on Drawings.
    - a. Wind Design Data: As indicated on Drawings.
  - 2. Probability of Breakage for Vertical Glazing: 8 lites per 1000 for glass installed vertically or not more than 15 degrees from the vertical plane and under wind action.
    - a. Load Duration: 60 seconds or less.
  - 3. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch (25 mm), whichever is less.
  - 4. Thermal Loads: Design glazing to resist thermal stress breakage induced by differential temperature conditions and limited air circulation within individual glass lites and insulated glazing units.
- D. Safety Glazing: Where safety glazing is indicated or required by code, provide glazing that complies with 16 CFR 1201, Category II.
- E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
  - 1. Performance requirements for glazing including, but not limited to, visible transmittance and sound requirements.
  - 2. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
  - 3. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
  - 4. U-Factors: Center-of-glazing values, in accordance with NFRC 100 and based on most current non-beta version of LBL's WINDOW computer program, expressed as Btu/sq. ft. x h x deg F (W/sq. m x K).
  - 5. SHGC and Visible Transmittance: Center-of-glazing values, in accordance with NFRC 200 and based on most current non-beta version of LBL's WINDOW computer program.
  - 6. Visible Reflectance: Center-of-glazing values, in accordance with NFRC 300.

## 2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  - 1. NGA Publications: "Glazing Manual."
  - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the IGCC.
- D. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than thickness indicated.
  - 1. Minimum Glass Thickness for Exterior Lites: 6 mm.
- E. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

## 2.4 GLASS PRODUCTS

- A. Low-Iron Annealed Float Glass: ASTM C1036, Type I, Class I (clear), Quality-Q3; and with visible light transmission of not less than 91 percent and SHGC of not less than 0.87.
- B. Fully Tempered Float Glass: ASTM C1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
  - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated. Roller distortion or ripples shall run in the same direction for the entire job. Roller distortion, measured peak to valley, shall not exceed 0.003 inches in the central area for 1/4 inch or thicker glass, or 0.008 inches within 10.5 inches of the leading or trailing edge for 1/4 inch or thicker glass. Clear or low-iron glass 1/4" to 3/8" thick without ceramic frit or ink, maximum + or - 100 mD (millidiopter) over 95% of the glass surface. Local bow shall not exceed 1/32 inch in 12 inches.
  - 2. Heat Soak Testing: Unless manufacturer's standard procedures are more stringent, perform heat soak testing of all fully tempered glass lites by placing glass in an oven at temperatures of 550dF, +/-50dF for a two hour "Dwell Time" to reduce the potential for spontaneous breakage to 5 lites per 1000 (5/1000).

- C. Heat-Strengthened Float Glass: ASTM C1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
  - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated. Roller distortion or ripples shall run in the same direction for the entire job. Roller distortion, measured peak to valley, shall not exceed 0.003 inches in the central area for 1/4 inch or thicker glass, or 0.008 inches within 10.5 inches of the leading or trailing edge for 1/4 inch or thicker glass. Clear or low-iron glass 1/4" to 3/8" thick without ceramic frit or ink, maximum + or - 100 mD (millidiopter) over 95% of the glass surface. Local bow shall not exceed 1/32 inch in 12 inches.
- D. Pyrolytic-Coated Glass: Clear float glass with coating on first surface.
- E. Reflective- and Low-E-Coated Vision Glass: ASTM C1376.
- F. Silicone-Coated Spandrel Glass: ASTM C1048, Type I, Condition C, Quality-Q3.
- G. Reflective- and Low-E-Coated Spandrel Glass: ASTM C1376, Kind CS.

## 2.5 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified in accordance with ASTM E2190.
  - 1. Sealing System: Dual seal, with polyisobutylene and silicone primary and secondary sealants.
  - 2. Perimeter Spacer: Fabricators warm edge spacer. Color: Black.
  - 3. Desiccant: Molecular sieve or silica gel, or a blend of both.

## 2.6 GLAZING GASKETS

- A. Dense Compression Gaskets: Molded or extruded gaskets of profile and hardness required to maintain watertight seal, made from the following:
  - 1. Neoprene complying with ASTM C 864.
  - 2. EPDM complying with ASTM C 864.
  - 3. Silicone complying with ASTM C 1115.
  - 4. Thermoplastic polyolefin rubber complying with ASTM C 1115.
- B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned neoprene, EPDM, silicone or thermoplastic polyolefin rubber gaskets complying with ASTM C 509, Type II, black; of profile and hardness required to maintain watertight seal.
  - 1. Application: Use where soft compression gaskets will be compressed by inserting dense compression gaskets on opposite side of glazing or pressure applied by means of pressure-glazing stops on opposite side of glazing.

## 2.7 GLAZING SEALANTS

### A. General:

1. **Compatibility:** Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. **Suitability:** Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. **Colors of Exposed Glazing Sealants:** As selected by Architect from manufacturer's full range of industry colors.

### B. Neutral-Curing Silicone Glazing Sealant, Class 100/50: Complying with ASTM C920, Type S, Grade NS, Use NT.

## 2.8 GLAZING TAPES

### A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

### B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:

1. AAMA 810.1, Type 1, for glazing applications in which tape acts as primary sealant.
2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

## 2.9 MISCELLANEOUS GLAZING MATERIALS

### A. General: Provide products of material, size, and shape complying with referenced glazing standard, recommended in writing by manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

### B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

### C. Setting Blocks:

1. Type recommended in writing by sealant or glass manufacturer.

### D. Spacers:



1. Type recommended in writing by sealant or glass manufacturer.
- E. Edge Blocks:
1. Type recommended in writing by sealant or glass manufacturer.
- F. Cylindrical Glazing Sealant Backing: ASTM C1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

## 2.10 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
    - a. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  2. Presence and functioning of weep systems.
  3. Minimum required face and edge clearances.
  4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

### 3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  - 2. Provide 1/8-inch- (3-mm-) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and in accordance with requirements in referenced glazing publications.
- H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- I. Set glass lites with proper orientation so that coatings face exterior or interior as specified.
- J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.
- K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended in writing by gasket manufacturer.

### 3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

### 3.5 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended in writing by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

### 3.6 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers

and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

### 3.7 CLEANING AND PROTECTION

- A. Immediately after installation, remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
  - 1. If, despite such protection, contaminating substances do contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

### 3.8 INSULATING GLASS SCHEDULE

- A. Low-E-Coated, Low-Iron Clear Insulating Glass Type (GL-21):
  - 1. Basis-of-Design Product: Vitro Architectural Glass; Solarban 90 Acuity Series.
  - 2. Overall Unit Thickness: 1 inch (25 mm).
  - 3. Minimum Thickness of Each Glass Lite: 6 mm.
  - 4. Outdoor Lite: Low-iron fully tempered float glass.
  - 5. Interspace Content: Argon.
  - 6. Indoor Lite: Low-iron fully tempered float glass.
  - 7. Low-E Coating: Sputtered on second surface.
  - 8. Winter Nighttime U-Factor: 0.24 maximum.
  - 9. Visible Light Transmittance: 63 percent minimum.
  - 10. SGHC: 0.23 maximum.
  - 11. Safety glazing required.
- B. Lightly Reflective Low-E-Coated, Low-Iron Clear Insulating Glass Type (GL-22):
  - 1. Basis-of-Design Product: Vitro Architectural Glass; Solarban R100 Acuity Series.
  - 2. Overall Unit Thickness: 1 inch (25 mm).
  - 3. Minimum Thickness of Each Glass Lite: 6 mm.
  - 4. Outdoor Lite: Low-iron fully tempered float glass.
  - 5. Interspace Content: Argon.
  - 6. Indoor Lite: Low-iron fully tempered float glass.
  - 7. Low-E Coating: Sputtered on second surface. Color to match Architect's sample.

8. Winter Nighttime U-Factor: 0.25 maximum.
9. Visible Light Transmittance: 43 percent minimum.
10. SGHC: 0.23 maximum.
11. Safety glazing required.

C. Low-E-Coated, Low-Iron Clear Insulating with Birdsafe UV Coating Glass Type (GL-23):

1. Basis-of-Design Product: Vitro Architectural Glass; Solarban 90 Acuity Series with Walker Glass AviProtek T Pattern 713 (vertical orientation) Bird Safe UV Coating.
2. Overall Unit Thickness: 1 inch (25 mm).
3. Minimum Thickness of Each Glass Lite: 6 mm.
4. Outdoor Lite: Bird safe pyrolytic UV coating on No. 1 surface, clear low-iron fully tempered float glass.
5. Interspace Content: Argon.
6. Indoor Lite: Low-iron fully tempered float glass.
7. Low-E Coating: Sputtered on second surface. Color to match Architect's sample.
8. Winter Nighttime U-Factor: 0.24 maximum.
9. Visible Light Transmittance: 63 percent minimum.
10. SGHC: 0.23 maximum.
11. Safety glazing required.

D. Silicone-Coated, Low-E, Insulating Spandrel Glass Type (GL-41):

1. Basis-of-Design Product: Vitro Architectural Glass; Solarban 90 Acuity Series.
2. Coating Color: OPACI-COAT-300, **2-3867LI Fields of Emerald.**
3. Overall Unit Thickness: 1 inch (25 mm).
4. Minimum Thickness of Each Glass Lite: 6 mm.
5. Outdoor Lite: Low-iron heat-strengthened float glass.
6. Interspace Content: Air.
7. Indoor Lite: Low-iron fully tempered float glass.
8. Low-E Coating: Sputtered on second surface.
9. Opaque Coating Location: Fourth surface.

E. Silicone-Coated, Lightly Reflective, Low-E, Insulating Spandrel Glass Type (GL-42):

1. Basis-of-Design Product: Vitro Architectural Glass; Solarban R100 Acuity Series.
2. Coating Color: OPACI-COAT-300, **6-4029LI Ocean Horizon.**
3. Overall Unit Thickness: 1 inch (25 mm).
4. Minimum Thickness of Each Glass Lite: 6 mm.
5. Outdoor Lite: Low-iron heat-strengthened float glass.
6. Interspace Content: Air.
7. Indoor Lite: Low-iron fully tempered float glass.
8. Low-E Coating: Sputtered on second surface.
9. Opaque Coating Location: Fourth surface.

**END OF SECTION 088000**

## **SECTION 089119 - FIXED LOUVERS**

### **PART 1 - GENERAL**

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Fixed extruded-aluminum louvers.
  - 2. Blank-off panels for louvers

#### 1.2 DEFINITIONS

- A. Louver Terminology: Definitions of terms for metal louvers contained in AMCA 501 apply to this Section unless otherwise defined in this Section or in referenced standards.
- B. Horizontal Louver: Louver with horizontal blades (i.e., the axis of the blades are horizontal).
- C. Drainable-Blade Louver: Louver with blades having gutters that collect water and drain it to channels in jambs and mullions, which carry it to bottom of unit and away from opening.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. For louvers specified to bear AMCA seal, include printed catalog pages showing specified models with appropriate AMCA Certified Ratings Seals.
- B. Sustainable Design Submittals:
  - 1. Product Data: For recycled content, indicating postconsumer and preconsumer recycled content and cost.
  - 2. Environmental Product Declaration: For each product.
  - 3. Health Product Declaration: For each product.
  - 4. Sourcing of Raw Materials: Corporate sustainability report for each manufacturer.
- C. Shop Drawings: Project specific. For louvers and accessories. Include plans, elevations, sections, details, integration with surrounding construction and attachments to other work. Show frame profiles and blade profiles, angles, and spacing.
  - 1. Show weep paths, gaskets, flashings, sealants, and other means of preventing water intrusion.
  - 2. Show mullion profiles and locations.
- D. Samples: For each type of metal finish required.
- E. Delegated Design Submittal: For louvers indicated to comply with structural performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Based on evaluation of comprehensive tests performed in accordance with AMCA 500-L by a qualified testing agency or by manufacturer and witnessed by a qualified testing agency, for each type of louver and showing compliance with performance requirements specified.
- B. Sample Warranties: For manufacturer's special warranties.

#### 1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:
  - 1. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."

#### 1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

#### 1.7 WARRANTY

- A. Special Finish Warranty, Factory-Applied Finishes: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of baked enamel, powder coat, or organic finishes within specified warranty period.
  - 1. Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Warranty Period: 20 years from date of Substantial Completion.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS

- A. Source Limitations: Obtain fixed louvers from single source from a single manufacturer where indicated to be of same type, design, or factory-applied color finish.

#### 2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design louvers, including comprehensive engineering analysis by a qualified professional engineer, using structural performance requirements and design criteria indicated.

- B. Structural Performance: Louvers withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated without permanent deformation of louver components, noise or metal fatigue caused by louver-blade rattle or flutter, or permanent damage to fasteners and anchors. Wind pressures are considered to act normal to the face of the building.
  - 1. Wind Loads:
    - a. Determine loads based on pressures as indicated on Drawings.
- C. Louver Performance Ratings: Provide louvers complying with requirements specified, as demonstrated by testing manufacturer's stock units identical to those provided, except for length and width in accordance with AMCA 500-L.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- E. SMACNA Standard: Comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" for fabrication, construction details, and installation procedures.

### 2.3 FIXED EXTRUDED-ALUMINUM LOUVERS (LVR-1A, LVR-1B, LVR-2)

- A. Horizontal Drainable-Blade Louver, Extruded Aluminum:
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Construction Specialties, Inc.; Model A6097 or a comparable product by one of the following:
    - a. Airolite Company, LLC (The); Model K6846.
    - b. Ruskin; Air Distribution Technologies, Inc.; Johnson Controls, Inc.; Model ELF6350DMP.
  - 2. Louver Depth: 6 inches (150 mm).
  - 3. Frame and Blade Nominal Thickness: Not less than 0.080 inch (2.03 mm).
  - 4. Mullion Type: Continuous blade with concealed vertical and horizontal supports for seamless appearance.
  - 5. Louver Performance Ratings:
    - a. Free Area: Not less than 8.34 sq. ft. (0.775 sq. m) for 48-inch- (1220-mm-) wide by 48-inch- (1220-mm-) high louver.
    - b. Point of Beginning Water Penetration: Not less than 1100 fpm (5.6 m/s).
    - c. Air Performance:
      - 1) Not more than 0.10-inch wg (25-Pa) static pressure drop at 800-fpm (4.1-m/s) free-area intake velocity.
      - 2) Not more than 0.15-inch wg (37-Pa) static pressure drop at 1000-fpm (5.1-m/s) free-area exhaust velocity.
  - 6. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

#### **B. Horizontal Drainable-Blade Louver, Extruded Aluminum (LVR-3):**



1. Basis-of-Design Product: Subject to compliance with requirements, provide Construction Specialties, Inc.; Model A4097 or a comparable product by one of the following:
  - a. Airolite Company, LLC (The).
  - b. Ruskin; Air Distribution Technologies, Inc.; Johnson Controls, Inc.
2. Louver Depth: 4 inches (100 mm).
3. Frame and Blade Nominal Thickness: Not less than 0.068 inch (1.73 mm) for blades and 0.080 inch (2.03 mm) for frames.
4. Mullion Type: Continuous blade with concealed vertical and horizontal supports for seamless appearance.
5. Louver Performance Ratings:
  - a. Free Area: Not less than 8.07 sq. ft. (0.750 sq. m) for 48-inch- (1220-mm-) wide by 48-inch- (1220-mm-) high louver.
  - b. Point of Beginning Water Penetration: Not less than 1040 fpm (5.3 m/s).
  - c. Air Performance:
    - 1) Not more than 0.20-inch wg static pressure drop at 1040-fpm (5.3-m/s) free-area intake velocity.
    - 2) Not more than 0.18-inch wg static pressure drop at 1000-fpm (5.1-m/s) free-area exhaust velocity.
6. AMCA Seal: Mark units with AMCA Certified Ratings Seal.

## 2.4 LOUVER SCREENS

- A. General: Provide screen at each exterior louver.
  1. Screen Location for Fixed Louvers: Interior face.
  2. Screening Type: Bird screening.
- B. Secure screen frames to louver frames with stainless steel machine screws, spaced a maximum of 6 inches (150 mm) from each corner and at 12 inches (300 mm) o.c.
- C. Louver Screen Frames: Fabricate with mitered corners to louver sizes indicated.
  1. Metal: Same type and form of metal as indicated for louver to which screens are attached. Reinforce extruded-aluminum screen frames at corners with clips.
  2. Finish: Same finish as louver frames to which louver screens are attached.
  3. Type: Non-rewirable, U-shaped frames.
- D. Louver Screening for Aluminum Louvers:
  1. Bird Screening, Flattened, Expanded Aluminum: 5/8 by 0.055 inch (15.87 by 1.4 mm) thick.

## 2.5 BLANK-OFF PANELS

- A. Insulated Blank-Off Panels: Laminated panels consisting of an insulating core surfaced on back and front with metal sheets and attached to back of louver.

1. Thickness: 3 inches (76.2 mm).
2. Metal Facing Sheets, Aluminum: Not less than 0.032-inch (0.81-mm) nominal thickness.
3. Insulating Core: Rigid, glass-fiber-board insulation or extruded-polystyrene foam.
4. Edge Treatment: Trim perimeter edges of blank-off panels with louver manufacturer's standard extruded-aluminum-channel frames, not less than 0.080-inch (2.03-mm) nominal thickness, with corners mitered and with same finish as panels.
5. Seal perimeter joints between panel faces and louver frames with gaskets.
6. Panel Finish: Interior side: mill finish, exterior side: Kynar 500 Black.
7. Attach blank-off panels with clips or sheet metal screws.
8. Provide full blank-off panels as indicated on Drawings.

## 2.6 MATERIALS

- A. Aluminum Extrusions: ASTM B221 (ASTM B221M), Alloy 6063-T5, T-52, or T6.
- B. Aluminum Sheet: ASTM B209 (ASTM B209M), Alloy 3003 or 5005, with temper as required for forming, or as otherwise recommended by metal producer for required finish.
- C. Fasteners: Use types and sizes to suit unit installation conditions.
  1. For fastening aluminum, use stainless steel fasteners.
  2. For color-finished louvers, use fasteners with heads that match color of louvers.
- D. Postinstalled Fasteners for Concrete and Masonry: Torque-controlled expansion anchors, fabricated from stainless steel components, with allowable load or strength design capacities calculated in accordance with ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing in accordance with ASTM E488/E488M conducted by a qualified testing agency.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- F. Recycled Content of Aluminum Components: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- G. Regional Materials: Manufacture products within 100 miles (160 km) of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 100 miles (160 km) of Project site.

## 2.7 FABRICATION

- A. Factory assemble louvers to minimize field splicing and assembly. Disassemble units as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- B. Maintain equal louver blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.
- C. Fabricate frames, including integral sills, to fit in openings of sizes indicated, with allowances made for fabrication and installation tolerances, adjoining material tolerances, and perimeter sealant joints.
  1. Frame Type: Channel unless otherwise indicated.

2. Louvers to be supplied with 4-inch (101.6 mm) high by full depth sill flashing formed from minimum 0.050 inch (1.27 mm) thick aluminum.
  3. Sill flashing to have welded side panels.
  4. At LVR-2, provide glazing channel receiver(s) for integration into unitized curtain wall system.
- D. Include supports, anchorages, and accessories required for complete assembly.
- E. Provide vertical mullions of type and at spacings indicated, but not more than is recommended by manufacturer, or 72 inches (1830 mm) o.c., whichever is less.
1. Fully Recessed Mullions: Where indicated, provide mullions fully recessed behind louver blades for seamless appearance. Where length of louver exceeds fabrication and handling limitations, fabricate with close-fitting blade splices designed to permit expansion and contraction.
- F. Provide subsills made of same material as louvers or extended sills for recessed louvers.
- G. Join frame members to each other and to fixed louver blades with fillet welds concealed from view, threaded fasteners, or both, as standard with louver manufacturer unless otherwise indicated or size of louver assembly makes bolted connections between frame members necessary.
- 2.8 ALUMINUM FINISHES
- A. Finish louvers after assembly.
- B. High-Performance Organic Finish, Two-Coat PVDF: Fluoropolymer mica finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat.
1. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions .
  2. Color and Gloss: Custom colors. Match Architect's samples. LVR-1B & LVR-2 **& LVR-3** to match CW-1, LVR-1A to match FBR-2.

### **PART 3 - EXECUTION**

#### 3.1 EXAMINATION

- A. Examine substrates and openings, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

### 3.3 INSTALLATION

- A. Locate and place louvers level, plumb, and at indicated alignment with adjacent work.
- B. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- C. Form closely fitted joints with exposed connections accurately located and secured.
- D. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- E. Protect unpainted galvanized- and nonferrous-metal surfaces that are in contact with concrete, masonry, or dissimilar metals from corrosion and galvanic action by applying a heavy coating of bituminous paint or by separating surfaces with waterproof gaskets or nonmetallic flashing.
- F. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required. Comply with Section 079200 "Joint Sealants" for sealants applied during louver installation.

### 3.4 ADJUSTING AND CLEANING

- A. Clean exposed louver surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate during construction period.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- C. Restore louvers damaged during installation and construction, so no evidence remains of corrective work. If results of restoration are unsuccessful, as determined by Architect, remove damaged units and replace with new units.
  - 1. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

**END OF SECTION 089119**

## SECTION 111310 - HYDRAULIC DOCK LEVELER

### PART 1 – GENERAL

#### 1.1 SUMMARY

- A. This section covers the following Dock Equipment:
  - 1. Hydraulic Dock Leveler
  - 2. Dock Leveler Control
- B. Related Documents:
  - 1. The Conditions of the Contract and DIVISION 1 apply to this Section as fully as if repeated herein.
- C. The General Contractor is to provide all labor, services material, and equipment, and the performance of all work as necessary to provide all equipment as indicated on the Drawings, and as specified herein.
- D. All equipment furnished under this contract shall meet all applicable local and national Codes, as well as all health and sanitary Codes.
- E. The contract drawings, equipment and system interfaces outline the general requirements for the equipment specified in this section. The Equipment Manufacturer is responsible for engineering the final equipment layout, interfaces, and all other details specified herein. In addition, the Equipment Manufacturer shall be responsible for coordination of this layout with all other building systems and system interfaces.

#### 1.2 REFERENCES

- A. Electrical power, wiring and connections: DIVISION 16 – ELECTRICAL.

#### 1.3 SUBMITTALS

- A. Before executing any work under this section of specifications, furnish submittals in accordance with SUBMITTAL PROCEDURES, to show full compliance with contract requirements on items proposed to be furnished.
  - 1. Product Data and Manufacturer's Literature and Data:
    - a. Brochures showing name and address of manufacturer, catalog or model number of each item incorporated into the work.
    - b. Manufacturer's illustration and detailed description.
    - c. List of deviations from Specifications.
  - 2. Certificates: The manufacturer shall certify that the product offered meets the characteristics of the specified description and that the product conforms to the producer's own drawings, specifications, standards, and quality assurance practices.
  - 3. Test Reports: Provide certified equipment test reports on each type of equipment to be furnished. Reports shall include, but not be limited to, scale accuracy.
    - a. Tests shall be conducted by the manufacturer in the manufacturer's own facility and shall also be conducted on the same type of equipment to be furnished on this Project.

- b. Test records need not be re-certified providing no essential change in design has been made since tests were conducted.
- 4. Shop Drawings: Complete and detailed for each item specially fabricated.
- B. Closeout Submittals: Submittal procedures and quantities are specified in Section 01 77 00.
- C. Installation Drawings: Show dimensions method of assembly, installation, and conditions relating to adjoining work which requires cutting or close fitting, reinforcement, anchorage, and other work required for complete installation for equipment detailed in this Section.
- D. Review: Submittals will be reviewed for general design only, and not for method of assembly, construction, or detailed compliance with Contract Documents. One (1) major and one (1) minor review shall be performed. All additional submittal reviews shall be performed on an hourly basis (using reviewer's most current published rates) and billed to the Equipment Manufacturer.
- E. No deviation from Contract Documents is permitted unless specifically so noted by the General Contractor and accepted by the General Contractor in writing.
- F. General Contractor Responsibility:
  - 1. Errors or omissions in submittals regardless of review status of submittals
  - 2. Coordination with work of other trades.
  - 3. Space coordination and code compliance.
  - 4. Assembly and installation techniques, including structural adequacy and suitable bracing and / or anchoring for stability and seismic conditions.
  - 5. Maintenance of installation safety.
  - 6. Satisfactory performance of all work.

#### 1.4 QUALITY ASSURANCE

- A. Qualifications: Manufacturer shall regularly and currently manufacture specified equipment as one of its principal products.
- B. Manufacturer shall have technical qualifications, experience, trained personnel, and facilities to install specified items.
- C. Manufacturer shall have equivalent product currently installed at three (3) installations similar to this Project that has been in satisfactory and efficient operation for three (3) years.
- D. There shall be a permanent service organization, maintained and trained by Equipment Manufacturer, which will render emergency service within four (4) hours of notification that service is needed.
- E. All materials and equipment to be permanently installed shall be new and of such quality to satisfy the standards of the Documents. The Equipment Manufacturer, if required, shall furnish satisfactory evidence as to the kind and quality of all materials and equipment used.

- F. Workers skilled in their respective trades shall perform all labor; workmanship shall be of good quality so that first-class work is performed in accordance with the standards of construction set forth in the Documents.
- G. The General Contractor and the Equipment Manufacturer are solely responsible for the accurate installation of equipment / systems and are to correct any operational aspects and deficiencies without recourse to the Owner.
- H. If the Contractor performs any work which is contrary to any laws, ordinances, Codes, rules and regulations, the General Contractor will make all necessary changes as required to comply therewith and bear all costs arising therefrom without additional cost to the Owner.
- I. All parts of equipment shall be of design, size and materials to satisfactorily function under all conditions within rated load and speed range; all with proper factors of safety, maximum and electrical efficiency and minimum wear on parts.
- J. All parts shall be built to definite standard dimensions and tolerances so that it will be possible to replace and / or adjust any part without tooling or machining being required to install replacement parts.
- K. Mechanical fastenings used on parts to wear and replacement shall be key and seat, nut screw, or other removable and replaceable types, which do not require physical deformation or field positioning. Rivets or similar devices are not permitted as mechanical fastenings for such parts.

#### 1.5 MANUALS, DIAGRAMS AND INSTRUCTIONS

- A. Three (3) copies of operating and maintenance manuals, including written instructions relative to the care, adjustment and operation of the complete equipment together with photographs, equipment data and repair parts with numbers listed. This shall be furnished and delivered to the Owner.
- B. Three (3) sets of complete, legible schematic and field diagrams showing all electrical circuits shall be furnished. All symbols shall be listed, corresponding to the identification on the equipment furnished. Each set shall be neatly bound and delivered to the Owner.
- C. These items, except for final field diagrams, shall be submitted with the shop drawings.

#### 1.6 GUARANTEE

- A. **General Warranty:** The warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the General Contractor under the requirements of the Contract Documents.
- B. **Special Warranty:** The equipment furnished is to be guaranteed for three (3) full years, from the date of acceptance and beneficial use or as detailed on the

Documents. This guarantee is to include all replacement parts, as necessary to keep the equipment operational in accordance with the performance specifications and to the Owner's satisfaction.

- C. All labor and materials furnished in connection with the installation of equipment shall be subject to terms of "WARRANTY" articles of Section 00 70 00, GENERAL CONDITIONS. Upon receipt of notice from the Owner of failure of any portion of materials and workmanship furnished, the General Contractor shall promptly replace the affected part(s) with new part(s) at his own expense.
- D. No device shall be acceptable that will not give satisfactory performance without excessive maintenance and attention. If it becomes evident during the guarantee period that the device is not functioning properly or in accordance with the Contract requirements, or if in the opinion of the Owner, excessive maintenance and attention must be employed to keep such device operating, the device must be removed. A new device meeting all requirements shall be installed as part of contractual work until satisfactory operation of installation is obtained. The period of guarantee shall start anew from the date of completion of each new installation performed in accordance with the preceding requirements.

#### 1.7 EQUIPMENT MAINTENANCE

- A. The Owner shall be provided with a formal Preventive Maintenance Contract with a detailed parts list, replacement costs, descriptions and designations. The Preventive Maintenance Contract, if accepted by the Owner, is not to go into effect until after the guarantee expires. The Owner has the option to accept or decline the Preventive Maintenance Contract.
- B. A Maintenance Training Program shall be provided to the Owner, at the Equipment Manufacturer's factory, for training of additional Hospital technicians. Costs for this program shall be at the standard rate for this service.
- C. One month before the equipment guarantee is to expire; the Equipment Manufacturer shall provide a review of the maintenance instruction program along with a review of the Preventive Maintenance Contract with its detailed parts list, individual replacement costs, descriptions and designations.

#### 1.8 TOOLS

- A. Provide one (1) complete set of special tools necessary to maintain and make adjustments on every part of the equipment, if such tools are required for the maintenance of the equipment.

#### 1.9 CONSTRUCTION CONDITIONS

- A. Provide all necessary anchor bolts, shims, fastenings, recesses, cutouts, slots, holes, patching and the like to perform installation of equipment to code and regulations.
- B. Coordinate installation with other trades. Provide and obtain dimensions, clearances and similar data.



## 1.10 ELECTRICAL EQUIPMENT

- A. Electrical equipment shall be suitable for use with electrical system shown on the Drawings.
- B. Provide electrical components including motors, disconnect switches, motor controllers, motor control devices, and electrical circuits and connections which conform to requirements of NFPA 70 whether or not electrical components are furnished as part of equipment assemblies.
- C. Provide all electrical wiring, conduit, and all electrical devices necessary for the installation and operation of systems and equipment furnished.

## 1.11 PROJECT CONDITIONS

- A. In order to discover and resolve conflicts or lack of definition, which might create problems, the Equipment Manufacturer must review contract documents for compatibility with its product prior to bidding.
  - 1. Review structural, architectural, electrical, mechanical and plumbing drawings, and specifications.
  - 2. Compliance with all provisions of the contract documents is assumed in the absence of written and approved exceptions.
  - 3. The design of the structural, mechanical, and plumbing systems within the Project are fixed. The Equipment Manufacturer's equipment shall fit and operate within these fixed elements.

## PART 2 – PRODUCTS

### 2.1 HYDRAULIC DOCK LEVELER

- A. Manufacturers. Provide one of the following acceptable products or approved equal product.
  - 1. Design similar to:
    - a. Manufactures: Kelly Atlantic HK Series;
    - b. Blue Giant Hydraulic Dock Leveler; or equal.
- B. Design Features:
  - 1. Hydraulic Dock Leveler shall be supplied assembled and ready for use. Unit shall be fully mechanical with no manual lifting required to operate.
  - 2. Platform Load Capacity:
    - a. Moving or rollover load of 11,340 kg (25,000 lbs) when the front edge of the lip is resting on the floor or bed of a motor truck without permanent deflection or distortion.
    - b. Gross load of 11,340 kg (25,000 lbs) when the platform is not engaging the floor bed of a motor truck.
  - 3. Platform Size:
    - a. Approximately 1.83 m (6 feet) wide by 2.44 m (8 feet) long (nominal).

- b. Include a minimum lip length of 406.4 mm (16 inches).
  4. Flexible Leveler:
    - a. Automatic compensation for an out-of-level vehicle condition of 101.6 mm (4 inches) maximum from side to side.
  5. Vertical Adjustment:
    - a. Minimum of 609.6 mm (24 inches).
    - b. Travel of the front edge of the lip of the platform: 304.8 mm (12 inches) above or below the horizontal level of the stationary loading dock.
  6. Fit into space and construction as shown.
    - a. If deviations are required from space or pit construction shown, coordinate change showing changed conditions on submittal for dimensioned layout of leveler for installation.
    - b. Obtain approval from Owner's Representative and Owner of proposed change.
  7. Safety Device:
    - a. In the event trailer or truck pulls away from the leveler platform, use a safety device to limit downward travel at the outer end of dock leveler.
    - b. Safety device effective with a load on the platform up to 11,340 kg (25,000 lbs).
  8. Dock Bumpers:
    - a. Each Unit shall be supplied with one set of two (2) rubber dock bumpers.
    - b. 224 mm (8.8 inches) high x 330.2 mm (13 inches) wide x 101.6 mm (4 inches) thick.
    - c. Constructed of molded rubber (or similar) compressed between structural angle held in place by steel tie (or similar).
    - d. Mounting: bumpers will be bolted or welded to face of dock.
- C. Fabrication of Dock Leveler:
1. Sub-frame Assembly:
    - a. Fabricate frame assembly of structural steel shapes to receive operating components and platform assembly.
    - b. Fabricate sub-frame to support not less than 1,814 kg (4,000 lbs.) on the hinge assembly.
    - c. Weld assembly together except for mechanical components.
    - d. Drill for bolted anchorage of mechanical components.
  2. Platform Assembly:
    - a. Fabricate the platform section of not less than 6.1 mm (0.24 inches) thick non-skid steel floor plate.
  3. Hinges:
    - a. Designed to safely withstand maximum moving or rollover load and impact load.

- b. Use full length for lip plate to platform.
  - c. Use stainless steel hinge bolts and hinge pin.
  - 4. Remove burrs, sharp edges, or corners to prevent injury to personnel and tires.
  - 5. Maintenance Safety Bar:
    - a. Permanently mounted hinged steel strut capable of supporting platform in raised position including lip section.
    - b. Provide retaining socket or device to prevent accidental release.
  - 6. Welding shall be in accordance with AWS D1.1 and shall be continuous and ground smooth where exposed.
- D. Hydraulic System
- 1. Consist of steel cylinder, steel plunger, oil connections, pressure relief valve, fluid reservoirs, hydraulic valves, motor pump unit and accessories of size to assure against failure, provide maximum efficiency, and safety in operation.
  - 2. Provide means to minimize leaking of any kind from the hydraulic system.
  - 3. Cylinder and Plunger:
    - a. Use seamless steel tubing.
    - b. Turn and polish plunger and cylinder over contact surfaces.
    - c. Provide positive stop ring to prevent from leaving cylinder.
  - 4. Cylinder plunger mounting:
    - a. Provide top and bottom mounting to insure alignment and to eliminate any binding of the assembly, regardless of the position of the hydraulic cylinder, plunger, and leveler platform.
    - b. Equip assembly with two bearings for vertical stability where bolted to platform or frame.
- E. Power Unit
- 1. Power unit assembly; complete with electric motor operated pump, wiring, electric conduit, oil reservoir, and accessories.
  - 2. Assemble on mounting bracket for bolting to sub-frame.
  - 3. Direct-connect motor to hydraulic pump.
- F. Hydraulic Flexible Hose:
- 1. Hydraulic hoses, connections, and piping capable of withstanding vibration and full motor pump pressure without leaking or failing.
  - 2. Use fabric-reinforced chloroprene compound (neoprene) or other material unaffected by the hydraulic fluid.
  - 3. Use copper alloy or cadmium plated steel hose connector.
  - 4. Locate hose to prevent chafing or kinking and minimize bending and twisting during operation.
- G. Hydraulic Fluid:
- 1. Hydraulic fluid shall not gum, clog, corrode the system, or injure the packing of seals.
  - 2. Fill with sufficient fluid to operate the leveler.

- H. Hydraulic System Fasteners:
1. Use key and seat, nut, screw, or other removable or replaceable types which do not require physical deformation or field positioning for mechanical fastenings used on parts subject to wear and replacement. Do not use rivets or similar devices as mechanical fastenings for such parts.
  2. Bolts: fed spec. FF-B-588 or ASTM A307
  3. Bolts, nuts, screws and washers coated with zinc or cadmium or made of corrosion resistant metal.
- I. Electrical Requirements
1. In accordance with applicable portions of NEC (NEPA 70), NEMA ICS-1 and Electrical Section of Division 16.
  2. Wire: Fed Spec. J-C-30 approved by Underwriter's Laboratories, Inc.
  3. Motor and starter: 1 hp motor shall operate on 46~~80~~ volts at the voltage supplied, wound for 3 phase, 60 cycle alternating current service. Use totally enclosed motor equipped with sealed or shielded, lubricated ball bearing.
- J. Operating Station
1. Use wall mounted NEMA Type 4 enclosure for control station box.
  2. Operating buttons: Provide "UP" and "Emergency Stop" buttons in a single box.
  3. Recess buttons in control box or protect button by a projection peripheral collar.
  4. Indelibly identify, push-button by means of cast or etched letters on the station.
  5. Use constant pressure type buttons.
- K. Install permanent tag or plate on each device to clearly indicate electrical characteristics and functions, as function, as necessary, to easily identify device from description of sequence of operation, and wiring diagrams required under "Shop Drawings and Manufacturer's Data".
- L. Operation
1. Activation of the solenoids, motor and hydraulic pump through constant pressure on push button to raise of lower leveler platform.
  2. Continuously operating pump while the platform is being positioned, except the down travel may be by gravity.
  3. When "UP" push-button is depressed platform raised distance required to receive a vehicle, as soon as pressure is removed from the push-button, the lip extends, and platform lowers unless emergency stop button is depressed.
  4. Emergency Stop Button: Motion of platform including lip to stop and remain in place without constant pressure. Release of emergency stop button allows leveler to operate.
- M. Corrosion Protection and Painting
1. Ferrous metal surfaces including zinc coated ferrous and inaccessible ferrous surfaces (but not bearings, gear contact surfaces, part protected by lubrication, not usually painted or coated):
    - a. Clean, phosphate treat, and give two shop coats of rust inhibitive

- paint.
    - b. Give two finished coats of manufacturer's standard coatings; allow coating to dry hard before shipment.
2. Separate by electrolytically inactive material dissimilar metals subject to electrolysis upon contact.
3. Protect nonferrous parts against corrosion.

## 2.2 HYDRAULIC DOCK LEVELER CONTROL

- A. Manufacturers. Provide one of the following acceptable products or approved equal product.
  1. Design similar to:
    - a. Kelly Atlantic HK Series;
    - b. Blue Giant Hydraulic Dock Leveler; or equal.
- B. Design Features:
  1. General: Provide Single panel to accommodate electronic function of all dock levelers. A dedicated button shall be provided for each of the Dock Leveler listed. Master control panel to be 100% UL and CSA approved (not just components).
  2. Control panel to be NEMA 12, automatic motor starter, thermal overload, 2-amp control breaker with reset capability. All components to be individually circuit protected. S.A. and/or U.L. approved. The "Stop" button shall cease all dock devices when depressed and shall not require continuous pressure.
  3. ~~208~~ 480-volt, 3 phase motor

## PART 3 – EXECUTION

### 3.1 MANUFACTURED PRODUCTS

- A. Materials, fixtures, and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items.
- B. Units shall be products of one manufacturer.
- C. Manufacturer of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled units.
- D. Components of an assembled unit need not be products of same manufacturer.
- E. Constituent parts, which are alike, shall be the products of a single manufacturer.
- F. Components shall be compatible with each other and with the total assembly for the intended service.
- G. Nameplate:

1. Each piece of equipment shall bear a corrosion-resisting steel, or deep-etched anodized aluminum nameplate located in a reasonably accessible position, permanently secured.
  2. Nameplate shall be proportionate to size of equipment and bear the following:
    - a. Name of manufacturer.
    - b. Model number.
    - c. Serial number.
    - d. Electrical characteristics.
- H. Fasteners:
1. Rivets, bolts, nuts, studs, spacers, and metal used for welding shall be same kind of metal as materials joined.
  2. Where corrosion-resisting metals are joined to each other, or to other metals, rivets, bolts, and materials used for welding shall be corrosion-resisting metal.
- I. Welding:
1. Joints in fabricated equipment shall be welded by an accepted method. Carbon arc welding is not acceptable, nor is any process permitting the pick-up of carbon acceptable.
  2. Welds shall be strong and ductile, with exposed surfaces free of imperfections such as pits, runs, spatter, and cracks, and shall have same color as adjoining surfaces.
- J. Steel Fabrication:
1. Steel shall be free from kinks and sharp bends. Shearing and shipping shall be done neatly and accurately. Flame cutting may be employed instead of shearing or sawing. Re-entrant cuts shall be made in the best possible manner. Burned surfaces or flame cut materials shall be ground or machined to remove ash and checks.
  2. All joints, openings, and doors shall be square and neat. The finished equipment shall be free from sharp edges, fins, burrs, and sharp projections.
  3. The surface of parts to be welded shall be free from rust, scale, paint, grease, or other foreign matter. Welds shall be continuous for all major joints, and shall have the strength required to satisfy the design, use, and loading conditions. Intermittent welds may be used for attaching reinforcement members provided such welds will satisfy the design. Members to be welded shall be positioned and held by jigs or fixtures when necessary to insure accurate alignment. All outside corners of the containment body shall be of butt joint construction.
  4. Castings shall be sound and free from patching, misplaced coring, warping, or other defects, which might render the casting unsound for use. Forging shall be uniform in quality and condition, and shall be free from tears, cracks, seams, laps, internal ruptures, imbedded scale, segregation or other defects, which may detrimentally affect the suitability for the purpose intended.

### 3.2 EXAMINATION

- A. Examine surfaces to receive product before application to ensure that the following conditions are met:
  - 1. Before shipment from manufacturer's plant and following installation at project site, finished articles shall be thoroughly inspected and tested for compliance with specifications.
  - 2. Equipment Manufacturer shall inspect the site and conditions for which the equipment is to be installed and advise the General Contractor and General Contractor, in writing, of any conditions detrimental to the proper installation and operation of the equipment.
- B. Do not start the work of this section until all deficiencies have been corrected. Commencement of work constitutes acceptance of the surfaces.

### 3.3 PREPARATION

- A. Protect equipment against dirt, water, and chemicals during installation. Thoroughly clean equipment at the completion of work.

### 3.4 INSTALLATION

- A. The work under this Section of the Specification shall include all labor, services, materials and equipment and the performance of all work as necessary and required to furnish and install the equipment as indicated on the Drawings and as specified above.
- B. Delivery and installation of the equipment shall be so performed as to avoid delay on the work by other contractors. The General Contractor shall be responsible for receiving, uncrating, setting in place all of the equipment, and providing all the proper utilities, under the supervision of the Equipment Manufacturers.
- C. The Equipment Manufacturer shall be responsible for all final connections of their equipment.
- D. The equipment locations, as shown on the Drawings shall be checked by the General Contractor and the Equipment Manufacturers. All exact locations shall be determined by the dimensions of the equipment approved, and the layout drawing before an apparatus is installed. The General Contractor shall be solely responsible for the accurate installation and correct any operational aspects and deficiencies of his equipment without any recourse to the Owner.
- E. The General Contractor and the Equipment Manufacturer shall consult the architectural and structural drawings for all dimensions, locations of partitions, locations of pipes and ductwork.
- F. The General Contractor and the Equipment Manufacturer shall have a factory trained, field service technician on the premises to supervise the installation of all equipment. This service shall be at no additional cost to the Owner.

### 3.5 WORK BY OTHER TRADES

- A. The electrical contractors shall, within their specific areas of responsibilities, provide all labor, services, and materials required to complete the following work:
  - 1. Electric power wiring services to motors and control panels, which will be provided by the General Contractor, will be as shown on the electrical working drawings or approved equipment shop drawings. All other wiring not shown on these drawings shall be provided by the Equipment Manufacturer.
  - 2. Provide final mechanical and electrical connection to all equipment herein specified.
- B. All labor and materials furnished in connection with the installation shall meet all applicable local, state and Federal Codes, including OSHA, and shall be subject to terms of "General Conditions".

### 3.6 TESTS BY EQUIPMENT MANUFACTURER

- A. Equipment Manufacturer shall perform tests under operating conditions in presence of the Owner.
- B. Provide all equipment, instruments, and labor required for tests.
- C. Evidence of malfunction in any tested system, piece of equipment, or component part thereof that occurs during, or as a result of tests, shall be corrected, repaired or replaced, and the test repeated.

### 3.7 OPERATING AND MAINTENANCE / REPAIR TRAINING BY EQUIPMENT MANUFACTURER

- A. An orientation and continuing education program shall be presented to the Country employees when the equipment is operational. The program is to be presented by a full-time employee of the Equipment Manufacturer, trained in the respective department functions. The program is to be based on the department operations and employee responsibilities with audio-visual aid equipment and tape programs including operating manuals. The audio-visual programs shall be provided to the Owner at no cost for future use.
- B. A factory trained representative shall provide equipment demonstration to all of the appropriate employees, including proper daily and emergency equipment operational instructions with daily start-up and shutdown procedures. Owner shall determine schedule and number of meetings to provide to all staff.
- C. An instruction program shall be provided to the Owner's maintenance personnel, by fully trained and full-time instructors, on the maintenance, care, adjustment and operation of the Equipment as detailed above.
- D. All instruction shall include classroom and "hands on" training when the equipment is in operation, but before the Owner begins beneficial use. The program is to include a review of equipment operation and characteristics, maintenance manuals, schematics and spare part recommendations.



### 3.8 EMERGENCY SERVICE

- A. During the duration of the warranty, the Equipment Manufacturer must provide emergency service within four (4) hours of notification of trouble and return to operation any piece of equipment within twenty-four (24) hours of reported failure. This service is to be performed by the Equipment Manufacturer at no additional cost to the Owner.

**END OF SECTION 111310**

## SECTION 231200 - SHEET METAL AND FLEXIBLE DUCT

### 1. GENERAL

- A. The Contractor's attention is directed to the General and Special Conditions, General Requirements-Mechanical and to all other Contract Documents as they apply to this branch of the work. Attention is also directed to all other sections of the Contract Documents which affect the work of this section, and which are hereby made a part of the work specified herein.
- B. This branch of the work includes all materials, labor and accessories for the fabrication and installation of all sheet metal work as shown on the drawings and/or as specified herein. Where construction methods for various items are not indicated on the drawings or specified herein, all such work shall be fabricated and installed in accordance with the recommended methods outlined in the latest edition of SMACNA's HVAC Duct Construction Standards, Metal and Flexible, and its subsequent addenda. HVAC duct systems shall be fabricated and installed in accordance with the SMACNA duct construction standards (SMACNA-HVAC and SMACNA-Seismic) including Appendix B of the Seismic Restraint Manual Guidelines for Mechanical Systems. These references and plate numbers shall be used by the Engineer for required sheet metal thicknesses and final acceptance of methods of fabrication, hanging, accessories, etc. All equipment furnished by manufacturers shall be installed in strict accord with their recommended methods.
- C. Ductwork shall be constructed and installed per the latest edition of the International Mechanical Code.
- D. Ductwork shall be kept clean at all times. Ductwork stored on the job site shall be placed a minimum of 4" above the floor and shall be completely covered in plastic. Installed ductwork shall be protected with plastic to prohibit dust and dirt from entering the installed ductwork, air handling unit, terminal devices, etc. Provide temporary filters on all return grilles and duct openings if the units are running prior to the building being satisfactorily cleaned. Do not install the ductwork if the building is not "dried-in". If this is required, the open ends of duct shall be covered in plastic to protect. The Owner/Engineer shall periodically inspect that these procedures are followed. If deemed unacceptable, the Contractor shall be required to clean the duct system utilizing a NADCA certified Contractor.  
  
Prior to purchase and fabrication of ductwork (shop fabricated or manufactured), the Contractor shall coordinate installations with new and existing conditions. Notify the Engineer if there are any discrepancies for resolution.
- E. Provide a SMACNA duct cleanliness level "C" per the latest SMACNA standards. [Refer to LEED / Healthcare Requirements]
- F. If separate filter grilles are specified for an HVAC unit the Contractors shall remove any unit mounted filters and blank off the unused filter access opening with sheet metal and seal air tight.
- G. Wall Penetrations: Where ducts penetrate interior or exterior walls, the walls shall be sealed air tight. Refer to the sleeving, cutting, patching, and repairing section of the specifications for additional requirements.
- H. Duct dimensions indicated are required inside clear dimensions. Plan duct layouts for adequate insulation and fitting clearance.
- I. Prior to purchase/shipment of the ductwork, manufacturer shall provide as part of the submittal process scaled, field coordinated AutoCAD drawings of the complete system to be furnished.

Drawings will indicate all system components including fittings, ductwork and manifolds. Drawings shall be available in an electronic format.

## 2. LOW PRESSURE DUCTWORK

### A. General (Low Pressure)

- (1) Double turning vanes shall be installed in all square turns and in any other locations indicated.
- (2) Provide a "high efficiency" type take-off with round damper (Flexmaster STOD-B03 or approved equal) for all round duct branches from a rectangular main to a GRD. Refer to the detail on the drawings for all installation requirements.
- (3) Cross-break all ducts where any duct section dimension or length is 18" or larger.
- (4) Air volume dampers shall be installed in each duct branch takeoffs and/or where indicated, whichever is more stringent. All such dampers shall be accessible without damage to finishes or insulation and shall be provided where required for proper system balance.
- (5) Splitter dampers shall be provided in all rectangular supply air duct tees. Damper blade operator shall extend a minimum two inches thru the insulation.
- (6) Unless otherwise dimensioned on the drawings, all diffusers, registers and grilles shall be located aesthetically and symmetrically with respect to lighting, ceiling patterns, doors, masonry bond, etc. Locate all supply, return and exhaust diffusers and grilles in the locations shown on the architectural reflected ceiling plan.
- (7) Ducts shall be hung by angles, rods, 18 ga. minimum straps, trapezes, etc., in accordance with SMACNA's recommended practices. Duct supports shall not exceed 12 ft intervals. There shall be no less than one set of hangers for each section of ductwork. Where ductwork contains filter sections, coils, fans or other equipment or items, such equipment or items shall be hung independently of ductwork with rods or angles. Do not suspend ducts from purlins or other weak structural members where no additional weight may be applied. If in doubt, consult the structural engineer.
- (8) Provide approved flexible connectors at inlet and outlet of each item of heating and cooling equipment whether indicated or not. Install so as to facilitate removal of equipment as well as for vibration and noise control.
- (9) All ductwork connections, fittings, joints, etc., including longitudinal and transverse joints, seams and connections shall be sealed. Seal with medium pressure, smooth-textured, water based duct sealant. Sealant shall be UL 181B-M listed, UL 723 classified, NFPA 90A & 90B compliant, permanently flexible, nonflammable, and rated to 15" wg. Apply per manufacturer's recommendations. Contractors shall ensure no exposed sharp edges or burrs on ductwork.
- (10) All angular turns shall be made with the radius of the center line of the duct equivalent to 1.5 times the width of the duct.
- (11) Miscellaneous accessories such as test openings with covers, latches, hardware, locking devices, etc., shall be installed as recommended by SMACNA and/or as indicated. Test openings shall be placed at the inlet and discharge of all centrifugal fans, coils, VAV boxes, fan

sections of air handling units, at the end and middle of all main trunk ducts and where indicated. All such openings shall be readily accessible without damage to finishes.

- (12) Whether indicated or not, provide code approved, full sized fire dampers at all locations where ductwork penetrates fire rated walls. Fire stop rating shall meet or exceed the rating of the wall. Provide an approved access panel at each fire damper located and sized so as to allow hand reset of each fire dampers. All such fire dampers and access panels shall be readily accessible without damage to finishes. Refer to Architectural Plans for locations of fire rated walls. All access doors shall be 16"x16" or as high as ductwork permits and 16" in length.
- (13) The Contractor who installs the sheet metal shall furnish to the Air Balancing Contractor, a qualified person to assist in testing and balancing the system.
- (14) All fans and other vibrating equipment shall be suspended by independent vibration isolators.
- (15) The interior surface of the ductwork connecting to return/exhaust air grilles shall be painted flat black. The ductwork shall be painted a minimum of 24" starting from the grille.

**B. Materials (Low Pressure Single Wall)**

- (1) Ductwork, plenums and other appurtenances shall be constructed of the following:
  - a. Steel sheets, zinc coated, Federal Specification 00-S-775, Type I, Class E & ASTM A93-59T with G-90 zinc coating or aluminum alloy sheets 3003, Federal Specification AA-A-359, Temper H-14. Utilize Aluminum in MRI Scan Rooms or NMR Room applications.
  - b. Any ductwork exposed to view (electrical rooms, elevator machine rooms, etc.) shall be double wall and constructed of galvanized steel. Galvanized metal shall be prepped and clean prior to painting. Coordinate with General Contractor.
- (2) Ductwork, plenums and other appurtenances shall be constructed of the materials of the minimum weights or gauges as required by the latest SMACNA 2" W.G. Standard or the below table, whichever is more stringent. When gauge thickness differs, the heavier gauge shall be selected. The below table shall serve as a minimum:

ROUND DUCT		RECTANGULAR DUCT	
DIA., INCHES	GAUGE	WIDTH, INCHES	GAUGE
3 TO 12	26	UP TO 12	26
12 TO 18	24	13 TO 30	24
19 TO 28	22	31 TO 54	22
29 TO 36	20	55 TO 84	20
37 TO 52	18	85 AND ABOVE	18

C. Miscellaneous (Low Pressure)

(1) Un-insulated Flexible ductwork (for Return Air and Exhaust Air only)

- a. Un-insulated flexible ductwork shall be corrugated aluminum. No sections shall be greater than five feet in length. Ductwork shall be UL rated and in accordance with IMC.
- b. Flexible ductwork installed in a return or exhaust or other negative static pressure application shall be rated for installation in negative pressure systems.
- c. Provide Titus "FlexRight" or equal flexible duct bracing at each diffuser connection utilizing flexible ductwork.

(2) Insulated Flexible Duct – Steel or Aluminum (Use Only Where Indicated)

- a. Flexible duct shall be a factory-fabricated assembly consisting of an all steel or aluminum material. Plastic with spiral wire flexible duct is not permitted.
- b. All supply flexible duct shall be insulated with 1 ½ inch blanket of glass wool with an outer moisture barrier. The insulation assembly shall have a flame spread of not more than 25 and a smoke development rate of not over 50.
- c. Flexible duct shall be rated for 10 inches W.G. static pressure.
- d. A single length of flexible duct shall not exceed 4'0".
- e. The minimum bend radius shall be 1 ½ times the duct diameter. The radius shall be measured to the inside edge of the flexible duct.
- f. Total offset in any run of flexible duct shall not exceed 90 degrees.
- g. Provide a minimum of one hanger of each run of flexible duct. The hanger must be strapped around the flexible duct and secured to the structure above. Hangers shall not be attached to other mechanical or electrical objects. Hangers may be attached to an approved trapeze. Ceiling grid shall not be used to fabricate a trapeze. Support hangers shall be installed horizontal. Screws shall not be used to penetrate the flexible duct to attach the hanger.
- h. Flexible duct shall be secured to the rigid duct and appliance with a nylon adjustable, self-locking, strap and a minimum of three sheet metal screws. The flexible duct shall be sealed airtight at each connection with self-adhesive aluminum tape. Fiber or cloth duct tape is not permitted to seal rigid or flexible duct.
- i. All flexible duct shall be pressure tested by a testing and balancing agency to ensure the installation is airtight.
- j. Provide Titus "FlexRight" or equal flexible duct bracing at each diffuser connection utilizing flexible ductwork.

- (3) Flexible Connectors: Duro-Dyne, Ventfabrics, Inc., U.S. Rubber or equivalent; conforming to NFPA Pamphlet No. 90-A; neoprene coated glass fabric; 20 oz. for low pressure ducts secured with snap lock.
- (4) Turning Vanes: Duro-Dyne or equivalent fabricated as recommended by SMACNA: noiseless when in place without mounting projections in ducts. All turning vanes shall be double blade type.
- (5) Splitter Damper: Splitter damper shall be constructed of 16-gauge galvanized steel. Provide with operating hardware by Ventfabrics, Inc. to include damper blade bracket, ball joint bracket and operator shaft. Operator shall extend two inches from duct to allow for external insulation, where required. Regulator shall seal operator shaft air tight. Install hardware as recommended by manufacturer.
- (6) Access Doors; In Ductwork: Flexmaster TBSM, Air Balance, Vent Products or equal. Access doors for rectangular ducts shall be 16"x16" where possible. Otherwise install as large an access door as height permits by 16" in length. Door shall be 1" thick double-wall insulated with continuous hinge and cam lock. Provide in ducts where indicated or where required for servicing equipment whether indicated or not. Provide a hinged access door in duct adjacent to all fire, smoke and control dampers for the purpose of determining position. Access doors shall also be provided on each side of duct coils (water, electric, steam, etc.) and downstream side of VAV boxes and CAV boxes.
- (7) Architectural Access Doors in Ceilings or Walls: Provide where required to access equipment, dampers, valves, filters, etc. Provide Kees D Panel, Cesco, Milcor or equal. Panels shall be 24"x24" in size and constructed with 16 gauge galvanized steel for door and frame. In finished areas, provide with primed steel with 1" border to accept architectural specified finish. In Mechanical, Electrical, or service spaces, provide brushed satin finish with 1" border. Door shall include three (3) screwdriver operated cam latches and concealed continuous pivoting rod hinge. Door shall open 175 degrees. For masonry construction, furnish frames with adjustable metal masonry anchors. For fire rated units, provide manufacturer's standard insulated flush panel/doors with continuous piano hinge and self-closing mechanism. The Contractor shall include all required access doors in the bid and shall coordinate with the General Contractor prior to the bid to ensure a complete project.
- (8) Security Architectural Access Doors in Walls: Provide where required to access equipment, dampers, valves, filters, etc. Provide Kees SSAP Panel, Cesco, Milcor or equal. Panels shall be 24"x24" in size and constructed with 12-gauge steel for door and frame. In finished areas, provide with primed steel with 1" border to accept architectural specified finish. In Mechanical, Electrical, or service spaces, provide brushed satin finish with 1" border. Door shall include key-operated cylinder dead bolt lock (coordinate cylinders and keys with Owner to match facility standards) and concealed continuous pivoting rod hinge. Door shall open 175 degrees. For masonry construction, furnish frames with adjustable metal masonry anchors and straps. For fire rated units, provide manufacturer's standard insulated flush panel/doors with continuous piano hinge and self-closing mechanism. The Contractor shall include all required access doors in the bid and shall coordinate with the General Contractor prior to the bid to ensure a complete project.
- (9) Volume Dampers (Rectangular): Ruskin, Model MD35 or Empco, Air Balance; Louvers and Dampers, Titus, Carnes, Cesco/Advanced Air, Creative Metals, United Air, Pottorf rectangular volume dampers. Frames shall be 4" x 1 "x 16-gauge galvanized steel. Blades shall be opposed

blade 16-gauge galvanized steel with triple crimped blades on 6" centers. Linkage shall be concealed in jamb. Bearings shall be ½" nylon. Maximum single section size shall be 48" wide and 72" high. Provide with Ventfabrics 2" high elevated dial regulator to avoid damper handle from conflicting with duct insulation. Provide permanent mark on dial regulator to mark air balance point.

- (10) Volume Dampers (Round): Ruskin, Model MDRS25 or, Empco, Air Balance; Louvers and Dampers, Titus, Carnes, Cesco/Advanced Air, Creative Metals, United Air, Pottorff round volume dampers. Dampers shall be butterfly type consisting of circular blade mounted to axle. Frames shall be 20-gauge steel, 6" long. Damper blades shall be 20-gauge galvanized steel. Axle shall be 3/8"x6" square plated steel. Bearing shall be 3/8" nylon. Provide with Ventfabrics 2" high elevated dial regulator to avoid damper handle from conflicting with duct insulation. Provide permanent mark on dial regulator to mark air balance point.
- (11) Fire Dampers: Fire dampers shall comply with IMC and shall be constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 or 3-hour fire protection rating as required by fire wall. Damper shall have a 165°F fusible link, and shall include a UL label in accordance with established UL labeling procedures. Fire damper shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing 16-gauge minimum steel sleeves, angles, other materials, practices required to provide an installation equipment to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. All fire dampers shall be dynamic. Static fire dampers are not allowed. Provide velocity level and pressure level as required for application (if in doubt, contact Engineer). Fire dampers shall be Ruskin Type DIBD for 1-1/2-hour rating or Ruskin Type DIBD 23 for a 3-hour rating. **All fire dampers at horizontal assembly penetrations where concrete curbs are provided shall be based on Ruskin DFD35/OW (or Ruskin DFD35/OWSS for laboratory, pharmacy, and central sterile exhaust duct systems as described herein).** Other acceptable manufacturers are Air Balance, Prefco, Greenheck, Nailor, or Safe Air. Provide an access door for fire damper reset at all fire damper locations.
- (12) Motor Driven Smoke Dampers – Air Foil Blade: Provide Ruskin SD60 smoke damper where required by the locations of smoke partitions or as shown on the plans, whichever is more stringent. Other acceptable manufacturers are Air Balance or Pottorff. All smoke dampers shall be three inches larger than HVAC duct in each direction. Frame shall be a minimum of 18-gauge galvanized steel formed into a structural hat channel shaper with tabbed corners for reinforcement. The blade shall be airfoil shaped, constructed of a dual skinned galvanized steel, 14-gauge equivalent thickness, on 6" maximum centers. Bearings shall be stainless steel sleeve turning in an extruded hole in the frame. Jamb seal shall be stainless steel flexible metal compression type. Each smoke damper shall be classified by Underwriters Laboratories as a Leakage Rated Damper for use in smoke control systems under the latest version of UL555S, and bear a UL label attesting to same. As part of the UL qualification, dampers shall have demonstrated a capacity to operate (to open and close under HVAC system operating conditions) with pressures of at least the maximum possible of the HVAC system in the closed position, and the system maximum duct air velocity in the open position. In addition to the leakage ratings already specified herein, the dampers and their actuators shall be qualified under UL555S to an elevated temperature of 350 degrees F. Appropriate electric actuators shall be installed by the damper manufacturer. Refer to building fire alarm and controls for exact type. Actuator to be mounted outside of air stream. The pressure drop shall not be greater than .16" wg @ 2500 FPM when tested by an independent laboratory. Provide factory supplied caulked sleeve, gauge as required to meet manufacturer UL installation requirements.

- (13) Motor Driven Fire/Smoke Dampers – Air Foil Blade: Fire damper shall be constructed and tested in accordance with UL Safety Standard 555. The damper shall be Ruskin FSD60. Other acceptable manufacturers are Air Balance or Pottorff. The blade shall be airfoil shaped, constructed of a dual skinned galvanized steel, 14-gauge equivalent thickness, on 6" maximum centers. Frame is to be a minimum of 16-gauge galvanized steel, rollformed into a structural hat shape channel. Frame seals shall consist of flexible, compression type stainless steel. The damper and actuator electric shall be rated to an elevated temperature of 250 degrees F or 350 degrees F. In addition, the damper must be factory supplied with actuator and sleeve to comply with the requirements of UL 555S. These dampers shall have been constructed and tested in compliance with U.L. Standard 555 and U.L. Standard 555S, current editions. The pressure drop shall not be greater than .25 in.wg. At 2500 fpm when tested by an independent laboratory. Each damper shall bear an approved U.L. label identifying its classification as a Dynamic Rated Fire Damper (Static Rated dampers are not acceptable), and shall further be classified by U.L. as a Leakage Rated Damper for use in Smoke Control Systems. Each damper shall have a 1-1/2-hour fire protection rating, 212EF U.L. Listed fusible link and a leakage class I. In addition to the leakage ratings already specified herein, the dampers and their actuators shall be qualified under UL555S to an elevated temperature of 350 degrees F. Appropriate electric actuators shall be installed by the damper manufacturer. Refer to building fire alarm and controls for exact type. Provide factory supplied caulked sleeve, 20 gauge on dampers through 84" wide and 18 gauge above 84" wide. Actuator to be mounted outside of air stream. Provide factory supplied caulked sleeve, gauge as required to meet manufacturer UL installation requirements.
- (14) Motor Driven Control Dampers – Provide Ruskin Model CD50 air foil damper as shown on the plans. Frame shall be a minimum of 16-gauge galvanized steel formed into a structural hat channel shaper with tabbed corners for reinforcement. The blade shall be airfoil shaped, constructed of a dual skinned galvanized steel, 14-gauge equivalent thickness, 6 inches wide. Bearings shall be stainless steel sleeve turning in an extruded hole in the frame. Jamb seal shall be stainless steel flexible metal compression type. Blade seals shall be equal to Ruskinprene. Leakage Rating shall be Pressure/Class 1.

### 3. MEDIUM PRESSURE DUCTWORK

#### A. General (Medium Pressure)

- (1) All ductwork connections, fittings, joints, etc., shall be sealed. Seal with high velocity, smooth-textured, water based duct sealant. Sealant shall be UL 181B-M listed, UL 723 classified, NFPA 90A & 90B compliant, permanently flexible, non-flammable, and rated to 15" wg. Apply per manufacturer's recommendations.
- (2) Ductwork shall be installed per SMACNA Medium or High-Pressure Manual, whichever is applicable. (Latest Edition shall apply.)
- (3) All hanger straps shall be 18 ga. minimum with reinforcement angles installed in strict accordance with SMACNA. Flat oval ducts shall be installed with 2"x2"x1/4" angles on top and bottom ducts 18" wide and larger. Use 1"x1"x3/16" angles on ducts under 18" wide.
- (4) Miscellaneous accessories such as test openings with covers, latches, hardware, locking devices, etc., shall be installed as recommended by SMACNA or the duct manufacturer, and/or as indicated. Test openings shall be placed at the discharge of all air handling units and at the



end and middle of all main trunk ducts and where indicated. All such openings shall be readily accessible without damage to finishes.

- (5) Whether indicated or not, provide code approved, full sized fire dampers at all locations where ductwork penetrates fire rated walls. Fire stop rating shall meet or exceed the rating of the wall. Provide an approved access panels at each fire damper located and sized so as to allow hand reset of each fire damper. All such fire dampers and access panels shall be readily accessible without damage to finishes. Refer to Architectural Plans for locations of fire rated walls. Where access doors are installed in insulated ductwork, the access door shall be the insulated type.

**B. Materials (Medium Pressure Single Wall)**

- (1) All round, rectangular, and oval medium pressure ductwork for systems above 1.5" W.G. shall be Eastern Sheet Metal, United McGill or Semco or equal with construction as required by the latest SMACNA Standard (Refer to required pressure rating of the duct system as outlined in the Duct Schedule of this spec section).
- (2) Any ductwork exposed to view shall be double wall and constructed of galvanized steel. Galvanized metal shall be prepped and clean prior to painting. Coordinate with General Contractor.

Ductwork shall be spiral, lock-seam construction fabricated from galvanized steel meeting ASTM-527 standard. Ductwork shall be constructed of materials of the minimum weights or gauges as required by the latest SMACNA Standard (Refer to required pressure rating of the duct system as outlined in the Duct Schedule of this spec section) or the below table. When gauge thickness differs, the heavier gauge shall be selected. The below table shall serve as a minimum:

ROUND DUCT (or Equivalent Round Diameter for Oval Ducts)		RECTANGULAR DUCT	
DIA., INCHES	GAUGE	WIDTH, INCHES	GAUGE
3 TO 14	26	UP TO 12	26
15 TO 26	24	13 TO 30	24
27 TO 36	22	31 TO 54	22
37 TO 50	20	55 TO 84	20
52 TO 60	18	85 AND ABOVE	18

- (3) All medium pressure duct fittings shall be fabricated by the same manufacturer as the spiral pipe. Contractor or field fabricated fittings shall not be accepted. Duct fittings shall be constructed per the latest SMACNA standard (Refer to required pressure rating of the duct system as outlined in the Duct Schedule of this spec section) with continuous welds. Take-off fittings shall be combination type tees (Eastern Sheet Metal Model "CB" or equal). Straight or angle tees are not acceptable. Fittings shall be constructed of the following minimum gauges:

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ROUND DUCT (or Equivalent Round Diameter for Oval Ducts)		RECTANGULAR DUCT	
DIA., INCHES	GAUGE	WIDTH, INCHES	GAUGE
3 TO 50	20	UP TO 36	20
51 TO 60	18	37 TO 60	18
61 TO 84	16	61 AND ABOVE	16

- (4) All single wall ductwork will be furnished with factory installed flanges equal to Eastern Sheet Metal Flange on all ductwork greater than 24 inches in size.

C. Miscellaneous (Medium pressure)

- (1) Flexible Connectors: Duro-Dyne, Ventfabrics, U.S. Rubber or equivalent; conforming to NFPA Pamphlet No. 90-A or IMC, whichever is more stringent; neoprene coated glass fabric; 30 oz. for medium pressure ducts secured with bolted angles. Provide flexible connectors at inlet and outlet of air handling equipment to accommodate a minimum of three times the operating pressure of the system.
- (2) Architectural Access Doors In Ceilings or Walls: Provide where required to access equipment, dampers, valves, filters, etc. Provide Kees D Panel, Cesco, Milcor or equal. Panels shall be 24"x24" in size and constructed with 16 gauge galvanized steel for door and frame. In finished areas, provide with primed steel with 1" border to accept architectural specified finish. In Mechanical, Electrical, or service spaces, provide brushed satin finish with 1" border. Door shall include three (3) screwdriver operated cam latches and concealed continuous pivoting rod hinge. Door shall open 175 degrees. For masonry construction, furnish frames with adjustable metal masonry anchors. For fire rated units, provide manufacturer's standard insulated flush panel/doors with continuous piano hinge and self-closing mechanism. The Contractor shall include all required access doors in the bid and shall coordinate with the General Contractor prior to the bid to ensure a complete project.
- (3) Security Architectural Access Doors in Walls: Provide where required to access equipment, dampers, valves, filters, etc. Provide Kees SSAP Panel, Cesco, Milcor or equal. Panels shall be 24"x24" in size and constructed with 12-gauge steel for door and frame. In finished areas, provide with primed steel with 1" border to accept architectural specified finish. In Mechanical, Electrical, or service spaces, provide brushed satin finish with 1" border. Door shall include key-operated cylinder dead bolt lock (coordinate cylinders and keys with Owner to match facility standards) and concealed continuous pivoting rod hinge. Door shall open 175 degrees. For masonry construction, furnish frames with adjustable metal masonry anchors and straps. For fire rated units, provide manufacturer's standard insulated flush panel/doors with continuous piano hinge and self-closing mechanism. The Contractor shall include all required access doors in the bid and shall coordinate with the General Contractor prior to the bid to ensure a complete project.

- (4) Fire Dampers: Fire dampers shall comply with IMC and shall be constructed and tested in accordance with UL Safety Standard 555. Each fire damper shall have a 1-1/2 or 3-hour fire protection rating as required by fire wall. Damper shall have a 165°F fusible link, and shall include a UL label in accordance with established UL labeling procedures. Fire damper shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing 16-gauge minimum steel sleeves, angles, other materials, practices required to provide an installation equipment to that utilized by the manufacturer when dampers were tested at UL. Installation shall be in accordance with the damper manufacturer's instructions. All fire dampers shall be dynamic. Static fire dampers are not allowed. Provide velocity level and pressure level as required for application (if in doubt, contact Engineer). Fire dampers shall be Ruskin Type DIBD for 1-1/2-hour rating or Ruskin Type DIBD 23 for a 3-hour rating. Other acceptable manufacturers are Air Balance, Prefco, Greenheck, Nailor, or Safe Air. **All fire dampers at horizontal assembly penetrations where concrete curbs are provided shall be based on Ruskin DFD35/OW (or Ruskin DFD35/OWSS for laboratory, pharmacy, and central sterile exhaust duct systems as described herein).** Provide an access door for fire damper reset at all fire damper locations.
- (5) Motor Driven Smoke Dampers – Air Foil Blade: Provide Ruskin SD60 smoke damper where required by the locations of smoke partitions or as shown on the plans, whichever is more stringent. Other acceptable manufacturers are Air Balance or Pottorff. Frame shall be a minimum of 18-gauge galvanized steel formed into a structural hat channel shaper with tabbed corners for reinforcement. The blade shall be airfoil shaped, constructed of a dual skinned galvanized steel, 14-gauge equivalent thickness, on 6" maximum centers. Bearings shall be stainless steel sleeve turning in an extruded hole in the frame. Jamb seal shall be stainless steel flexible metal compression type. Each smoke damper shall be classified by Underwriters Laboratories as a Leakage Rated Damper for use in smoke control systems under the latest version of UL555S, and bear a UL label attesting to same. As part of the UL qualification, dampers shall have demonstrated a capacity to operate (to open and close under HVAC system operating conditions) with pressures of at least the maximum possible of the HVAC system in the closed position, and the system maximum duct air velocity in the open position. In addition to the leakage ratings already specified herein, the dampers and their actuators shall be qualified under UL555S to an elevated temperature of 350 degrees F. Appropriate electric actuators shall be installed by the damper manufacturer. Refer to building fire alarm and controls for exact type. Actuator to be mounted outside of air stream. The pressure drop shall not be greater than .16" wg @ 2500 FPM when tested by an independent laboratory. Provide factory supplied caulked sleeve, gauge as required to meet manufacturer UL installation requirements.
- (6) Motor Driven Fire/Smoke Dampers – Air Foil Blade: Fire damper shall be constructed and tested in accordance with UL Safety Standard 555. The damper shall be Ruskin FSD60. Other acceptable manufacturers are Air Balance or Pottorff. The blade shall be airfoil shaped, constructed of a dual skinned galvanized steel, 14-gauge equivalent thickness, on 6" maximum centers. Frame is to be a minimum of 16-gauge galvanized steel, rollformed into a structural hat shape channel. Frame seals shall consist of flexible, compression type stainless steel. The damper and actuator electric shall be rated to an elevated temperature or 250 degrees F or 350 degrees F. In addition, the damper must be factory supplied with actuator and sleeve to comply with the requirements of UL 555S. These dampers shall have been constructed and tested in compliance with U.L. Standard 555 and U.L. Standard 555S, current editions. The pressure drop shall not be greater than .25 in.wg. At 2500 fpm when tested by an independent laboratory. Each damper shall bear an approved U.L. label identifying its classification as a Dynamic Rated Fire Damper (Static Rated dampers are not acceptable), and shall further be classified by U.L. as a Leakage Rated Damper for use in Smoke Control Systems. Each damper shall have a 1-1/2-

hour fire protection rating, 212EF U.L. Listed fusible link and a leakage class I. In addition to the leakage ratings already specified herein, the dampers and their actuators shall be qualified under UL555S to an elevated temperature of 350 degrees F. Appropriate electric actuators shall be installed by the damper manufacturer. Refer to building fire alarm and controls for exact type. Provide factory supplied caulked sleeve, 20 gauge on dampers through 84" wide and 18 gauge above 84" wide. Actuator to be mounted outside of air stream. Provide factory supplied caulked sleeve, gauge as required to meet manufacturer UL installation requirements

- (7) Motor Driven Control Dampers – Provide Ruskin Model CD60 air foil damper as shown on the plans. Frame shall be a minimum of 16-gauge galvanized steel formed into a structural hat channel shaper with tabbed corners for reinforcement. The blade shall be airfoil shaped, constructed of a dual skinned galvanized steel, 14-gauge equivalent thickness, 6 inches wide. Bearings shall be stainless steel sleeve turning in an extruded hole in the frame. Jamb seal shall be stainless steel flexible metal compression type. Blade seals shall be equal to Ruskinprene. Leakage Rating shall be Pressure/Class 1.
- (8) Access Doors; In Rectangular Medium Pressure Ductwork: Flexmaster TBSM, Air Balance, Vent Products or equal. Access doors for rectangular ducts shall be 16"x16" where possible. Otherwise install as large an access door as height permits by 16" in length. Door shall be 1" thick double-wall insulated with continuous hinge and cam lock. Provide in ducts where indicated or where required for servicing equipment whether indicated or not. Provide a hinged access door in duct adjacent to all fire, smoke and control dampers for the purpose of determining position.
- (9) Access Doors; In Round or Oval Medium Pressure Ductwork: All access doors in round or oval medium pressure ductwork shall be screw and gasketed type. Screws shall be maximum 4 inches on centers. Access door sizes shall be as follows:

DUCT DIAMETER	OPENING SIZE
3-4 inches	4" x 10"
5-6 inches	6" x 10"
7-24 inches	10" x 16"
26-36 inches	16" x 16"
Over 36 inches	16" x 22"

- (10) Pressure Relief Doors: **Designer edit if required** Provide a pressure relief vent in the supply air ductwork at each air handling unit. It shall be located between the fan outlet and the first manual or automatic (i.e., fire, fire smoke, or any motorized) damper or closure device. It shall be sized to relieve the duct air pressure below the rated pressure construction of the ductwork and above the working pressure of the fan. The supply air relief door shall be Ruskin PRD18 or equal. Provide a vacuum relief vent in the return and/or outside air ductwork at each air handling unit. It shall be located between the air handling unit casing and the first manual or automatic damper or closure device. It shall be sized to relieve the duct vacuum below the rated construction of the ductwork and above the working negative pressure of the fan. The return air relief door shall be Ruskin NRD18 or equal. Automatic fan shutdown upon damper closure shall not be an acceptable protection for either overpressure or vacuum conditions. All duct pressure relief doors shall be of the automatic resetting type unless otherwise noted.

#### 4. CENTRAL STERILE EXHAUST DUCT

- A. All ductwork connected to EF20-SUR-2S (including upstream and downstream of air terminal units or flow control valves) shall be 22-gauge stainless steel duct with liquid tight continuous external weld of all seams and joints. Ductwork shall meet all SMACNA requirements for 6" w.g. pressure class ductwork. Provide dielectric connection between steel and any aluminum ductwork. All ductwork shall be sloped a minimum of 1/8" per foot so as to drain back toward the appliance served. Provide drain plugs at the bottom of each duct riser section.

## 5. LAB/PHARMACY EXHAUST DUCTWORK

- A. PVC Coated Galvanized Ductwork – All Lab Exhaust Duct Systems (including upstream and downstream of air terminal units or flow control valves) connected to the following exhaust fans: EF-PHM-5N, EF11-LAB-2N, EF22-LAB-0S.

1. All exhaust ductwork down on the plans shall be 4 mil x 4 mil PVC Coated galvanized duct. Ductwork shall meet all SMACNA requirements for 6" w.g. pressure class ductwork. The duct shall be transported, stored, and installed in accordance with SMACNA Advanced Cleanliness standards. Any scratches or imperfections observed in the PVC coating shall be repaired per the manufacturers recommended procedure or removed from the jobsite. No flexible duct shall be allowed on Exhaust systems.
2. All devices located within the exhaust air stream shall be stainless steel or PVC Coated. This includes sound attenuators, screws, dampers, etc.

## 6. WATER HEATER AND BOILER FLUE STACKS

### A. Location

- (1) All flues shall be offset to provide, whether indicated or not, a minimum of 10' horizontal separation to any air intake. This distance shall be a 25' minimum on healthcare facilities.

### B. Category II and Category IV Appliances (Positive and Negative Pressure Condensing Appliances)

- (1) Metal-Fab Corr/Guard, Heat-Fab Saf-T Vent or other approved equal meeting the specification below:

The vent shall be of the double wall, factory-built type for use on condensing appliances or pressurized venting systems serving Category II, III, or IV appliances or as specified by the equipment manufacturer.

Maximum temperature shall not exceed 550°F.

Vent shall be listed for an internal static pressure of 6" w.g. and tested to 15" w.g.

Vent shall be constructed on an inner and outer wall with a 1" annular insulating air space.

The inner wall (vent) shall be constructed of AL29-4C superferritic stainless steel, .015 thickness for 6"-12" diameters and .024 thickness for 14"-24" diameters.

The outer wall (casing) shall be constructed of type 304 stainless steel. .018 thickness for 6"-12" diameters and .024 thickness for 14"-24" diameters.

Inner and outer walls shall be connected by means of spacer clips that maintain the concentricity of the annular space and allow unobstructed differential thermal expansion of the inner and outer walls.

Product shall carry the appropriate UL listing mark or label.

6" to 12" diameter vent shall have 1" clearance to combustibles at 550°F. 14" to 24" diameter vent shall have 5" clearance to combustibles at 550°F.

## 7. FLUE CAPS

- A. Provide a flue cap on all flues. It shall be similar to the Breident positive downdraft eliminator style.

## 8. GENERATOR MUFFLER EXHAUST SYSTEM

- A. Manufacturer shall provide factory-built modular universal stack/vent system tested and listed by Underwriters Laboratories Inc. UL Listings shall include:

- a. UL 103 Standard for Building Heating Appliance Chimneys which may produce exhaust gas at temperatures not exceeding 1000°F under continuous operating conditions and 1400°F under intermittent condition when burning gaseous, solid, or liquid fuels as described in NFPA-211
- b. Additional UL 103 Type HT 2100°F burnout test for Solid Fuel.
- c. UL 2561 1400°F Chimney for appliances which may produce exhaust gas at temperatures not exceeding 1400°F under continuous operating conditions and 1800°F under intermittent conditions.
- d. Additional UL 103/2561 pressure testing for positive pressure applications up to 90 inches W.C. after 1400°F continuous exposure.

## B. CONSTRUCTION

- A. The double wall fiber insulated exhaust system shall be constructed of all-stainless steel. The materials and construction of modular sections and accessories shall be as specified by the terms of the product's UL listing.

### B.

- a. Type 444 or 316L stainless steel inner liner.
- b. 3-1/4" minimum thick fiber insulation.
- c. Type 304 BA stainless steel outer jacket.
- d. The entire exhaust system, including all accessories (connectors, hardware, anchor plate supports, guides, drains, and terminals), shall be stainless steel.

- B. Inner flue shall have an overlapping male/female socket that protects the rolled flange with sealant against condensate and high-pressure cleaning. The inner joints shall be secured with vee bands on the inner and overlapping locking band on the outer jacket.
- C. Exhaust system shall be designed to compensate for all temperature induced thermal expansion, installed to be gastight, and thus prevent leakage of combustion products into a building.
- D. Exhaust system is based upon Jeremias Model DWFL+3. Detailed manufacturer's submittal drawings shall be provided for approval prior to installation of the exhaust system.

#### C. INSTALLATION

- A. Roof and wall penetrations shall be factory insulated and UL listed as not to require air ventilation for safe installation around combustible materials.
- B. Entire exhaust system from the appliance outlet to the termination point, including accessories shall be from one manufacturer, except where noted.

#### D. WARRANTY

- A. The factory-built modular exhaust system shall be warranted against functional failure for a limited lifetime warranty.
- B. Manufacturer shall provide ASHRAE flue sizing calculations confirming the inner diameter is in complete compliance with appliance manufacturer's installation instructions.

### 9. DUCT SCHEDULE

#### A. Supply Ducts:

- (1) Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, downstream of Terminal Units/VAV boxes

:

- a. Pressure Class: Positive 2-inch wg Refer to Low Pressure requirements as outlined in section 2 of this spec.
- b. Minimum SMACNA Seal Class: C.
- c. SMACNA Leakage Class for Rectangular: 24.
- d. SMACNA Leakage Class for Round and Flat Oval: 12.

- (2) Ducts Connected to Constant-Volume Air-Handling Units:

- a. Pressure Class: Positive 6-inch wg Refer to Medium Pressure requirements as outlined in section 3 of this spec.
- b. Minimum SMACNA Seal Class: A.
- c. SMACNA Leakage Class for Rectangular: 6.
- d. SMACNA Leakage Class for Round and Flat Oval: 3.

- (3) Ducts Connected to Variable-Air Volume Air-Handling Units:

- a. Pressure Class: Positive 6-inch wg Refer to medium pressure standards as

outlined in section 3 of this spec.

- b. Minimum SMACNA Seal Class: A.
- c. SMACNA Leakage Class for Rectangular: 6.
- d. SMACNA Leakage Class for Round and Flat Oval: 3.

B. Return Ducts:

(1) Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, downstream of Terminal Units :

- a. Pressure Class: Negative 2-inch wg Refer to Low Pressure requirements as outlined in section 2 of this spec.
- b. Minimum SMACNA Seal Class: C.
- c. SMACNA Leakage Class for Rectangular: 24.
- d. SMACNA Leakage Class for Round and Flat Oval: 12.

(2) Ducts Connected to Air-Handling Units:

- a. Pressure Class: Negative 6-inch wg; Refer to Medium Pressure requirements as outlined in section 3 of this spec.
- b. Minimum SMACNA Seal Class: A.
- c. SMACNA Leakage Class for Rectangular: 6.
- d. SMACNA Leakage Class for Round and Flat Oval: 3

C. Exhaust/Relief Ducts:

(1) Ducts Connected to Exhaust Fans:

- a. Pressure Class: Negative 6-inch wg Refer to Medium Pressure requirements as outlined in section 3 of this spec.
- b. Minimum SMACNA Seal Class: C.
- c. SMACNA Leakage Class for Rectangular: 24.

(2) Ducts Connected to Air-Handling Units:

- a. Pressure Class: Positive or Negative 4-inch wg Refer to Medium Pressure requirements as outlined in section 3 of this spec.
- b. Minimum SMACNA Seal Class: C
- c. SMACNA Leakage Class for Rectangular: 24.

**(3) *Ducts Connected to Laboratory/Pharmacy/Central Sterile Exhaust Fans:***

- a. Pressure Class: Negative 10-inch wg Refer to Medium Pressure requirements as outlined in section 3 as well as requirements outlined in the appropriate duct sections of this spec.***
- b. Minimum SMACNA Seal Class: Welded seams, joints, and penetrations.***
- c. SMACNA Leakage Class: 3.***

D. Outdoor Air Ducts:

(1) Ducts Connected to Air-Handling Units:

- a. Pressure Class: Positive or Negative 4-inch wg Refer to Medium Pressure requirements as outlined in section 3 of this spec.
- b. Minimum SMACNA Seal Class: A.



- c. SMACNA Leakage Class for Rectangular: 6.

**E. Stairwell Pressurization Air Ducts:**

**(1) Ducts Connected to Stairwell Pressurization Fans:**

- a. **Pressure Class: Positive or Negative 4-inch wg. Refer to Medium Pressure requirements as outlined in section 3 of this spec.**
- b. **Minimum SMACNA Seal Class: A.**
- c. **SMACNA Leakage Class for Rectangular: 6.**

12. Air Leakage Testing of the Ductwork Systems

- A. It is the intent of this section to ensure the ductwork installed has minimal air leakage.
- B. Air leakage testing shall be accomplished by an AABC or NEBB certified company. Refer to the Test & Balance specifications.
- C. It is the intent to test all ductwork. The duct systems which will require testing are as follows:
  - (1) All supply air duct systems
  - (2) All return air duct systems.
  - (3) **All stairwell pressurization duct systems.**
  - (4) The following exhaust air duct systems:
    - a. Pharmacy exhaust connected to EF10\_PHM\_5N
    - b. Laboratory exhaust connected to EF11\_LAB\_2N
    - c. Isolation room exhaust connected to EF13\_ISO\_1S
    - d. Hot room exhaust connected to EF2\_HTE\_0S and EF5\_HTE\_1N
- D. Do not insulate the supply air systems prior to testing.
- E. The maximum allowable air leakage rate for each system tested must conform to SMACNA required leakage class rating as specified in section 11, DUCT SCHEDULE, of this spec.
- F. The entire supply air ductwork system shall be tested with some exceptions. On VAV systems, the medium pressure ductwork upstream of the VAV boxes shall only be tested. Cap the duct at the inlet to the VAV box. On low pressure reheat system, all ductwork upstream of the hot water reheat coil shall be tested. The air volume damper and access door upstream of the reheat coil shall be included in the tested system. (Designer, edit above paragraph as required.)
- G. All return and exhaust air sheet metal ductwork associated with the systems shall be tested. Flexible ductwork shall not be tested. Cap the main duct prior to the central equipment fan connection. Also cap the branch ducts which serve the diffusers, after the round branch air volume with sheet metal caps. Seal caps well to damper to avoid air loss at this location. This air loss, from the caps, is included in the noted leakage rate.

- H. The noted allowable leakage rate is the total allowable. It shall include leakage associated with the following: (Note to Designer to edit.)
- (1) All ductwork as described in above paragraphs.
  - (2) Access doors
  - (3) Volume dampers
  - (4) Relief air doors
  - (5) Smoke dampers
  - (6) Fire dampers
  - (7) Fire smoke dampers
  - (8) End caps used to seal ducts
- I. If any duct system fails a test, the contractor shall reseal the system. It shall then be retested until the duct system meets the leakage allowable at no additional cost to the owner.
- J. Carefully select the ductwork construction requirements and the type of duct sealant to be used as required to meet the leakage allowances. The sheet metal duct pressure classification is a minimum only. The contractor shall select the appropriate sheet metal pressure classification, duct sealant class and duct sealant materials to meet the project air leakage allowances.
- K. A duct pre-installation conference shall be held prior to the installation of the ductwork. Present should be the owner's representative, engineer, Test & Balance Contractor, General Contractor, Mechanical Contractor, Sheet Metal Contractor, Insulation Contractor and the manufacturer's representative of the duct sealant to be used. At this meeting, the contractor shall advise all of the duct materials and sealant materials to be used to meet the air leakage allowances.
- L. Whenever the systems are being leak tested by the Test & Balance Contractor, a representative from the Mechanical Contractor shall be present to assist.

**END OF SECTION 231200**

## **SECTION 23 1213 - FACILITY FUEL-OIL PUMPS**

### **1.GENERAL**

#### **a.RELATED DOCUMENTS**

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

#### **b.SUMMARY**

- 1)Section Includes:
  - (a)Submersible fuel-oil storage tank pumps.
  - (b)Triplex fuel-oil pumps.
  - (c)Fuel-oil maintenance systems.

#### **c.DEFINITIONS**

- 1)Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
- 2)Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
- 3)Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

#### **d.ACTION SUBMITTALS**

- 1)Product Data: For each type of product.
  - (a)Include construction details, material descriptions, and dimensions of individual components and profiles.
  - (b)Include, where applicable, rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- 2)Shop Drawings: For fuel-oil pumps.
  - (a)Include construction details and dimensions of individual components for fuel-oil pumps.
  - (b)Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

#### **(c)INFORMATIONAL SUBMITTALS**

- 3)Qualification Data: For qualified professional engineer.

4)Field quality-control reports.

5)Sample Warranty: For special warranty.

#### e.CLOSEOUT SUBMITTALS

1) Operation and Maintenance Data: For fuel-oil pumps and fuel-oil maintenance systems to include in emergency, operation, and maintenance manuals.

## 2. PRODUCTS

### a. PERFORMANCE REQUIREMENTS

1) Maximum Operating-Pressure Ratings: 3-psig (21-kPa) fuel-oil supply pressure at oil-fired appliances.

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

3) Listed and labeled for fuel-oil service by an NRTL acceptable to authorities having jurisdiction.

### b. TRIPLEX FUEL-OIL TRANSFER PUMP SETS

1) Description: Comply with HI 3.1-3.5.

- (a) Type: Positive-displacement, rotary type.
- (b) Impeller: Steel gear with crescent
- (c) Housing: Cast-iron foot mounted.
- (d) Bearings: Bronze, self-lubricating.
- (e) Shaft: Polished steel.
- (f) Seals: Mechanical.
- (g) Base: Steel.
- (h) Pressure Relief: Built in.
- (i) Discharge Check Valve: Built in.

2) Drive: Direct close coupled

3) Controls:

- (a) Maintain minimum manifold pressure with outdoor-air temperature less than 60 deg F.
- (b) Seven-day schedule.
- (c) Stage multiple pumps to maintain pressure at a common supply manifold.
- (d) Alternate pumps to equalize run time.
- (e) Alarm motor failure.
- (f) Manual reset dry-run protection.
- (g) Stop pumps if fuel level falls below pump suction.
- (h) De-energize and sound alarm for pump, locked-rotor condition.
- (i) Sound alarm for open circuit and for high and low voltage.
- (j) Lights shall indicate normal power on, run, and off conditions.

- (k) Provide interface with future automatic control system to control and indicate the following:
- i) Start/stop pump set when required by schedule, fuel-fired appliance operation, day tank level control, or weather conditions.
  - ii) Operating status.
  - iii) Alarm off-normal status.
- 4) Piping Furnished with Pumps: Steel with ferrous fittings and threaded or welded joints.
- 5) Strainers Furnished with Pumps: Duplex, basket type with corrosion-resistant-metal-screen baskets.
- 6) Capacities and Characteristics:
- (a) Refer to plans and schedules

#### ~~c. FUEL MAINTENANCE SYSTEM~~

~~1)Description: Factory fabricated and wired fuel maintenance system for fuel-oil filtration; with enclosure, filter, fuel-oil pump, and controls.~~

~~(a) System shall be FMG approved and listed and labeled by an NRTL acceptable to authorities having jurisdiction.~~

~~(b) Enclosure: NEMA 250, Type 3R, painted steel containing pumps, filters, accessories, and controls. Hinged door on the front of enclosure.~~

~~(c) Pump: Comply with HI 3.1-3.5, steel gear with crescent, positive displacement, direct coupled, rotary type.~~

~~(d) Materials: Cast iron housing; bronze bearings; steel shaft; mechanical seals; and built-in, pressure relief bypass valve.~~

~~(e) Piping: Steel with malleable iron fittings and threaded joints or wrought steel fittings and welded joints.~~

~~(f) Spin-On, Replaceable, Multistage Filters:~~

~~i) Stage 1: 100-mesh strainer.~~

~~ii) Stage 2: Centrifuge to separate particulates and water from oil.~~

~~iii) Stage 3: Coalescing water and particulate filter.~~

~~iv) Stage 4: 30-micron particulate removal.~~

~~v) Stage 5: 10-micron particulate removal.~~

~~vi) Stage 6: Minimum 99.5 percent water removal with see-through bowl and water sensor probe.~~

~~vii) Stage 7: 3-micron particulate removal.~~

~~(g) Programmable Logic Controller:~~

~~i) Alarm on maximum 15-in. Hg (51-kPa) vacuum at pump suction indicating plugged filter.~~

~~ii) Alarm on high water level in filter.~~

~~iii) Alarm leak in enclosure.~~

~~iv) Touch screen; with minimum 2-line, 20-character, backlit, LCD display.~~

~~v) Controller strip heater with thermostat.~~

~~(h) Interface with automatic control system is specified in Section 230900 "Instrumentation and Control for HVAC" to control and indicate the following:~~

- ~~i) Start/stop system when required by schedule.~~
- ~~ii) Operating status.~~
- ~~iii) Alarm off-normal status.~~

~~2) Capacities and Characteristics:~~

- ~~(a) Refer to plans and schedules~~

d. MOTORS

- 1) Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
  - (a) Enclosure: Totally enclosed, fan cooled
  - (b) Enclosure Materials: Cast iron

3.EXECUTION

a. EXAMINATION

- 1) Examine roughing-in for fuel-oil pumps to verify actual locations of pump connections before equipment installation.
- 2) Proceed with installation only after unsatisfactory conditions have been corrected.

b. EARTHWORK

- 1) Comply with requirements in Section 312000 "Earth Moving" for excavating, trenching, and backfilling.

c. PREPARATION

- 1) Close equipment shutoff valves before turning off fuel oil to premises or piping section.
- 2) Comply with NFPA 30 and NFPA 31 requirements for prevention of accidental ignition.

d. FUEL-OIL PUMP INSTALLATION

- 1) Transfer Pumps:
  - (a) Install pumps with access space for periodic maintenance including removal of motors, impellers, and accessories.
  - (b) Set pumps on and anchor to concrete base.
  - (c) Pump Mounting:
    - i) Install base-mounted pumps on cast-in-place concrete equipment bases.

ii) Comply with requirements for vibration isolation devices specified in Section 202600 "Vibration Controls for HVAC."

- 2) Install two-piece, full-port ball valves at suction and discharge of pumps.
- 3) Install mechanical leak-detector valves at pump discharge.
- 4) Install Y-pattern strainer on inlet side of simplex fuel-oil pumps.
- 5) Install check valve on discharge of simplex fuel-oil pumps.
- 6) Install suction piping with minimum fittings and change of direction.

#### **e.FUEL MAINTENANCE SYSTEM INSTALLATION**

- ~~1)Install suction line, with foot valve, at one end of storage tank, 1 inch (25 mm) from the bottom of tank.~~
- ~~2)Install return line at the opposite end of storage tank from suction line.~~

#### **f.LABELING AND IDENTIFYING**

- 1)Install nameplates and signs on each fuel-oil pump. Comply with requirements in Section 230553 "Identification for HVAC Piping and Equipment."

#### **g.FIELD QUALITY CONTROL**

- 1) Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
- 2) Perform the following tests and inspections with the assistance of a factory-authorized service representative:
  - (a) Start fuel-oil transfer pumps to verify for proper operation of pump, and check for leaks.
  - (b) Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- 3) Fuel-oil pumps will be considered defective if they do not pass tests and inspections.
- 4) Prepare test and inspection reports.

#### **h.DEMONSTRATION**

- i) Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fuel-oil pumps and fuel oil maintenance and monitoring systems

#### **END OF SECTION 231213**