

Addendum #1

Project Name: Concordia STEM
Seward, NE
Project No.: 16022-05
Date Issued: May 4, 2018
Bid Date: Thursday, May 17, 2018

This Addendum is issued to all known bidders before receipt of proposals. This Addendum is to authorize the use of the following information in preparing proposals for the above named project. The bidder **must** enter the number of this Addendum on the **Proposal Sheet**.

GENERAL QUESTIONS AND CLARIFICATIONS

ADD 1-1. E700 Light Fixture Schedule

Question: *Can a fixture disconnect be used instead of a fuse holder?*

Response: A fixture disconnect is acceptable.

ADD 1-2. Specification Section 230970 low voltage cable routing

Question: *Specification Section 230970 requires low voltage control wiring and cable to be routed in conduit. Is it acceptable to use plenum rated cable suspended by J-Hooks in lieu of the cable routed in conduit?*

Response: Yes this is acceptable.

ADD 1-3. E000 Lead Sheet

Question: *What does the AS and AF abbreviations by disconnect switches mean?*

Response: AS is Amps Switch. AF is amp fuse.

MODIFICATIONS TO THE DRAWINGS

ADD 1-4. Cover sheet has been re-issued to reflect the following modifications:

- Sheet EQ103B.3 has been re-identified as EQ102B.3
- Sheet M517 has been eliminated.
- Name adjustments made to Fire Protection Sheets FP100, FP101 and FP102
- Sheets P504 and P505 have been eliminated

ADD 1-5. Refer to Sheet G101; The word “stainless” has been changed to “painted” in several keynotes in Section 057300 and the language for some keynotes within this same section have been modified or re-assigned.

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The following list reflects the changes made.

- 057300.A2 1/2" x 1 1/2" PAINTED STEEL BALUSTRADE
- 057300.A3 1/2" x 1 1/2" PAINTED STEEL BOTTOM RAIL
- 057300.A4 3/4" x 1 1/2" PAINTED STEEL TOP RAIL
- 057300.A6 1/2" PAINTED STEEL SQUARE HANDRAIL SUPPORT BRACKET
- 057300.A7 1/4" x 1" CONTINUOUS PAINTED STEEL HANDRAIL SUPPORT PLATE
- 057300.A8 STEEL BASEPLATE ASSEMBLY – PROVIDE PAINTED STEEL FINISH TO ANY EXPOSED SURFACES
- 057300.A9 NOT USED
- 057300.A10 1 1/2" x 1 1/2" x 1/4" PAINTED STEEL ANGLE POST FOR END TERMINATION OF CABLE RAIL ASSEMBLY
- 057300.C 1 1/2" O.D. BRUSHED ALUMINUM WALL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKING THROUGH DECORATIVE WOOD WALL PANEL

ADD 1-6. Refer to Sheet A101B:

- Keynote 084113.C2 has been added to doors 100.1 and 100.2
- Keynotes 087100.B have been adjusted in their location to facilitate better flow and avoid conflict with door opening when entering from the exterior at Vestibule 100.

ADD 1-7. Refer to Sheet A105:

- Sheet is re-issued to reflect change in keynote descriptions as defined in line ADD 1-5 of this addendum.

ADD 1-8. Refer to Sheet A301:

- Sheet is re-issued to reflect change in keynote descriptions as defined in line ADD 1-5 of this addendum.

ADD 1-9. Refer to Sheet A304:

- Sheet Specific Note 6 has been added.
- At Detail A6, Bond beams have been added along with Sheet Note 6 to coordinate with CMU requirements indicated in structural drawings.

ADD 1-10. Refer to Sheet A614:

- Sheet is re-issued to reflect change in keynote descriptions as defined in line ADD 1-5 of this addendum.

ADD 1-11. Drawing M100A.1. Added supply diffusers to two storage closets (Room #033A and Room #064A).

ADD 1-12. Drawing M101B.1. Relocated thermostat for VAV-002-009 from Office #136 to Reception #135.

ADD 1-13. Drawing M700. Added note to VAV Terminal Unit Schedule regarding disconnect switches.

ADD 1-14. Drawing M701. Added notes to Unit Heater Schedule and Electric Duct Heater Schedule regarding disconnect switches.

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- ADD 1-15.** Drawing M702. Added notes to Electric Baseboard Heater Schedule and Split Systems Schedule regarding disconnect switches. Added note to Exhaust Fan Schedule regarding disconnect switch and VFD.
- ADD 1-16.** Drawing P200A.2. Provide 3/4" Soft Water tee off main branch with isolation valve. Route pipe up wall for service to Woodford roof hydrant. Model shall be Woodford SRH-MS.
- ADD 1-17.** Drawing P201A.2. Route 3/4" Soft Water pipe up to roof from lower level as mentioned in ADD 1-11.
- ADD 1-18.** Drawing P202A.2. Provide Woodford SRH-MS in general location as indicated on drawings. Coordinate with owner for exact location.
- ADD 1-19.** Drawing P202B.3. Provide 3/4" Soft Water tee off main branch with isolation valve. Route pipe up to roof for service to Woodford roof hydrant. Model shall be Woodford SRH-MS.
- ADD 1-20.** Drawing P203B.3. Provide Woodford SRH-MS in general location as indicated on drawings. Coordinate with owner for exact location.
- ADD 1-21.** Drawing P501. Updated water riser diagrams for reference to added piping.
- ADD 1-22.** Drawing P700. Updated plumbing fixture & branch schedule to include FPRH.
- ADD 1-23.** Drawing E200B.3, E203B.3, and E500 for Lab Exhaust Fans EF-001, EF-002, EF003. Provide a NEMA 3R, 100 amp, 3 pole non-fusible disconnect switch with electrical interlock on roof by exhaust fan. Provide a variable frequency drive (with dV/dT filter) and locate drive in Utility Room 014 by VFD's for Pumps P001 & P002. Electrical interlock will disable VFD when the disconnect switch is turned off. Provide VFD cable and interlock wiring from VFD to disconnect switch.
- ADD 1-24.** E700 Light Fixture Schedule Remarks. A fixture disconnect can be supplied instead of a fuseholder.
- ADD 1-25.** Drawing E203B.3. Provide a fusible disconnect switch (NEMA 3R Housing) for condensing units CU-004, CU-005, CU006, CU-007, and CU-008 instead of a non-fusible disconnect switch. Fuse Switch per manufacturer's recommendation.
- ADD 1-26.** Drawing E203B.3 CU-001, CU-002, and CU-003. Disconnect switch shall have NEMA 3R housing. Fuse switch as recommended by manufacturer.
- ADD 1-27.** Drawing E202A.2 CU-010, and CU-011. Disconnect switch shall have NEMA 3R housing. Fuse switch as recommended by manufacturer.
- ADD 1-28.** Drawing E203A.2. Provide a fusible disconnect switch (NEMA 3R Housing) for condensing units CU-012, CU-013, CU014, CU-015, and CU-016 instead of a non-fusible disconnect switch. Fuse Switch per manufacturer's recommendation.
- ADD 1-29.** Drawing E200A.1. Floor boxes in M Conf 035 shall be Type B instead of Type A. Route 2-1" conduits in concrete instead of 1-1" conduit.
- ADD 1-30.** Drawing E200A.1. Provide a duplex receptacle (LPP-1E/46) for ceiling mounted projector in C.S. Lab 033. Projector is located in southwest corner of room near door into Room 064A.
- ADD 1-31.** Drawing E201A.1. Provide ceiling mounted receptacle (LPP-2E/40) for ceiling mounted projector in Lecture 151A. See drawing T101A for projector location.

- ADD 1-32.** Drawing E200B.2. Floor box type “B: in General biology 024 shall be on LPP-1A/20.
- ADD 1-33.** Drawing E200B.2. Floor box type “B” in Ecology/Ag 025 shall be on LPP-1A/20.

MODIFICATIONS TO THE SPECIFICATIONS

- ADD 1-34.** Specification Section 230891_Metal Ductwork: Modify Sheet metal Ductwork Application Table so that all exhaust ductwork shall be of galvanized steel construction, including fume hood exhaust. Modify double walled ductwork to be of galvanized steel construction with solid galvanized inner liner and outer duct with paint grip construction. Replace section.
- ADD 1-35.** Specification Section 230500_PSAT Chart: Modify Piping System Application Table. Replace Table.
- ADD 1-36.** Specification Section 230738: Remove all references to section 230513 Low Voltage Induction Motors.
- ADD 1-37.** Specification Section 230860: Revise paragraph 2.1 Electrical Controls to read as follows:

“ELECTRICAL CONTROLS

- A. Coordinate VFD requirements with Division 26 contractor. Division 26 contractor shall furnish and install a variable frequency drive with bypass mode and integral nozzle controls for each fan. The VFD requirements to coordinate (at a minimum) are:*
- a. Variable frequency drive to be matched with fan motor voltage and horsepower rating.*
 - b. Fan speed, amps, and CFM to be viewable at the variable frequency drive user screen.*
 - c. Variable frequency drive to be mounted indoors.*
 - d. Fan motor to include shaft grounding protection device to eliminate induced bearing currents.*
 - e. Serial communication with building management system and/or bypass damper controller to be: BACnet MS/TP EIA 485 (standard communication).*
 - f. Variable frequency drive controls to be controlled through the building management system. Sequence of operation for the variable nozzle system to be coordinated with the fan manufacturer and system controls provider.”*
- ADD 1-38.** Specification Section 230933_Air Terminals: Clarify construction requirements for air flow control valves in supply, general exhaust, and fume hood or snorkel applications. Supply and general exhaust air valves shall be of spun aluminum construction. Fume Hood Exhaust valves shall be of spun aluminum construction with phenolic coating. Replace section.

ARCHITECTURAL PRIOR APPROVALS / SUBSTITUTIONS

- ADD 1-39.** The manufacturers listed herein will be considered approved for bidding. However, the proposed substitution must meet the intent of the specifications and will be subject to shop submittal approval during construction. Burden of Proof is on Proposer. Bidders shall bear all responsibility for coordinating and performing related changes in the Work necessitated by such substitution and include such costs in the Bid:

<u>Specification Section</u>	<u>Manufacturer / Proposed Product</u>
a. 071416– Cold Fluid-Applied Waterproofing	Insulfoam Type IX Moisture Resistant Insulation

ATTACHMENTS

ADD 1-40. The following attachments are included as part of this addendum:

<u>Attachment</u>	<u>Description</u>	<u># of Pages</u>
• Spec TOC	Addendum 1 Specification Table of Contents	1
• 230500	PSAT Chart (Replace Table)	1
• 230891	Metal Ductwork (Re-issued)	11
• 230933	Air Terminals (Re-issued)	3
• Cover:	Replacement Sheet	1
• G101	Replacement Sheet	1
• A101B	Replacement Sheet	1
• A105	Replacement Sheet	1
• A301	Replacement Sheet	1
• A304	Replacement Sheet	1
• A614	Replacement Sheet	1
• M100A.1	Replacement Sheet	1
• M101B.1	Replacement Sheet	1
• M700	Replacement Sheet	1
• M701	Replacement Sheet	1
• M702	Replacement Sheet	1
• P200A.2	Replacement Sheet	1
• P201A.2	Replacement Sheet	1
• P202A.2	Replacement Sheet	1
• P202B.3	Replacement Sheet	1
• P203B.3	Replacement Sheet	1
• P501	Replacement Sheet	1
• P700	Replacement Sheet	1

End of Addendum #1

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		Discipline	Revision	Date
Division 23 - Mechanical				
230500 PSAT	Piping Systems Application Table	M	1	5/4/2018
230891	Metal Ductwork	M	1	5/4/2018
230933	Air Terminals	M	1	5/4/2018

NOTES: (DS) represents data sheet documents that supplement the written specification. Discipline column indicates the responsible Professional of Record as noted on the Seal Sheet.

Service	Description	Piping Spec Data Sheet				Insulation Spec Data Sheet					Ref. Code	Max Oper. Temp. (°F)	Max Oper. Pressure (psig)	Flushing, Cleaning, & Testing	Test Pressure (psig)	Validation	Passivation	Notes/Comments
		Spec	Spec (CRB)	Material	Elastomer Type	Spec	Spec (CRB)	Material	Jacket	Index Temp. (°F)								
ERWR	Energy Recovery Water Return - Outdoors	CS03	CS03	Carbon Steel		F3.	F3.	Rigid Fiberglass Pipe Insulation	PVC	40 - 60	ASME 31.9	56	30	Water	100	N	N	2" and larger
ERWS	Energy Recovery Water Supply - Outdoors	CS03	CS03	Carbon Steel		F3.	F3.	Rigid Fiberglass Pipe Insulation	PVC	40 - 60	ASME 31.9	42	60	Water	100	N	N	2" and larger
CS	Clean Steam	SS01	SS01	316L SS		F3.	F3.	Rigid Fiberglass Pipe Insulation	PVC	251 - 350	ASME 31.3 - Cat. D	275	30	DI Water	150	Y	Y	Diaphragm valves PTFE for final installation; Radial diaphragm valves Parylene treated EPDM
CSC	Clean Steam Condensate	SS12	SS12	316L SS		F3.	F3.	Rigid Fiberglass Pipe Insulation	PVC	251 - 350	ASME 31.3 - Cat. D	275	5	DI Water	100	Y	Y	Diaphragm valves PTFE for final installation; Radial diaphragm valves Parylene treated EPDM
SCW	Soft Domestic Cold Water	CU01	CU01	Copper		E1.	E1.	Closed Cell Elastomeric Pipe Insulation	N/A	41 - 60	ASME 31.9	80	80	Water	125	N	N	
COND	Condensate Drain Non Acidic - Inside Building	CU01	CU01	Copper		NA.	NA.	N/A	N/A	N/A	ASME 31.9	150	5	Water	100	N	N	
COND	Condensate Drain Non Acidic - Outside Building	CU01	CU01	Copper		E1.	E1.	Closed Cell Elastomeric Pipe	Aluminum	41 - 60	ASME 31.9	150	5	Water	100	N	N	
COND	Condensate Drain Acidic - Outside building	PV34	PV34	CPVC		E1.	E1.	Closed Cell Elastomeric Pipe	Aluminum	41 - 60	ASME 31.9	140	5	Water	100	N	N	Where indicated on drawings
COND	Condensate Drain	SS12	SS12	316L SS		NA.	NA.	N/A	N/A	N/A	ASME 31.9	200	5	Water	100	N	N	Where indicated on drawings
DW	Distilled Water	PV12	PV12	Polyvinylidene Flouride		E1.	E1.	Closed Cell Elastomeric Pipe	N/A	41 - 60	ASME 31.9	80	80	Water	125	N	N	
ICW	Industrial Cold Water	CU01	CU01	Copper		E1.	E1.	Closed Cell Elastomeric Pipe Insulation	N/A	41 - 60	ASME 31.9	80	80	Water	125	N	N	
SHW	Soft Domestic Hot Water	CU01	CU01	Copper		NA.	NA.	N/A	N/A	N/A	ASME 31.9	140	80	Water	125	N	N	
SHWR	Soft Domestic Hot Water Return	CU01	CU01	Copper		NA.	NA.	N/A	N/A	N/A	ASME 31.9	140	80	Water	125	N	N	
NG	Natural Gas	CS03	CS03	Carbon Steel		NA.	NA.	N/A	N/A	N/A	ASME 31.9	85	10	Air	100	N	N	Epoxy Paint outdoors
SW	Storm Drain	CI33	CI33	Cast Iron		F4.	F4	Rigid Fiberglass Pipe Insulation	Kraft Paper/Aluminum Foil/PVC Fitting Covers	40 - 60	Plumbing Code	85	5	Water	Per Code	N	N	Insulate the piping from the roof drain including the roof drain body, the drop from the body to the horizontal run, and all horizontal piping to and including the first down turn elbow.
OSW	Storm Drain	CI33	CI33	Cast Iron		F4.	F4	Rigid Fiberglass Pipe Insulation	Kraft Paper/Aluminum Foil/PVC Fitting Covers	40 - 60	Plumbing Code	85	5	Water	Per Code	N	N	Insulate the piping from the roof drain including the roof drain body, the drop from the body to the horizontal run, and all horizontal piping to and including the first down turn elbow.
TW	Tepid Water	CU01	CU01	Copper		E1.	E1.	Closed Cell Elastomeric Pipe Insulation	N/A	N/A	ASME 31.9	85	80	Water	125	N	N	
W	Sanitary Waste	CI32	CI32	Cast Iron		NA.	NA.	N/A	N/A	N/A	Plumbing Code	140	5	Water	Per Code	N	N	Below Grade
W	Sanitary Waste	CI33	CI33	Cast Iron		NA.	NA.	N/A	N/A	N/A	Plumbing Code	140	5	Water	Per Code	N	N	Above Grade
W	Sanitary Waste - Non return air plenums	PV31	PV31	PVC		NA.	NA.	N/A	N/A	N/A	Plumbing Code	140	5	Water	Per Code	N	N	
V	Sanitary Vent - Non return air plenums	PV31	PV31	PVC		NA.	NA.	N/A	N/A	N/A	Plumbing Code	140	5	Water	Per Code	N	N	Below Grade, Above Grade
W	Sanitary Waste - Return Air Plenums	CI33	CI33	Cast Iron		NA.	NA.	N/A	N/A	N/A	Plumbing Code	140	5	Water	Per Code	N	N	Above Grade
V	Sanitary Vent - Return Air Plenums	CI32	CI32	Cast Iron		NA.	NA.	N/A	N/A	N/A	Plumbing Code	140	5	Water	Per Code	N	N	
PD	Pumped Discharge	PV01	PV01	Copper		NA.	NA.	N/A	N/A	N/A	Plumbing Code	140	5	Water	Per Code	N	N	Install with fire resistant wrap where piping is routed within return air plenum.
VAC	Vacuum	CU01	CU01	Copper		NA.	NA.	N/A	N/A	N/A	Plumbing Code	85	100	Air	125	N	N	
RL	Refrigerant Liquid	CU03	CU03	Copper		E1.	E1.	Closed Cell Elastomeric Pipe Insulation	N/A	N/A	ASME 31.9	250	350	Air	400	N	N	
RS	Refrigerant Suction	CU03	CU03	Copper		E1.	E1.	Closed Cell Elastomeric Pipe Insulation	N/A	N/A	ASME 31.9	250	350	Air	400	N	N	
RHR	Refrigerant Heat Recovery	CU03	CU03	Copper		E1.	E1.	Closed Cell Elastomeric Pipe Insulation	N/A	N/A	ASME 31.9	250	350	Air	400	N	N	
ERWR	Energy Recovery Water Return - Indoors	CS03	CS03	Carbon Steel		F4.	F4	Rigid Fiberglass Pipe Insulation	Kraft Paper/Aluminum Foil/PVC Fitting Covers	40 - 60	ASME 31.9	56	30	Water	100	N	N	2" and larger
ERWS	Energy Recovery Water Supply - Indoors	CS03	CS03	Carbon Steel		F4.	F4	Rigid Fiberglass Pipe Insulation	Kraft Paper/Aluminum Foil/PVC Fitting Covers	40 - 60	ASME 31.9	42	60	Water	100	N	N	2" and larger

SECTION 230891 - METAL DUCTWORK

PART 1. - GENERAL

1.1. RELATED DOCUMENTS

In addition to the drawings and general conditions specification for the project, applicable sections of the following documents apply to and comprise part of the document:

1. 230010 "Basic Mechanical Requirements"
2. 230050 "Basic Mechanical Materials and Methods"
3. 230241 "Vibration and Seismic Controls"

1.2. DUCTWORK SIZES

Ductwork sizes indicated on the drawings are "air flow" actual sheet metal dimensions, unless duct is indicated to be lined, and then they are the free area dimensions.

1.3. DEFINITIONS

Sealing Requirements Definitions: For the purposes of duct systems sealing requirements specified in this Section, the following definitions apply:

Seams: A seam is defined as joining of two (2) longitudinally (in the direction of airflow) oriented edges of duct surface material occurring between two (2) joints. All other duct surface connections made on the perimeter are deemed to be joints.

Joints: Joints include girth joints; branch and sub-branch intersections; so-called duct collar tap-ins; fitting subsections; louver and air terminal connections to ducts; access door and access panel frames and jambs; duct, plenum, and casing abutments to building structures.

1.4. SYSTEM PERFORMANCE REQUIREMENTS

The duct system design, as indicated, has been used to select and size air moving and distribution equipment and other components of the air system. Changes or alterations to the layout or configuration of the duct system must be specifically approved in writing. Accompany requests for layout modifications with calculations showing that the proposed layout will provide the original design results without increasing the system total pressure.

This Contractor will be held responsible for the coordination between himself and the other contractors for locating and marking of openings for all ductwork, outlets, etc.

All air outlets and other openings of ductwork shall be kept tightly closed during construction to keep the system free of dust and debris.

1.5. DUCTWORK SUBMITTALS

Ductwork submittals shall be prepared and include the following:

1. Sheet metal fabrication drawings at minimum 3/8" = 1'-0" scale.
2. Ductwork material and fabrication standards indicating gauges, seam and joint construction details, reinforcing details and spacing, and fittings for the various pressure classifications required.
3. Sealing materials product data
4. Fire-stopping materials product data

5. Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.
6. Duct accessories, including access doors and panels

Provide coordination drawings of ductwork in collaboration with all other trades in accordance with specification section 230010.

1.6. QUALITY ASSURANCE

Welding: Qualify Procedures and Personnel

SMACNA Standards: Comply with the following for fabrication and installation of metal ductwork.

1. "HVAC Duct Construction Standards, Metal and Flexible"
2. "Rectangular Industrial Duct Construction Standards", and "Round Industrial Duct Construction Standards"
3. Comply with SMACNA's "HVAC Air Duct Leakage Test Manual" for sealing and testing of metal ductwork. Rate ductwork for pressures listed in duct construction table below.

ASHRAE Standards: Comply with ASHRAE Handbook "HVAC Systems and Equipment", Chapter "Duct Construction," for fabrication and installation of metal ductwork. Where ASHRAE standards conflict with SMACNA standards; SMACNA shall prevail.

NFPA Compliance: Comply with the following:

1. NFPA 90A "Standard for the Installation of Air Conditioning and Ventilating Systems"
2. NFPA 90B "Standard for the Installation of Warm Air Heating and Air Conditioning Systems"
3. NFPA 45 "Standard for Laboratory Exhaust Systems"
4. NFPA 69 "Standard on Explosion Prevention Systems"
5. NFPA 91 "Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists and Noncombustible Particulate Solids"
6. NFPA 96 "Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations"
7. NFPA 654 "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids"

PART 2. - PRODUCTS

All ductwork shall be protected by end caps, or covering after initial fabrication by factory or shop until installed at site, to prevent inside of ductwork from gathering dust and debris before completed installation. Clean ductwork prior to capping or covering of ductwork.

2.1. DUCTWORK MATERIALS AND DUCTWORK CONSTRUCTION TABLE

Provide materials that are free from visual imperfections including pitting, seam marks, roller marks, stains and discolorations, and other imperfections.

Except as otherwise indicated, fabricate ductwork from galvanized sheet steel complying with ASTM A924, with G 90 zinc coating in accordance with ASTM A653.

Where indicated, provide stainless steel complying with ASTM A 167; Type, 304; with No. 4 exterior finish where exposed to view in occupied spaces, No. 2B finish elsewhere. Protect finished surfaces with mill-applied adhesive protective paper, maintained through fabrication and installation.

Shop-fabricate ductwork in 12' maximum lengths. Construct and reinforce ductwork as indicated in SMACNA's Standards.

Unless indicated otherwise, use 45° laterals and elbows for branch takeoff connections.

Fabricate duct fittings to match adjoining ducts or equipment and to comply with duct requirements as applicable to fittings. Fabricate radius elbows with minimum centerline radius equal to associated duct width; and include turning vanes in shorter radius elbows are necessary.

Refer to table below for minimum ductwork construction standards. Sheet metal gages and sealing shall be per SMACNA standards for the pressure and leakage classes listed in the following table.

Ductwork Location	Pressure Class Inches W.G.	Seal Class	Leakage Class	Material	Notes
<u>AHU- 001A, 001B, 002, 003 SYSTEM</u>					
Concealed Main supply from AHU to branch duct	+6	A	2	G-90	1
Concealed Branch duct to RHC, CV or VAV boxes	+4	A	2	G-90	1
Concealed RHC, CV or VAV boxes to terminal outlets	+1	B	4	G-90	1
Exposed Main supply from AHU to branch duct	+6	A	2	G-90	3
Exposed Branch duct to RHC, CV or VAV boxes	+4	A	2	G-90	3
Exposed RHC, CV or VAV boxes to terminal outlets	+1	B	4	G-90	3
Humidification section in duct	Match Duct Section	A	2	304 SS	2,4
Unfiltered terminal inlet return/exhaust to main duct	-1	B	4	G-90	1
Unfiltered return/exhaust main to AHU/fan	-2	B	4	G-90	1
Moisture laden exhaust from air inlet to fan	-1	B	4	Alum. /304SS	2, 5
Moisture laden exhaust from fan to discharge	+1	C	4	Alum. /304SS	2
<u>MISCELLANEOUS SYSTEMS</u>					
Fume Hood and snorkel branch duct exhaust to main	-10	A	2	G-90	1
Fume Hood and Laboratory Exhaust main duct exhaust to fan	-10	A	2	G-90	1

Table Notes

1. Alternate constructions will be considered provided they are tested in accordance with SMACNA testing standards and approved by the Engineer.
2. No alternate constructions will be considered.
3. Ductwork shall be double wall with solid metal liner.

4. Ductwork shall be constructed of stainless steel and continuously welded and pitched back to the humidifier. Provide condensate drain at low point of duct.
 - a. Within X'-X" downstream and X'-X" upstream of a duct humidifier.
5. Ductwork shall be constructed of aluminum or stainless steel and continuously welded and pitched back to the air inlet
 - a. Within X'-X" of a Low wall return grille and where exposed within a clean room

2.2. PRE-MANUFACTURED NON-INDUSTRIAL ROUND DUCTWORK

Single Wall Ductwork

Ductwork shall be rated for positive and negative pressures as indicated in the duct construction table above. All ductwork and fittings shall be factory fabricated by a single manufacturer and supplied by a single company.

Duct Construction: Duct of up to 60" diameter shall be spiral wound lock-seam construction. Duct shall be provided in continuous, unjoined lengths to a maximum of 20'-0". All joints unless otherwise indicated up to 36" diameter shall be tight fitting slip type joints with a minimum of 2" insertion length. All joints 36" diameter and above shall be flange connection joints.

Joints: Provide beaded sleeve connections, and couplings up to 36" diameter, unless otherwise indicated.

Fittings and Couplings: Provide continuous welds along seams.

Elbow Fittings: Unless specifically detailed otherwise, use long radius 45°, 3 gore, and long radius 90° 5 gore fittings. Elbow fitting construction, different than those specified, and having lower pressure drop losses as indicated by SMACNA or ASHRAE are acceptable.

Take-off Fittings: Unless specifically detailed otherwise, use 45° laterals, 45° boot style tap, high efficiency take-offs for branch takeoff connections and 45° WYE fittings.

Increasing or reducing fittings shall be constructed with a maximum angle of 15° on increasers and 30° on reducers.

Couplings: Provide all couplings to connect sections of ductwork, fittings to fittings, and other components together, and to complete the installation of the ductwork system shown.

Manufacturers: Subject to compliance with requirements, provide factory-fabricated ductwork, fittings, and couplers of one of the following:

Semco
United-McGill
The Wagner Group Inc.

2.2.1. Double Wall Ductwork

1. Ducts: Fabricate double-wall ducts with a solid sheet metal (galvanized steel) inner and outer duct, solid welded with inch fiberglass insulation. Dimensions indicated are for inner ducts.
2. Outer Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," based on static-pressure class unless otherwise indicated. Fabricate outer-shell lengths 2" longer than inner duct and insulation and in metal thickness specified for single-wall duct. Finish shall be paint grip for field painting.

3. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
4. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
5. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
6. Inner Duct: Minimum 0.0375" solid sheet steel.
7. Interstitial Insulation: Fibrous-glass liner complying with ASTM C 1071, NFPA 90A, or NFPA 90B; and with NAIMA AH124, "Fibrous Glass Duct Liner Standard."
8. Maximum Thermal Conductivity: 0.27 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.
9. Install spacers that position the inner duct at uniform distance from outer duct without compressing insulation.
10. Cover insulation with polyester film complying with UL 181, Class 1.
11. Terminate insulation where double-wall duct connects to single-wall duct or un-insulated components and reduce outer shell diameter to inner duct diameter.

Maintain concentricity of inner duct to outer shell by mechanical means. Prevent dislocation of insulation by mechanical means.

Manufacturers: Subject to compliance with requirements, provide factory-fabricated ductwork, fittings, and couplers of one of the following:

McGill AirFlow LLC
Semco
Or as approved.

2.2.2. Rectangular Duct

1. Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" and complying with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.
 - a. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure class.
 - b. Deflection: Duct systems shall not exceed deflection limits according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
 - c. Minimum sheet metal gauge shall not exceed 24 gauge.
2. Transverse Joints: Prefabricated slide-on joints and components constructed using manufacturer's guidelines for material thickness, reinforcement size and spacing, and joint reinforcement.
 - a. Manufacturers:

Ductmate Industries, Inc.
Ward Industries, Inc.

3. Formed-On Flanges: Construct according to SMACNA's "HVAC Duct Construction Standards-Metal and Flexible," Figure 1-4, using corner, bolt, cleat, and gasket details.
 - a. Manufacturers:
Ductmate Industries, Inc.
Lockformer.
 - b. Duct Size: Maximum 30" wide and up to 2" wg pressure class.
 - c. Longitudinal Seams: Pittsburgh lock sealed with noncuring polymer sealant.
4. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19" and larger and 0.0359" thick or less, with more than 10 sq. ft. of nonbraced panel area.

2.3. FLEXIBLE DUCTWORK

Flexible ducts shall be round, insulated duct, factory fabricated of a spring steel wire helix or flat steel spiral covered by and bonded to a polymeric or vinyl-coated fiberglass fabric for leak-tight air seal, covered with 1" thick glass fiber insulation and an outside flexible, puncture-resistant and scuff resistant vapor barrier jacket. Duct shall be UL 181 listed, Class I, and shall conform to the requirements of NFPA 90A / 90B. The core material shall not support mold or mildew growth.

Vendor supplied flexible ductwork hanger supports shall be constructed of durable composite material and shall be 1½" wide to prevent any restriction of the internal diameter of the ductwork when the weight of the supported section rest on the hanger. Vendor supplied hanger supports shall be UL listed for used in return air plenum spaces.

Vendor supplied elbow supports shall be constructed of durable composite material and be fully adjustable to support flexible duct diameters 6"-16". Elbow supports shall be UL listed for use in return air plenum spaces.

Acceptable Manufacturers

Thermaflex
Genflex
Flexmaster

Ducts shall be rated for not less than the static pressure listed in the duct construction table above and for air velocities up to 2,500 fpm.

2.4. MOISTURE LADEN EXHAUST DUCTWORK

Fabricate moisture laden exhaust ductwork and supports of material listed in the duct construction table above. Ductwork shall be welded watertight and shall pitch downward toward source. All welds shall be ground and polished. Washer, autoclave equipment/hood connections, decon shower exhaust and any other exhaust air containing high levels of moisture shall be considered as moisture laden exhaust.

2.5. MISCELLANEOUS DUCTWORK MATERIALS

General: Provide miscellaneous materials and products of types and sizes indicated and, where not otherwise indicated, provide type and size to comply with ductwork system requirements including proper connection of ductwork and equipment.

Insulation: Insulation of ductwork shall be as indicated in Section 230250 - "Mechanical Insulation."

Joint and Seam Sealant: One-part, nonsag, water-based fiber-reinforced synthetic latex duct sealant formulated with a minimum of 70% solids, 0/0 flame spread/smoke developed, FDA approved/LEED compliant/UL 181A-M Listed. Sealant shall be Hardcast, Inc. "Versa-Grip 102" duct sealer or approved equal. Sealant shall be used on all shop fabrication and field seams, joints, fastener penetrations, and connections.

Flanged Joint Tape: Flange gasketing tape shall be Hardcast, Inc. "A-1104" or Ductmate 440 flange butyl rubber gasketing tape.

Duct Taping: Ductwork shall not be sealed or installed using self-adhesive duct tape. Duct tape is not allowed for any purpose.

Ductwork Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel hangers, brackets, fasteners, anchors, rods, straps, aircraft wire with clutcher mechanism, trim and angle iron for support of ductwork. Supports for stainless steel ductwork in exposed areas shall be stainless steel. Support spacing and installation shall be in accordance with applicable SMACNA Standards. Screws into ductwork at supports shall not be used, unless prior approval from Owner or Owner's Representative is given, and then they shall be sealed airtight.

2.6. FIRE-STOPPING

Refer to Section 230050 "Basic Mechanical Materials and Methods" for fire-stopping.

PART 3. - EXECUTION

3.1. INSTALLATION OF DUCTWORK

General: Install each run with minimum number of joints. Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth.

Field Fabrication: Coordinate field fabrication of round, and rectangular ductwork at project as necessary to match shop-fabricated work and accommodate installation requirements.

Control Components: Install all control components in sheet metal equipment or ductwork as shown and/or indicated, including but not limited to automatic and manual control dampers, fire dampers, smoke dampers, temperature sensors or indicators, humidity sensors or indicators, flow sensors, switches, or indicators, freeze stats, static pressure sensors, and end position switches.

Routing: Locate ductwork runs, except as otherwise indicated, vertically and horizontally and avoid diagonal runs wherever possible. Locate runs as indicated by diagrams, details and notations or, if not otherwise indicated, run ductwork in shortest route which does not obstruct usable space or block access for servicing building and its equipment. Locate insulated ductwork for 1" clearance outside of insulation. Wherever possible in finished and occupied spaces, conceal ductwork from view, by locating in mechanical shafts, hollow wall construction or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as specifically shown. Coordinate layout with suspended ceiling and lighting layouts and similar finished work. Coordinate with insulator to prevent installation of duct in such a way, that insulator cannot apply insulation.

Penetrations: Where ducts pass through interior partitions and exterior walls, seal space between construction opening and duct or duct insulation with sealant and sheet metal flanges of two (2) gauges heavier than duct. Overlap opening on four (4) sides by at least 1-1/2". Fasten to duct and substrate.

Where ducts pass through fire rated floors, walls, or partitions, provide fire dampers, or fire/smoke dampers if indicated and provide firestopping between duct and substrate, as specified in Section "Basic Mechanical Materials and Methods."

Duct Supports: Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts straight, plumb, free of sags and vibration, and to prevent buckling. Support ductwork from building structure where not otherwise indicated, anchor with bolts, concrete inserts, welded studs, C-clamps, or special beam clamps with support as indicated in the SMACNA Standards. Anchor methods other than listed shall receive prior approval from Owner before using. Support vertical ducts, at every floor, 12' maximum spacing, by attachment to adjacent vertical structural surfaces or by direct bearing at floor penetrations and similar locations.

Turning Vanes: Rectangular tees, bends and elbows shall be provided with turning vanes as specified in Section 230910 "Ductwork Accessories."

Balancing Dampers: Provide manually operated volume dampers, as indicated, to ensure proper balancing and control of air systems, as specified in Section 230910 "Ductwork Accessories."

3.2. METAL DUCTWORK

Sealing: Seal duct seams and joints according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for duct pressure class indicated. All ductwork shall be sealed in accordance duct construction table above. Seal ducts before external insulation is applied

3.3. STAINLESS STEEL DUCTWORK

Stainless steel ductwork shall be provided as per ductwork construction table above. Strip protective paper from stainless ductwork surfaces, and repair finish wherever it has been damaged. Wire brush all welds to smooth finish. Duct gage shall be of sufficient thickness to prevent warping and distortion of duct.

3.4. FLEXIBLE DUCTS

Flexible duct shall only be used where indicated on the drawings. Flexible ductwork will not be allowed anywhere else in the building. The inner liner shall be secured in place to the round duct with nylon or steel draw-bands and sealed for an airtight connection, and then the insulation and outer vapor barrier jacket shall be drawn up to completely cover the connection and shall be secured in place with a second nylon or steel draw-band for a vapor tight connection.

Flexible ducts shall be supported with 2" wide, 20 gauge steel straps. The use of wire for the support of flexible ducts is not acceptable. Where flexible duct is used as a bend or elbow, the included angle or the bend shall not exceed 90° in any plane.

Maximum Length: For any duct run using flexible ductwork, do not exceed 5'-0" extended length.

3.5. EQUIPMENT CONNECTIONS AND BUILDING EXPANSION JOINT LOCATIONS

General: Connect metal ductwork to equipment as indicated, provide flexible connection or rubber gasket at flanged joints for each ductwork connection to equipment mounted on vibration isolators, equipment containing rotating machinery and ductwork crossing building expansion joints. All ductwork crossing the building expansion joints shall be provided with a 6" flex connection. Coordinate exact location of expansion joint with CM.

Provide access doors at all duct mounted components as indicated in the design documents.

Furnish and install all materials and equipment for connection to bio-safety cabinets, autoclaves, washers, canopy hood systems and ovens. Ductwork shall be pitched to provide ample and free drainage of condensate and liquids from ductwork. Provide thimble connections and or open ended ducts as indicated in the design documents.

Exterior Ductwork Exposed to Weather: Install sheet metal jacket. Cover duct tops and sides with continuous sheet if possible, but top shall be seamless. Bottom shall be covered but not required to be seamless. Cross break top sheet or provide slope to allow water drainage. Low points on ducts that allow standing water are not acceptable. Lap end seams 2" minimum and overlap in the direction of water flow to shed water. Form $\frac{3}{4}$ " high standing seam closure at edges; install seam closure strips with mastic and rivet at 12" on center. Apply mastic at overlapped end seams and install gasketed screws at 6" on center. Extend side jacket panels to allow 1" rain drip lip at bottom duct closure jacket, seal with mastic, and install gasketed screws at 6" on center along bottom of side panel. Maintain complete integrity of closure system to shed rainwater.

3.6. TESTING

Leakage Tests: After each duct system or portion of a duct system is completed, this contractor shall test the section in accordance with the SMACNA HVAC Air Duct Leakage Test Manual. The tests shall verify that the entire duct system for each air handling unit has a total leakage rate as indicated in the duct construction table above. Leakage from non-duct components (fire dampers, smoke dampers, volume control boxes, etc.) are an integral part of overall system leakage, and these components shall be included in duct leakage tests. Contractor shall be responsible for any remedial efforts directed at products in order to bring the system or section into compliance with the leakage rate specified.

Provide all blank off covers, fan connection points, and test holes required. Seal up of all test holes and removal of all covers after section of duct or entire duct system has been tested and approved as acceptable.

By means of a suitable fan and test manometers, the systems shall be pumped up to static pressure indicated on the duct construction table above and held for a period of 10 minutes. After this period the pressure shall be reduced and the duct systems shall be visually and audibly inspected to determine that all joints are tight. After all leaks are properly sealed, the duct shall be repressurized to static pressure indicated as on the duct construction table above and held for 10 minutes and then reduced again and all leaks rechecked. Contractor shall repair leaks and repeat tests until total leakage is as indicated on the duct construction table above.

Contractor is responsible for the costs associated with any retests required due to total system duct leakage greater than indicated in the duct construction table above.

Contractor is responsible for submitting copies of certified calibration data for leakage test apparatus and the reports on the leakage tests. The report shall give an accurate description of the test procedure and results including any remedial action that was needed to obtain an acceptable test. Owner or Owner's Representative shall be present for tests at Owner's discretion.

3.7. ADJUSTING AND CLEANING

Remove protective ductwork caps or cover as it is being installed.

Clean ductwork internally, unit by unit as it is installed, of dust and debris. Clean external surfaces of all foreign substances.

Clean all ductwork in the project area to be painted with final wipe down with alcohol after installation of individual sections.

Clean in accordance with National Air Duct Cleaners Association (NADCA).

Temporary Closure: At ends of ducts that are not connected to equipment or air distribution devices at time of ductwork installation, provide temporary closure of polyethylene film or other covering, which will prevent entrance of dust and debris until time connections are completed.

Balancing: This contractor shall provide the initial balancing and adjusting of all air handling systems. All final testing and balancing will be performed by an independent testing and balancing contractor. This contractor shall assist during the final balancing and testing. Refer to Specification Section 230990 "Testing, Adjusting, and Balancing" for air distribution balancing of metal ductwork. Seal any leaks in ductwork that become apparent in the balancing process. Volume dampers shall be per project plans and specifications and be suitable (Provide remote adjustment type if required) for area installed.

END OF SECTION 230891

SECTION 230933 - AIR TERMINALS**PART 1. - GENERAL****1.1. QUALITY ASSURANCE****Codes and Standards**

NFPA Compliance: Construct air terminals using acoustical and thermal insulation complying with the latest version of NFPA 90A "Air Conditioning and Ventilating Systems."

ARI Compliance: Units shall be tested, rated, and certified in accordance with the latest version of ARI Standard 880.

UL Compliance: Units with electric components shall be listed by either U.L. or E.T.L. with respect to the latest version of U.L. Standard 883.

PART 2. - PRODUCTS**2.1. SUPPLY AIR TERMINALS**

General: Provide factory-fabricated and tested supply air terminals as indicated, selected with performance characteristics that match or exceed those indicated on Drawings.

Casings: Construct of 22-ga. zinc coated sheet metal for VAV boxes.
Construction of heavy gauge spun aluminum for Supply Air Flow Control Valves.

Provide hanger brackets for attachments of supports.

Linings: Line inside surfaces of VAV box casings with lining material to provide acoustic performance, thermal insulation, and to prevent condensation on outside surfaces of casing. Provide minimum thickness of 1/2". Installation shall be in accordance with Division 23 - Metal Ductwork. Lining shall be constructed out of the following material(s):

Fiberglass Insulation

Fiberglass insulation with solid metal liner

Low Leakage: Construct casings such that when subjected to 0.5" w.g. pressure for low-pressure units, and 3" w.g. pressure for high-pressure units, total leakage does not exceed 1% of specified air flow capacity with outlets sealed and inlets wide open. Construct air dampers such that when subjected to 6" w.g. inlet pressure with damper closed, total leakage does not exceed 5% of specified air flow capacity.

Damper or Air Valve: Construct of materials that cannot corrode, do not require lubrication, nor require periodic servicing. Provide actuator to smoothly vary air volume through damper for minimum to maximum, in response from signal from controls.

Provide electronic controller and actuator, shall be 4-20 mA signal, 24 volt power and compatible with temperature controls.

Provide pressure independent volume controller that is calibrated in cfm, factory-adjusted, and marked for minimum and maximum air capacities as shown on the drawings. Inlet of unit shall be provided with airflow sensor with a minimum of 12 sensing points. The controller shall limit the minimum and maximum cfm regardless of changes in the air system duct static pressure at inlet of box.

Identification: Provide label on each unit indicating unit number, cfm range, cfm factory setting, and calibration curve (if required).

2.1.1. Variable Air Volume (VAV) or Constant Air Volume (CAV) Terminals

Provide the capacities, features, and accessories indicated on drawings and schedule:

Electric Heating Coils: Provide heating coils constructed of electric resistance elements in galvanized steel casing with control box and factory-wiring. Provide over-temperature protection and UL listing as duct heater.

Acceptable Manufacturers: Subject to compliance with requirements, provide air terminals of one of the following:

Price Industries (VAV boxes and Air Valves)
Siemens (VAV boxes and Air Valves)
Critical Room Controls (Air Valves)
Phoenix Controls (Air Valves)
Trane (VAV boxes)
Titus (VAV boxes)
Krueger (VAV boxes)
Nailor (VAV boxes)

2.2. EXHAUST AIR VOLUME CONTROL VALVE TERMINALS

General: Provide factory-fabricated and tested round duct control valve air terminals as indicated, selected with performance characteristics that match or exceed those indicated on Drawings for use in fume hood exhaust applications.

Casings: Construct of heavy gauge spun aluminum for general exhaust valves.

Construct of heavy gauge spun aluminum with phenolic coating for fume hood and snorkel exhaust air flow control valves.

Provide hanger brackets for attachments of supports.

Low Leakage: Construct casings such that when subjected to 0.5" w.g. pressure for low-pressure units, and 3" w.g. pressure for high-pressure units, total leakage does not exceed 1% of specified air flow capacity with outlets sealed and inlets wide open. Construct air dampers such that when subjected to 6" w.g. inlet pressure with damper closed, total leakage does not exceed 5% of specified air flow capacity.

Damper or Air Valve: Construct of materials that cannot corrode, do not require lubrication, nor require periodic servicing. Provide actuator to smoothly vary air volume through damper for minimum to maximum, in response from signal from controls.

Provide electronic controller and actuator, shall be 4-20 mA signal, 24 volt power and compatible with temperature controls.

Controls: Provide adjustable controls, including pressure transmitter.

Provide pressure independent volume controller that is calibrated in cfm, factory-adjusted, and marked for minimum and maximum air capacities as shown on the drawings. Inlet of unit shall be provided with airflow sensor with a minimum of 12 sensing points. The controller shall limit the minimum and maximum cfm regardless of changes in the air system duct static pressure at inlet of valve.

Identification: Provide label on each unit indicating unit number, cfm range, cfm factory setting, and calibration curve (if required).

Acceptable Manufacturers: Subject to compliance with requirements, provide air terminals of one of the following:

- Price Industries (VAV boxes and Air Valves)
- Siemens (VAV boxes and Air Valves)
- Critical Room Controls (Air Valves)
- Phoenix Controls (Air Valves)
- Trane (VAV boxes)
- Titus (VAV boxes)
- Krueger (VAV boxes)
- Nailor (VAV boxes)

PART 3. - EXECUTION

3.1. INSTALLATION OF AIR TERMINALS

General: Install air terminals as indicated, and in accordance with manufacturer's installation instructions.

Install all units with a minimum of 2'-6" of straight inlet duct. Flexible duct upstream of the terminal unit shall not be permitted.

Location: Install each unit level and accurately in position indicated in relation to other work; and maintain sufficient clearance for normal service and maintenance, but in no case less than that recommended by manufacturer.

3.2. FIELD QUALITY CONTROL

Upon completion of installation and prior to initial operation, test and demonstrate that air terminals, and duct connections to air terminals, are leak-tight. Repair or replace air terminals and duct connections as required to eliminate leaks, and retest to demonstrate compliance.

3.3. CLEANING

Clean exposed factory-finished surfaces. Repair any marred or scratched surfaces with manufacturers touch-up paint.

END OF SECTION 230933

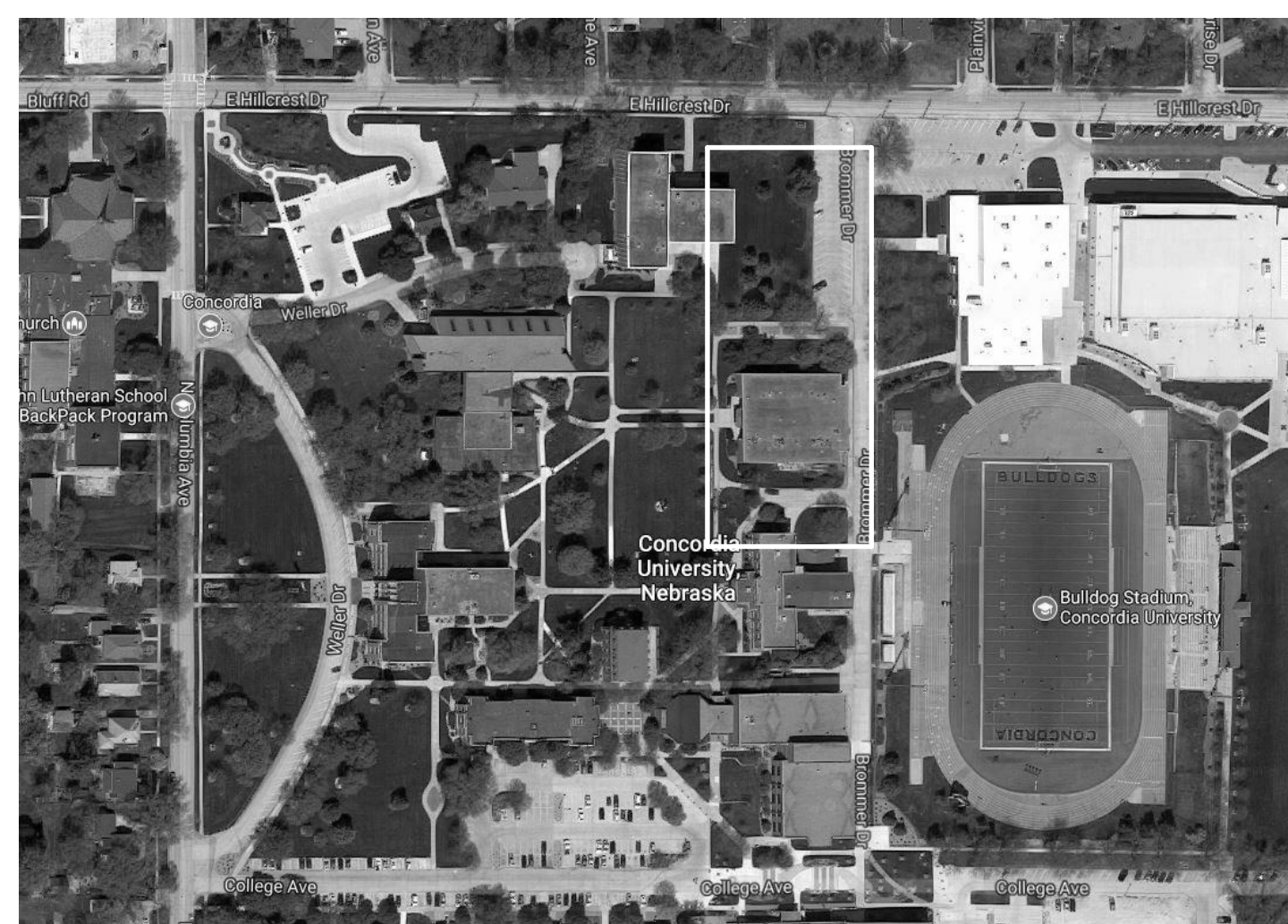
STEM BUILDING ADDITION & RENOVATION

Concordia University
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Seward, NE 68434

Contract Drawings

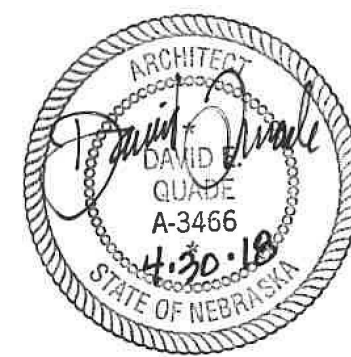
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SHA Project No. 16022

Vicinity Map



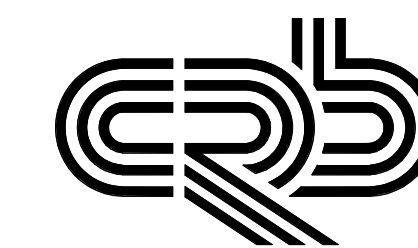
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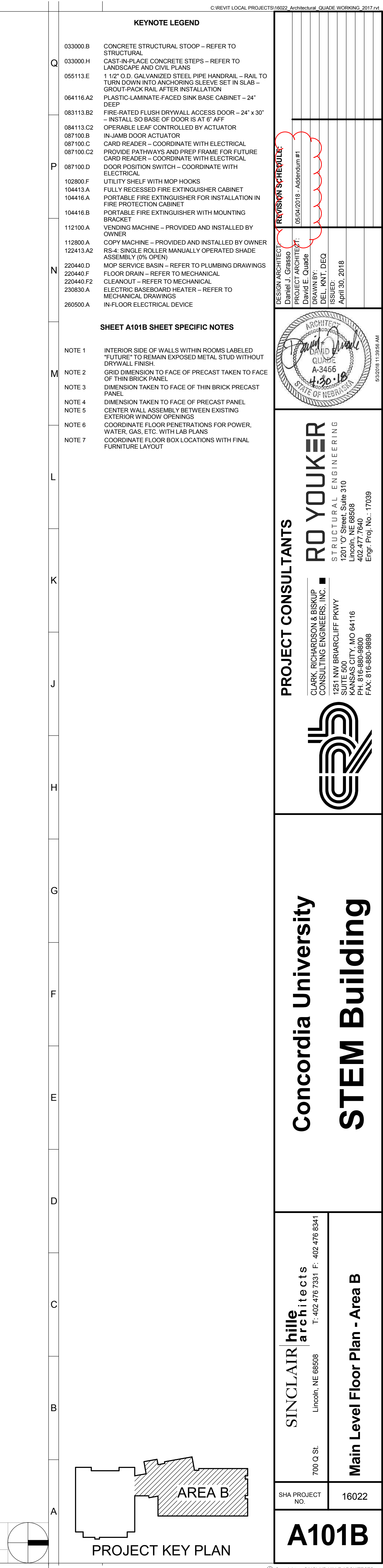
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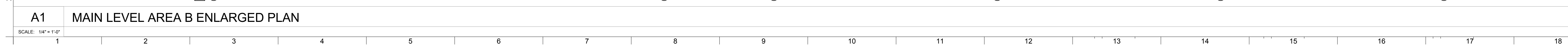
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402.464.3833

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C304	Storm Sewer Profile Plan	A700B	Lower Level Reflected Ceiling Plan - Area B		S300	Braced Frame Elevations, Column Schedule, Base Plate Dtls	M514	RTU-001B Distribution P&ID - Upper Level	P201B.1	Main Level Plumbing Water & Gas Piping - Area B.1	E300B.2	Lower Level Special Systems Plan - Area B.2
C401	Paving Geometric Plan	A701A	Main Level Reflected Ceiling Plan - Area A		S301	Details	M515	RTU-002 Distribution P&ID - Upper Level	P201B.2	Main Level Plumbing Water & Gas Piping - Area B.2	E300B.3	Lower Level Special Systems Plan - Area B.3
C402	Paving Geometric Plan	A701B	Main Level Reflected Ceiling Plan - Area B				M516	RTU-002 Distribution P&ID - Upper Level	P201B.3	Main Level Plumbing Water & Gas Piping - Area B.3	E301A.1	Main Level Special Systems Plan - Area A.1
C403	Paving Geometric Table Plan	A702B	Upper Level Reflected Ceiling Plan - Area B		MECHANICAL DEMOLITION		M518	RTU-002 Distribution P&ID - Main Level	P202A.2	Roof Plumbing Water & Gas - Area A.2	E301A.2	Main Level Special Systems Plan - Area A.2
C500	Detail Plan	A800A	Lower Level Finish Plan - Area A		M100MD	Lower Level Mechanical Ductwork Demolition Plan	M519	RTU-002 Distribution P&ID - Lower Level	P202B.1	Upper Level Plumbing Water & Gas Piping - Area B.1	E301B.1	Main Level Special Systems Plan - Area B.1
C501	Detail Plan	A800B	Lower Level Finish Plan - Area B		M101MD	Main Level Mechanical Ductwork Demolition Plan	M520	RTU-002 Distribution P&ID - Lower Level	P202B.2	Upper Level Plumbing Water & Gas Piping - Area B.2	E301B.2	Main Level Special Systems Plan - Area B.2
		A801A	Main Level Finish Plan - Area A		M102MD	Roof Level Mechanical Ductwork Demolition Plan	M521	RTU-002 Distribution P&ID - Lower Level	P202B.3	Upper Level Plumbing Water & Gas Piping - Area B.3	E301B.3	Main Level Special Systems Plan - Area B.3
		A801B	Main Level Finish Plan - Area B				M525	Split Systems Distribution P&ID	P203B.3	Roof Plumbing Water & Gas - Area B.3	E302A.2	Roof Special Systems Plan - Area A.2
LANDSCAPE		A802B	Upper Level Finish Plan - Area B		MECHANICAL		M600	Mechanical Details	P500	Waste & Vent Riser Diagram	E302B.1	Upper Level Special Systems Plan - Area B.1
L100	Planting Plan and Schedule	A810A	Lower Level Furnishing Plan - Area A		M000	Mechanical Lead Sheet	M601	Mechanical Details	P501	Water Riser Diagrams	E302B.2	Upper Level Special Systems Plan - Area B.2
L101	Plaza Enlargement and Details	A810B	Lower Level Furnishing Plan - Area B		M001	P&ID Lead Sheet Piping Symbols	M700	Mechanical Schedules	P502	Lab Gas Riser Diagrams	E302B.3	Upper Level Special Systems Plan - Area B.3
L102	Plaza Details	A811A	Main Level Furnishing Plan - Area A		M002	P&ID Lead Sheet Instrumentation & Controls	M701	Mechanical Schedules	P503	Storm Water Riser Diagram	E302B.3	Roof Special Systems Plan - Area B.3
		A811B	Main Level Furnishing Plan - Area B		M100A.1	Lower Level Mechanical Ductwork Plan - Area A.1	M702	Mechanical Schedules	P600	Plumbing Details	E500	Emergency and Normal Electrical Riser Diagram
ARCHITECTURAL DEMOLITION		A812B	Upper Level Furnishing Plan - Area B		M100A.2	Lower Level Mechanical Ductwork Plan - Area A.2			P700	Plumbing Schedules	E600	Electrical Details
AD100A	Lower Level Demolition Plan - Area A				M100B.1	Lower Level Mechanical Ductwork Plan - Area B.1	FIRE PROTECTION				E700	Electrical Schedules
AD101A	Main Level Demolition Plan - Area A				M100B.2	Lower Level Mechanical Ductwork Plan - Area B.2	FP100	Lower Level Overall Fire Protection Piping	ELECTRICAL DEMOLITION		E701	Electrical Schedules
AD102A	Roof Demolition Plan - Area A				M100B.3	Lower Level Mechanical Ductwork Plan - Area B.3	FP102	Main Level Overall Fire Protection Piping	E100ED	Lower Level Electrical Demolition - Overall Plan	E702	Electrical Schedules
					M101A.1	Main Level Mechanical Ductwork Plan - Area A.1	FP103	Upper Level Overall Fire Protection Piping	E101ED	Main Level Electrical Demolition - Overall Plan	E703	Electrical Schedules
					M101A.2	Main Level Mechanical Ductwork Plan - Area A.2	FP600	Fire Protection Details				
					M101B.1	Main Level Mechanical Ductwork Plan - Area B.1						
					M101B.2	Main Level Mechanical Ductwork Plan - Area B.2	PLUMBING DEMOLITION		ELECTRICAL		TECHNOLOGY	
A000	Lower Level Foundation Layout Plan				M101B.3	Main Level Mechanical Ductwork Plan - Area B.3	P10UPD	Underground Plumbing Demolition - Overall	E000	Electrical Lead Sheet	T001	Legend & Symbols
A100A	Lower Level Floor Plan - Area A				M102A.1	Roof Mechanical Ductwork Plan - Area A.1	P100PD	Lower Level Plumbing Demolition - Overall	E100	Electrical Site Plan	T100A	Lower Level Technology Plan - Area A
A100B	Lower Level Floor Plan - Area B				M102A.2	Roof Mechanical Ductwork Plan - Area A.2	P101PD	Main Level Plumbing Demolition - Overall	E100A.1	Lower Level Lighting Plan - Area A.1	T100B	Lower Level Technology Plan - Area B
A101A	Main Level Floor Plan - Area A				M102B.1	Upper Level Mechanical Ductwork Plan - Area B.1	P102PD	Roof Level Plumbing Demolition - Overall	E100A.2	Lower Level Lighting Plan - Area A.2	T101A	Main Level Technology Plan - Area A
A101B	Main Level Floor Plan - Area B				M102B.2	Upper Level Mechanical Ductwork Plan - Area B.2			E100B.1	Lower Level Lighting Plan - Area B.1	T101B	Main Level Technology Plan - Area B
A102A	Roof Plan - Area A				M102B.3	Upper Level Mechanical Ductwork Plan - Area B.3			E100B.2	Lower Level Lighting Plan - Area B.2	T102B	Upper Level Technology Plan - Area B
A102B	Roof Level Floor Plan - Area B				A960	Laboratory Casework Schedule			E100B.3	Lower Level Lighting Plan - Area B.3	T200	Enlarged Technology Plans
A103B	Roof Plan - Area B				A961	Laboratory Details	PLUMBING		E101A.1	Main Level Lighting Plan - Area A.1	T201	Data Rack Elevations
A104	Lower Level Area B Enlarged Plan				A962	Casework Elevations	P100A.1	Underground Plumbing Waste & Vent - Area A.1	E101A.2	Main Level Lighting Plan - Area A.2	T400	Technology Risers
A105	Main Level Area B Enlarged Plan				A963	Casework Elevations	P100B.1	Underground Plumbing Waste & Vent - Area A.2	E101B.1	Main Level Lighting Plan - Area B.1	T401	Technology Details
A106	Upper Level Area B Enlarged Plan				A964	Casework Elevations	P100B.2	Underground Plumbing Waste & Vent - Area B.2	E101B.2	Main Level Lighting Plan - Area B.2	T402	Technology Details
A120	Room Finish Schedule				A965	Casework Elevations	P100B.3	Underground Plumbing Waste & Vent - Area B.3	E101B.3	Main Level Lighting Plan - Area B.3	T501	Signal Flow - For Reference Only
A121	Door Schedule, Hollow Metal Frame Types, and Door Types				A966	Casework Elevations	P100A.1	Lower Level Plumbing Waste & Vent - Area A.1	E102B.1	Upper Level Lighting Plan - Area B.1	T502	Signal Flow - For Reference Only
A200	Exterior Elevations				A967	Casework Elevations	P100A.2	Lower Level Plumbing Waste & Vent - Area A.2	E102B.2	Upper Level Lighting Plan - Area B.2	T503	Signal Flow - For Reference Only
A201	Exterior Elevations				A968	Casework Elevations						

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033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

057300.A

INTERIOR CABLE RAIL GUARDRAIL ASSEMBLY DESIGNED BY FABRICATOR TO ACCOMMODATE CODE REQUIRED LOADING – REFER TO DETAIL K10464

057300.C

1 1/2" O.D. BEUSED ALUMINUM BAIL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKS FROM EXISTING WALL

060223.D

GLUED LAMINATED STAIR TREADS WITH INSET 3" EXTRUDED ALUMINUM NOSING W/ SINGLE STAGE REBSED ABRASIVE SAND EXTENDED TO TREAD THROUGH PRE DRILLED COUNTERSUNK HOLES AT 12" O.C. AND 3" MINIMUM FROM EDGES

060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

090131.A

CT-1: 12x24 CERAMIC WALL TILE – INSTALLED IN A HORIZONTAL PATTERN LAVATORY WALLS AND DRINKING FOUNTAIN WALLS

090131.B

CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

090131.C

CT-3: 12x24 CERAMIC WALL TILE – INSTALLED AT RESTROOM WALLS

097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

WD-2: WOOD PANEL SYSTEM – ACOUSTICAL

098313.A

1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

GRAB BAR – 36" LENGTH

102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

102800.D

SANITARY MOUNTED SHELF – 6"x6"

102800.E

ROBE / COAT HOOK

102800.F

FRAMED FULL HEIGHT MIRROR – 24x60

102800.H

SEMI-RECESSED WASTE RECEPTACLE

102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

057300.A

INTERIOR CABLE RAIL GUARDRAIL ASSEMBLY DESIGNED BY FABRICATOR TO ACCOMMODATE CODE REQUIRED LOADING – REFER TO DETAIL K10464

057300.C

1 1/2" O.D. BEUSED ALUMINUM BAIL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKS FROM EXISTING WALL

060223.D

GLUED LAMINATED STAIR TREADS WITH INSET 3" EXTRUDED ALUMINUM NOSING W/ SINGLE STAGE REBSED ABRASIVE SAND EXTENDED TO TREAD THROUGH PRE DRILLED COUNTERSUNK HOLES AT 12" O.C. AND 3" MINIMUM FROM EDGES

060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

090131.A

CT-1: 12x24 CERAMIC WALL TILE – INSTALLED IN A HORIZONTAL PATTERN LAVATORY WALLS AND DRINKING FOUNTAIN WALLS

090131.B

CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

090131.C

CT-3: 12x24 CERAMIC WALL TILE – INSTALLED AT RESTROOM WALLS

097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

WD-2: WOOD PANEL SYSTEM – ACOUSTICAL

098313.A

1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

GRAB BAR – 36" LENGTH

102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

102800.D

SANITARY MOUNTED SHELF – 6"x6"

102800.E

ROBE / COAT HOOK

102800.F

FRAMED FULL HEIGHT MIRROR – 24x60

102800.H

SEMI-RECESSED WASTE RECEPTACLE

102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

057300.A

INTERIOR CABLE RAIL GUARDRAIL ASSEMBLY DESIGNED BY FABRICATOR TO ACCOMMODATE CODE REQUIRED LOADING – REFER TO DETAIL K10464

057300.C

1 1/2" O.D. BEUSED ALUMINUM BAIL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKS FROM EXISTING WALL

060223.D

GLUED LAMINATED STAIR TREADS WITH INSET 3" EXTRUDED ALUMINUM NOSING W/ SINGLE STAGE REBSED ABRASIVE SAND EXTENDED TO TREAD THROUGH PRE DRILLED COUNTERSUNK HOLES AT 12" O.C. AND 3" MINIMUM FROM EDGES

060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

090131.A

CT-1: 12x24 CERAMIC WALL TILE – INSTALLED IN A HORIZONTAL PATTERN LAVATORY WALLS AND DRINKING FOUNTAIN WALLS

090131.B

CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

090131.C

CT-3: 12x24 CERAMIC WALL TILE – INSTALLED AT RESTROOM WALLS

097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

WD-2: WOOD PANEL SYSTEM – ACOUSTICAL

098313.A

1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

GRAB BAR – 36" LENGTH

102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

102800.D

SANITARY MOUNTED SHELF – 6"x6"

102800.E

ROBE / COAT HOOK

102800.F

FRAMED FULL HEIGHT MIRROR – 24x60

102800.H

SEMI-RECESSED WASTE RECEPTACLE

102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

057300.A

INTERIOR CABLE RAIL GUARDRAIL ASSEMBLY DESIGNED BY FABRICATOR TO ACCOMMODATE CODE REQUIRED LOADING – REFER TO DETAIL K10464

057300.C

1 1/2" O.D. BEUSED ALUMINUM BAIL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKS FROM EXISTING WALL

060223.D

GLUED LAMINATED STAIR TREADS WITH INSET 3" EXTRUDED ALUMINUM NOSING W/ SINGLE STAGE REBSED ABRASIVE SAND EXTENDED TO TREAD THROUGH PRE DRILLED COUNTERSUNK HOLES AT 12" O.C. AND 3" MINIMUM FROM EDGES

060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

090131.A

CT-1: 12x24 CERAMIC WALL TILE – INSTALLED IN A HORIZONTAL PATTERN LAVATORY WALLS AND DRINKING FOUNTAIN WALLS

090131.B

CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

090131.C

CT-3: 12x24 CERAMIC WALL TILE – INSTALLED AT RESTROOM WALLS

097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

WD-2: WOOD PANEL SYSTEM – ACOUSTICAL

098313.A

1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

GRAB BAR – 36" LENGTH

102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

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102800.E

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102800.F

FRAMED FULL HEIGHT MIRROR – 24x60

102800.H

SEMI-RECESSED WASTE RECEPTACLE

102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

057300.A

INTERIOR CABLE RAIL GUARDRAIL ASSEMBLY DESIGNED BY FABRICATOR TO ACCOMMODATE CODE REQUIRED LOADING – REFER TO DETAIL K10464

057300.C

1 1/2" O.D. BEUSED ALUMINUM BAIL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKS FROM EXISTING WALL

060223.D

GLUED LAMINATED STAIR TREADS WITH INSET 3" EXTRUDED ALUMINUM NOSING W/ SINGLE STAGE REBSED ABRASIVE SAND EXTENDED TO TREAD THROUGH PRE DRILLED COUNTERSUNK HOLES AT 12" O.C. AND 3" MINIMUM FROM EDGES

060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

090131.A

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090131.B

CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

090131.C

CT-3: 12x24 CERAMIC WALL TILE – INSTALLED AT RESTROOM WALLS

097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

WD-2: WOOD PANEL SYSTEM – ACOUSTICAL

098313.A

1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

GRAB BAR – 36" LENGTH

102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

102800.D

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102800.H

SEMI-RECESSED WASTE RECEPTACLE

102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

057300.A

INTERIOR CABLE RAIL GUARDRAIL ASSEMBLY DESIGNED BY FABRICATOR TO ACCOMMODATE CODE REQUIRED LOADING – REFER TO DETAIL K10464

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1 1/2" O.D. BEUSED ALUMINUM BAIL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKS FROM EXISTING WALL

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GLUED LAMINATED STAIR TREADS WITH INSET 3" EXTRUDED ALUMINUM NOSING W/ SINGLE STAGE REBSED ABRASIVE SAND EXTENDED TO TREAD THROUGH PRE DRILLED COUNTERSUNK HOLES AT 12" O.C. AND 3" MINIMUM FROM EDGES

060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

090131.A

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CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

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097700.B

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102113.1B

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102800.B

GRAB BAR – 42" LENGTH

102800.B2

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102800.C

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102800.D

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102800.E

ROBE / COAT HOOK

102800.F

FRAMED FULL HEIGHT MIRROR – 24x60

102800.H

SEMI-RECESSED WASTE RECEPTACLE

102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

057300.A

INTERIOR CABLE RAIL GUARDRAIL ASSEMBLY DESIGNED BY FABRICATOR TO ACCOMMODATE CODE REQUIRED LOADING – REFER TO DETAIL K10464

057300.C

1 1/2" O.D. BEUSED ALUMINUM BAIL MOUNTED HANDRAIL WITH ATTACHMENT BRACKETS ATTACHED TO BLOCKS FROM EXISTING WALL

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060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

090131.A

CT-1: 12x24 CERAMIC WALL TILE – INSTALLED IN A HORIZONTAL PATTERN LAVATORY WALLS AND DRINKING FOUNTAIN WALLS

090131.B

CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

090131.C

CT-3: 12x24 CERAMIC WALL TILE – INSTALLED AT RESTROOM WALLS

097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

WD-2: WOOD PANEL SYSTEM – ACOUSTICAL

098313.A

1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

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102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

102800.D

SANITARY MOUNTED SHELF – 6"x6"

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102800.H

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102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

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1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

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060223.D

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060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

TIE READY ACCESS DOOR – INSTALL APPROXIMATELY 1/2" – 24" V2 – COORDINATE LOCATION WITH THE INSTALLATION SO DOOR FITS IN A FULL TIE WITHIN T.L.E. COURSE

084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

087100.B

IN-JAMB DOOR ACTUATOR

087100.C

CARD-READER – COORDINATE WITH ELECTRICAL

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CT-1: 12x24 CERAMIC WALL TILE – INSTALLED IN A HORIZONTAL PATTERN LAVATORY WALLS AND DRINKING FOUNTAIN WALLS

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CT-2: 12x24 PORCELAIN WALL TILE – INSTALLED AT RESTROOM WALLS ADJACENT TO LAVATORY WALLS

090131.C

CT-3: 12x24 CERAMIC WALL TILE – INSTALLED AT RESTROOM WALLS

097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

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1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

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102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

102800.D

SANITARY MOUNTED SHELF – 6"x6"

102800.E

ROBE / COAT HOOK

102800.F

FRAMED FULL HEIGHT MIRROR – 24x60

102800.H

SEMI-RECESSED WASTE RECEPTACLE

102800.I

FULLY RECESSED FIRE EXTINGUISHER CABINET

200440.A

3-PERSON LAVATORY ASSEMBLY – REFER TO PLUMBING DRAWINGS

220440.C

ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION – REFER TO PLUMBING DRAWINGS

321313.A

4" CONCRETE PAVING – REFER TO CIVIL

321313.B

ELASTOMERIC PAVING SEALANT WITH BACKER ROOF AND BOND BREAK

AREA B

PROJECT KEY PLAN

033000.B

CONCRETE STRUCTURAL STOOB – REFER TO STRUCTURAL DRAWING

Q

033000.H

CAST-IN-PLACE CONCRETE STOPS – REFER TO LANDSCAPE ARCH. PLANS

055113.E

1 1/2" O.D. GALVANIZED STEEL PIPE HANDRAIL – RAIL TO TURN DOWN INTO ANCHORING SLEEVE SET IN SLAB – GROUT PACK SEAL AFTER INSTALLATION

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060223.D2

GLUED LAMINATED FLOOR DECK

070550.B

FLOOR TO FLOOR EXPANSION CONTROL (FS-200)

081113.C

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084113.C2

OPERABLE LEAF CONTROLLED BY ACTUATOR

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097700.A

WD-1: WOOD PANEL SYSTEM – NON-AcoustICAL

097700.B

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1" THICK SOUND-ABSORBING WALL PANEL – SURFACE APPLIED

102113.1A

TOILET ENCLOSURE

102113.1B

URINAL SCREENING

102800.A

TOILET TISSUE DISPENSER – TYPICAL AT ALL TOILETS

102800.B

GRAB BAR – 42" LENGTH

102800.B2

GRAB BAR – 36" LENGTH

102800.C

SURFACTANT NAPKIN DISPOSAL WITH SHELF – TYPICAL AT ALL TOILETS IN WOMEN'S RESTROOM CABINET

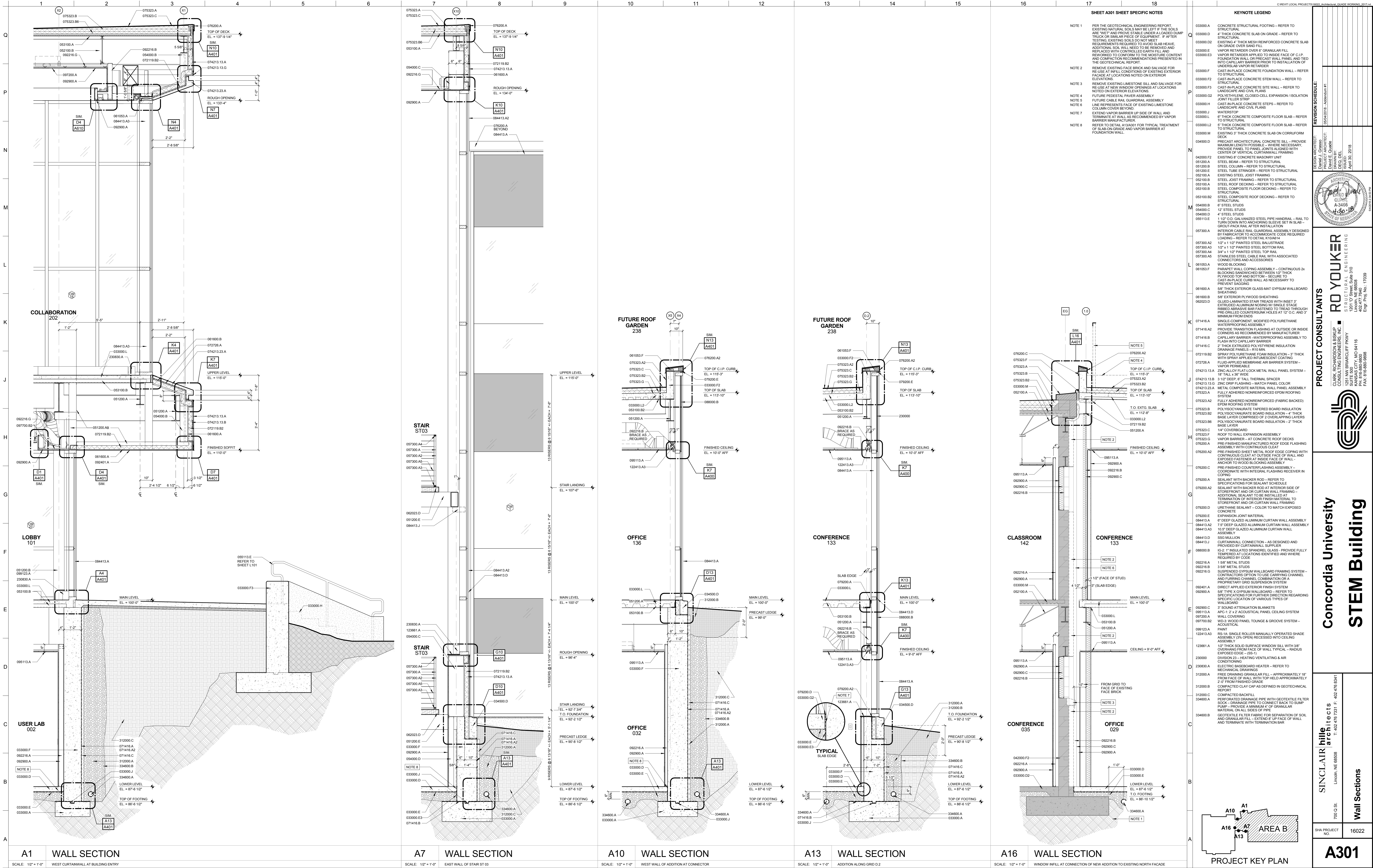
102800.D

SANITARY MOUNTED SHELF – 6"x6"

102800.E

ROBE / COAT HOOK

10



PROJECT SCHEDULE:
DESIGN ARCHITECT: Daniel J. Grasso
PROJECT ARCHITECT: Daniel J. Grasso
DRAWN BY: Daniel J. Grasso
DEC. DEL: Daniel J. Grasso
APR. 30, 2018

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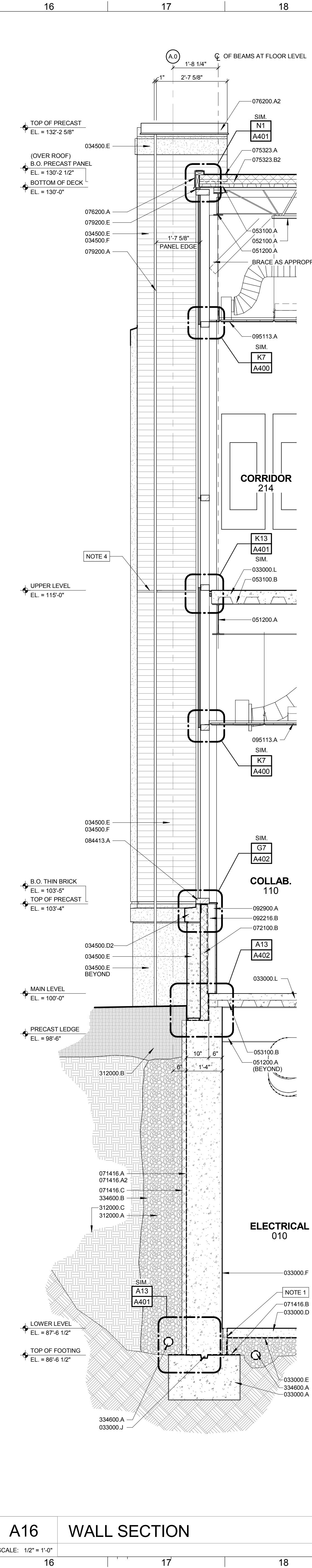
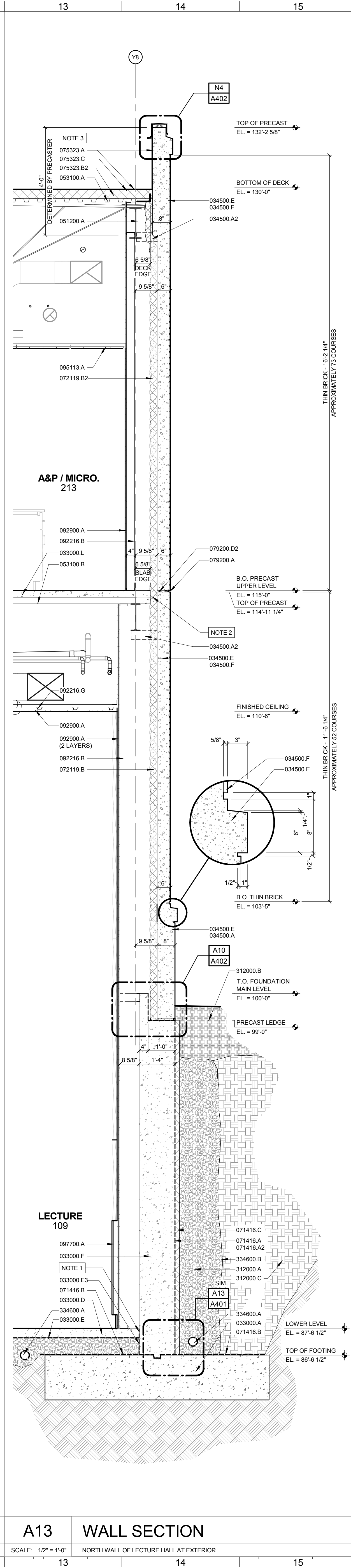
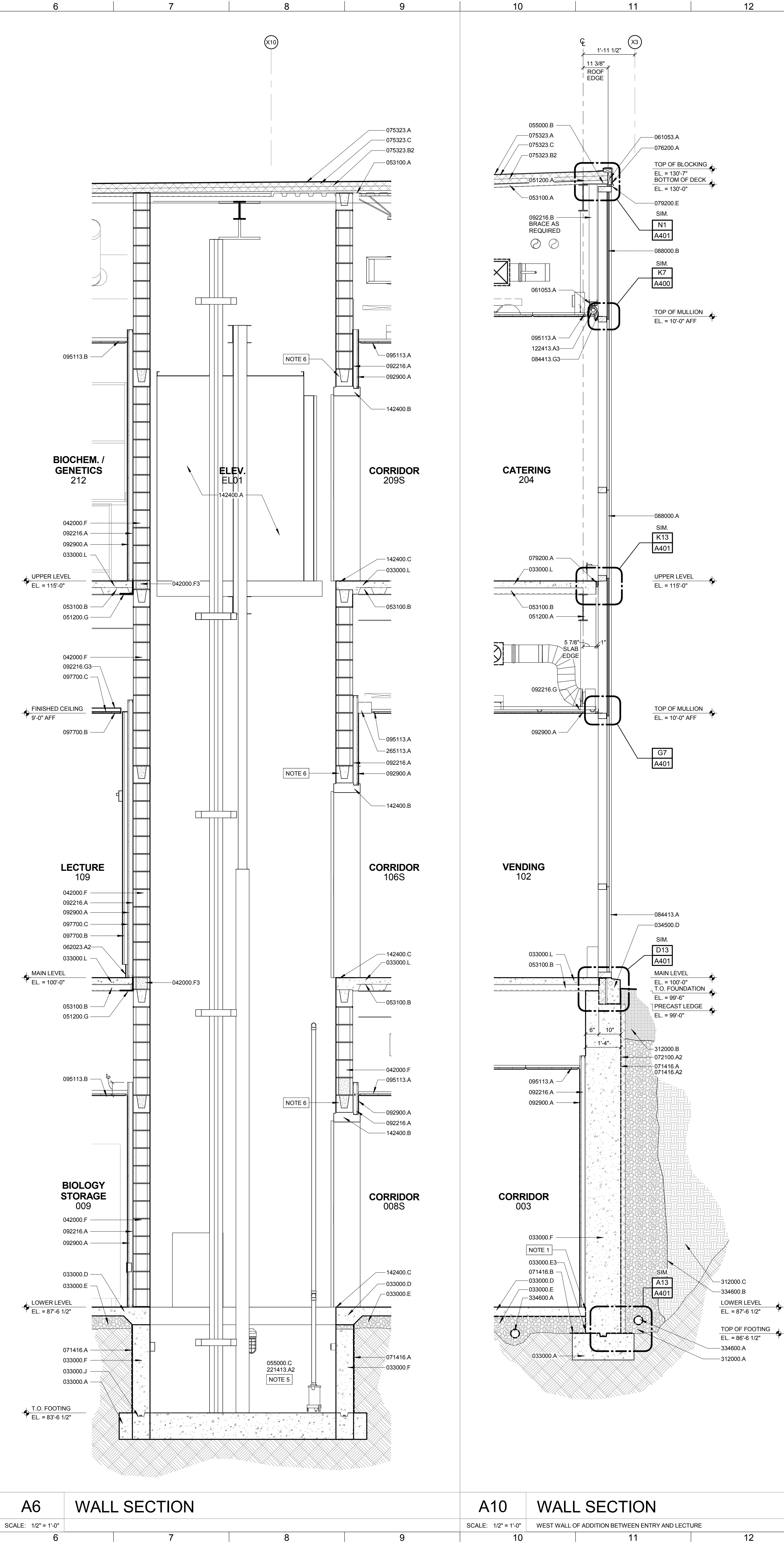
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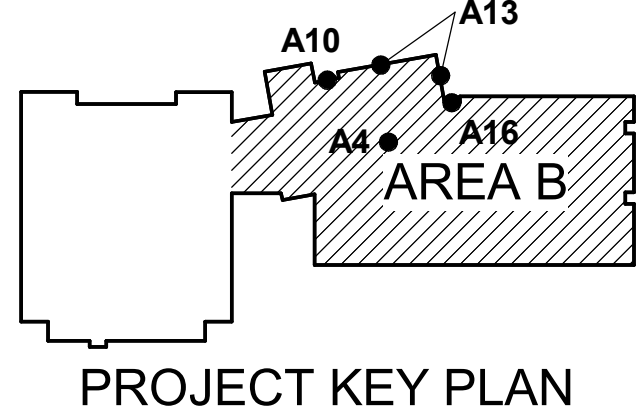
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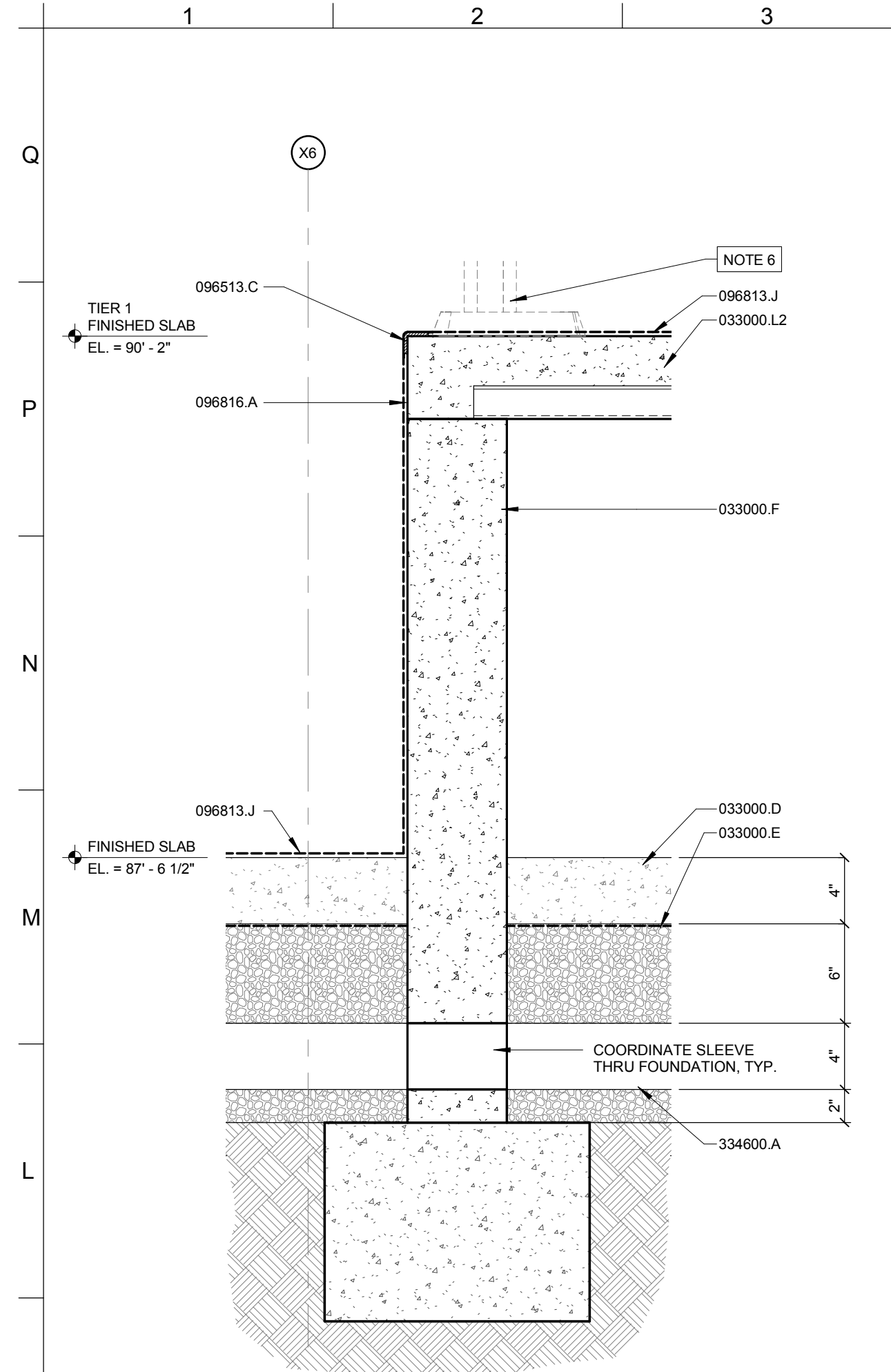
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Wall Sections

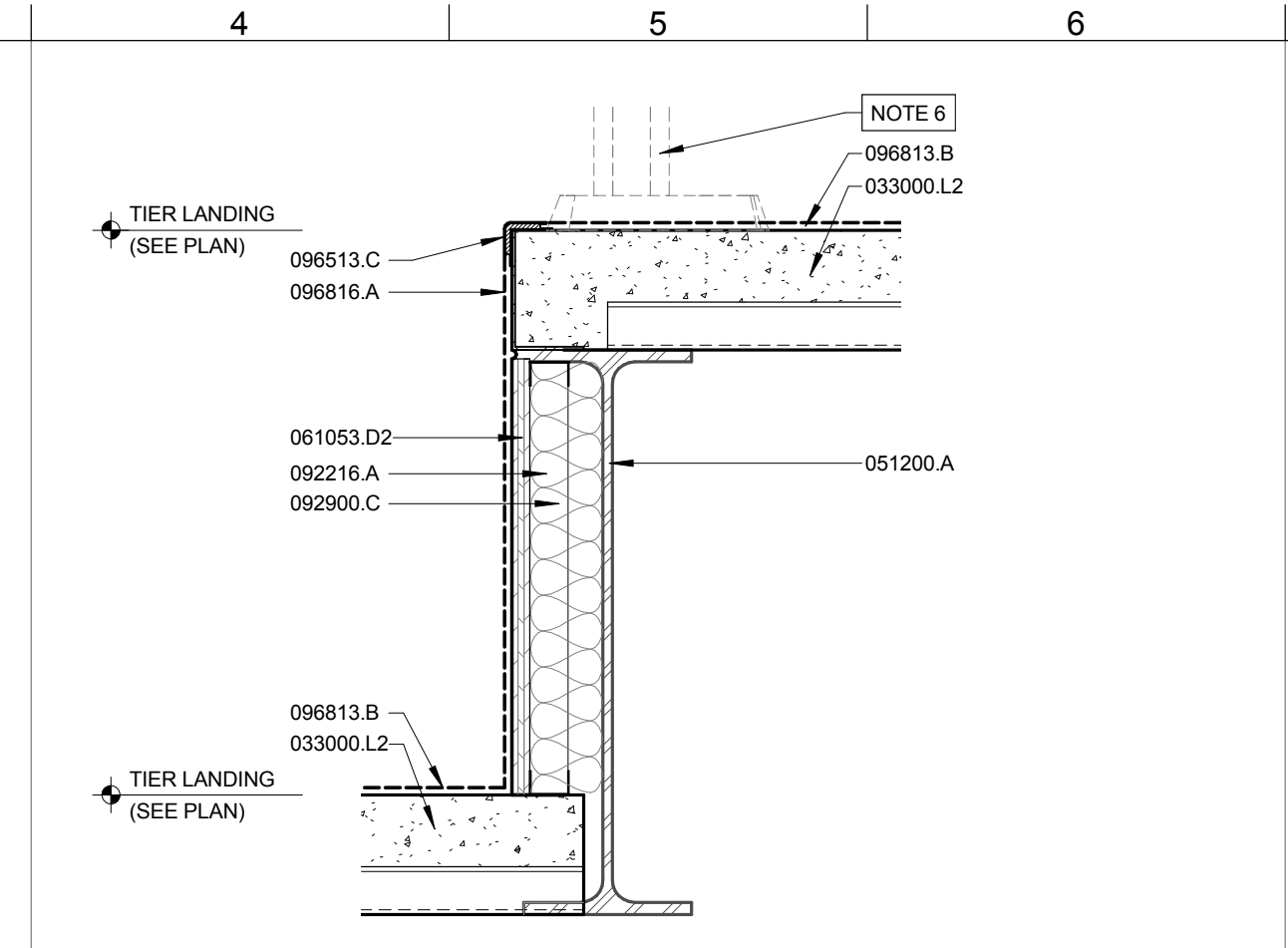


KEYNOTE LEGEND	
033000.A	CONCRETE STRUCTURAL FOOTING – REFER TO
033000.D	4" THICK CONCRETE SLAB ON GRADE – REFER TO STRUCTURAL
033000.E	VAPOR BARRIER OVER 6" GRANULAR FILL
033000.E.3	VAPOR RETARDER APPLIED TO INSIDE FACE OF C.I.P. CONCRETE WALL OR PRECAST WALL PANEL AND TIED INTO CAPILLARY BARRIER PRIOR TO INSTALLATION OF VAPOR BARRIER
033000.F	CAST-IN-PLACE CONCRETE FOUNDATION WALL – REFER TO CONCRETE
033000.L	WATERSTOP
033000.L.1	6" THICK CONCRETE COMPOSITE FLOOR SLAB – REFER TO STRUCTURAL
034500.A	PRECAST ARCHITECTURAL CONCRETE CONNECTIONS TO BE DESIGNED BY FABRICATOR
034500.A.2	ANTICIPATED PRECAST PANEL CONNECTION TO STRUCTURAL
034500.A.3	PRECAST ARCHITECTURAL CONCRETE SILL – PROVIDE MAXIMUM LENGTH POSSIBLE – WHERE NECESSARY, SILL PANELS TO PANEL JOINTS ALLIGNED WITH CENTER OF VERTICAL CURTAIN/LIFT FRAMING
034500.D.2	INSULATION TO WALL PANEL, JOINTS ALIGNED TO BE CAST SEPARATE FROM WALL PANEL BELOW BUT ADJACENT TO WALL PANEL AND CAPABLE OF ACCOMMODATING LOAD OF CURTAIN/WALL ASSEMBLY
034500.E	PRECAST ARCHITECTURAL CONCRETE WALL PANEL
034500.F.1	PRECAST CONCRETE FINISH – PROVIDE THIN BRICK WHERE INDICATED
034500.F.2	THIN BRICK R/L IN A RUNNING BOND PATTERN
042000.F.3	6" PRECAST MASONRY UNIT
042000.F.3	6" PRECAST MASONRY UNIT – CUT FOR ADJUSTMENT TO COURSING
051200.A	STEEL BEAM – REFER TO STRUCTURAL
051200.A.1	STEEL ANGLE – REFER TO STRUCTURAL
051200.A.2	STEEL JOIST – REFER TO STRUCTURAL
051300.A	STEEL ROOF DECKING – REFER TO STRUCTURAL
051300.B	STEEL ROOF DECKING – REFER TO STRUCTURAL
055000.B	STEEL BENT PLATE FOR SUPPORT OF ROOF KNOCK BOLT
055000.C	ROOF INSULATION
055000.C	GAUVENZED STEEL SLOPE/PIR LADDER
061000.A.2	WOOD JOIST
062002.A.3	SOLO WOOD WALL BASE STAIR PLATFORM EXTENSION – TO BE DESIGNED BY FABRICATOR
071416.A	SINGLE COMPONENT, MODIFIED POLYURETHANE WATERPROOFING ASSEMBLY
071416.A.2	WATERPROOFING ASSEMBLY TO BE APPLIED AT OUTSIDE OR INSIDE CORNERS AS RECOMMENDED BY MANUFACTURER
071416.B	WATERPROOFING ASSEMBLY TO BE APPLIED TO FLASH INTO CAPILLARY BARRIER
071416.C	WATERPROOFING ASSEMBLY TO BE APPLIED TO DRAINAGE PIPES – R10 MIN
072100.A.2	2" THICK EXTRUDED POLYSTYRENE PERIMETER INSULATION
072100.B	EXTRUDED POLYSTYRENE RIGID FOAM INSULATION
072100.B.1	EXTRUDED POLYSTYRENE RIGID FOAM INSULATION TO FACILITATE DRAINAGE OF UPPER SLAB
072119.B	3" THICK POLYURETHANE FOAM INSULATION – 3" THICK WITH SPRAY APPLIED ULTIMOSOLIC COATING
075320.A	3" THICK POLYURETHANE FOAM INSULATION – 3" THICK WITH SPRAY APPLIED ULTIMOSOLIC COATING
075320.B	3" THICK POLYURETHANE BOARD INSULATION – 4" THICK BASE LAYER COMPOSED OF 2 OVERLAPPING LAYERS
075320.C	PRE-FINISHED MANUFACTURED ROOF EDGE FLASHING ASSEMBLY WITH CONTINUOUS CLEAT
076200.A.2	PRE-FINISHED METAL ROOF EDGE COPING WITH CONTINUOUS CLEAT AT OUTSIDE FACE OF WALL AND ANCHOR TO WOOD BLOCKING ASSEMBLY
076200.D	ANCHOR TO WOOD BLOCKING ASSEMBLY
076200.D.1	URETHANE SEALANT – JOINT TYP FLUSH WITH FINISHED FACE OF PRECAST PRIOR TO INSTALLATION OF INSULATION
084114.3	6" DEEP GALV ALUMINUM CROWN WALL ASSEMBLY
084114.3.3	EXTRUDED POLYSTYRENE INSULATION ALUMINUM ALLOY TO SERVE AS AN EXTENDED CLOSURE BEHIND WALL WITH RELEVATOR MANUFACTURER
088000.A	IG-11 "UL" TRAC-LAUREL 600 INSULATING GLASS – PROVIDE FULLY TEMPERED AT LOCATIONS IDENTIFIED BY ARCHITECT
088000.B	IG-2 "UL" INSULATED SPANDREL GLASS – PROVIDE FULLY TEMPERED AT LOCATIONS IDENTIFIED AND WHERE REQUIRED BY CODE
092216.A	3" CONCRETE SLAB
092216.B	3" 98% STEEL SLAB
092216.D	SUPPLEMENTED CYPRESS WALLBOARD FRAMING SYSTEM – RATED FOR USE WITH CURRING CHANNEL AND FURRING CHANNEL COMBINATION OR A PROPERLY GRADED SUBFLOOR
092216.G.3	HEAVY DUTY 15" H" G-RO ASSIGNED FOR SUPPORT OF ROOFING SYSTEM – REFER TO SPECIFICATIONS FOR WOOD PANEL MANUFACTURER
092900.A	WALLBOARD TO BE USED IN ACCORDANCE WITH SPECIFICATIONS FOR FURTHER DIRECTION REGARDING SUBSTRATE OF VARIOUS TYPES OF WALLBOARD
095113.A	APC-1 2" X 4" ACUSTICAL PANEL CEILING SYSTEM
095113.B	APC-2 2" X 4" ACUSTICAL PANEL CEILING SYSTEM
097700.A	W-D-1 WOOD PANEL SYSTEM – NON-ACUSTICAL
097700.B	W-D-2 WOOD PANEL SYSTEM – ACUSTICAL
122413.A.3	R-3.1 SINGLE ROLLER MANUALLY OPERATED SHADE SYSTEM – OPEN OR CLOSED IN ACCORDANCE WITH ASSEMBLY
124100.A	MACHINE MOUNTED HYDRAULIC PASSENGER ELEVATOR
142400.B	MACHINE OPENING
142410.C	HIGHWAY TRUCK/LOADS (SILL)
221413.A.2	SUMP BASIN – COORDINATE SIZE AND LOCATION WITH RELEVATOR MANUFACTURER
312000.A	INTERIOR LIGHTING – REFER TO ELECTRICAL
312000.A.2	FREE DRAINING GRANULAR FILL – APPROXIMATELY 10" FROM FACE OF WALL WITH TOP LIFTED APPROXIMATELY 2" FROM FINISHED SURFACE
312000.C	COMPACTED CLAY CAP AS DEFINED IN GEOTECHNICAL REPORT
312000.C	COMPACTED BACKFILL
334000.A	PERFORATED DRAINAGE PIPE WITH GEOTEXTILE FILTER SOCK – DRAINAGE PIPE TO CONNECT BACK TO SUMP PUMP – PROVIDE A MINIMUM OF 6" GRANULAR MATERIAL ON ALL SIDES OF PIPE
334000.B	GEOTEXTILE FILTER FABRIC FOR SEPARATION OF SOIL AND GRANULAR FILL – EXTEND 8" UP FACE OF WALL AT TERMINATION WITH TERMINATION BAR
SHEET A304 SHEET SPECIFIC NOTES	
NOTE 1	REFER TO DETAIL A33001 FOR TYPICAL TREATMENT OF FLASH-ON-GRADE AND VAPOR BARRIER AT SUB-Foundation
NOTE 2	INSULATION TO WALL PANEL, JOINTS ALIGNED TO BE CAST SEPARATE FROM WALL PANEL BELOW BUT ADJACENT TO WALL PANEL AND CAPABLE OF ACCOMMODATING LOAD OF CURTAIN/WALL ASSEMBLY
NOTE 3	ROOFING MEMBRANE TO EXTEND UP BACK OF PRECAST WALL PANEL. PREPARE JOINTS BETWEEN PANEL TO PANEL CONNECTION TO PROVIDE A SMOOTH GRADIENT FOR APPLICATION OF ROOFING ASSEMBLY. COORDINATE SPECIFIC REQUIREMENTS WITH ROOFING MANUFACTURER AND PROVIDE WARRANTY REQUIREMENTS
NOTE 4	HORIZONTAL PANEL TO PANEL JOINT IN PRECAST WALL PANELS – THICKNESS, PREPARE JOINT BETWEEN PANEL AND BACKGROUT AT BOTH SIDES OF PANEL
NOTE 5	COORDINATE LOCATION WITH ELEVATOR SUPPORT STRUCTURE
NOTE 6	BOND BEAD TO CONTINUE ABOVE ENTIRE OPENING. PRECAST BEAD ONLY OCCURS AT HOSTWAY OPENING

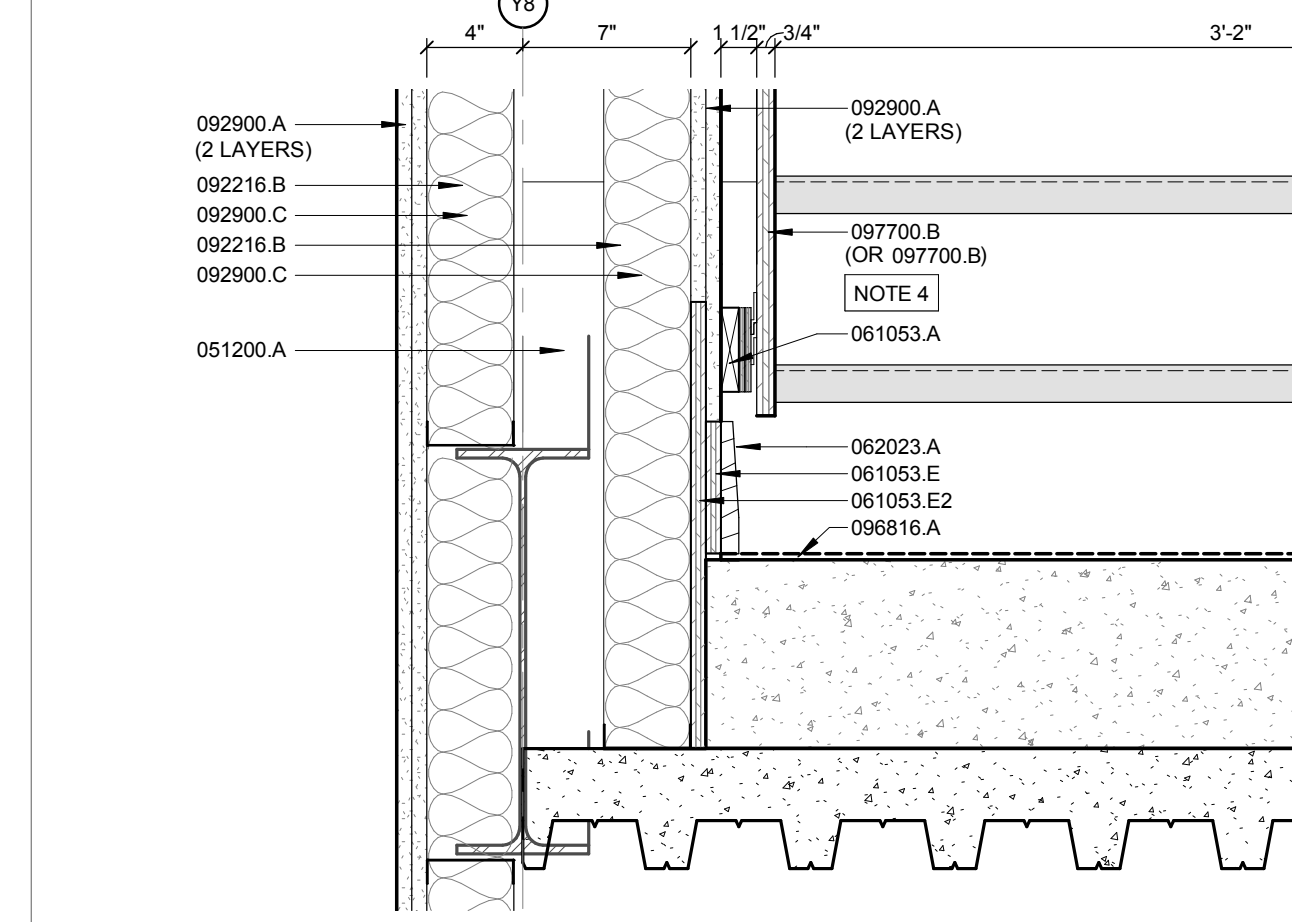




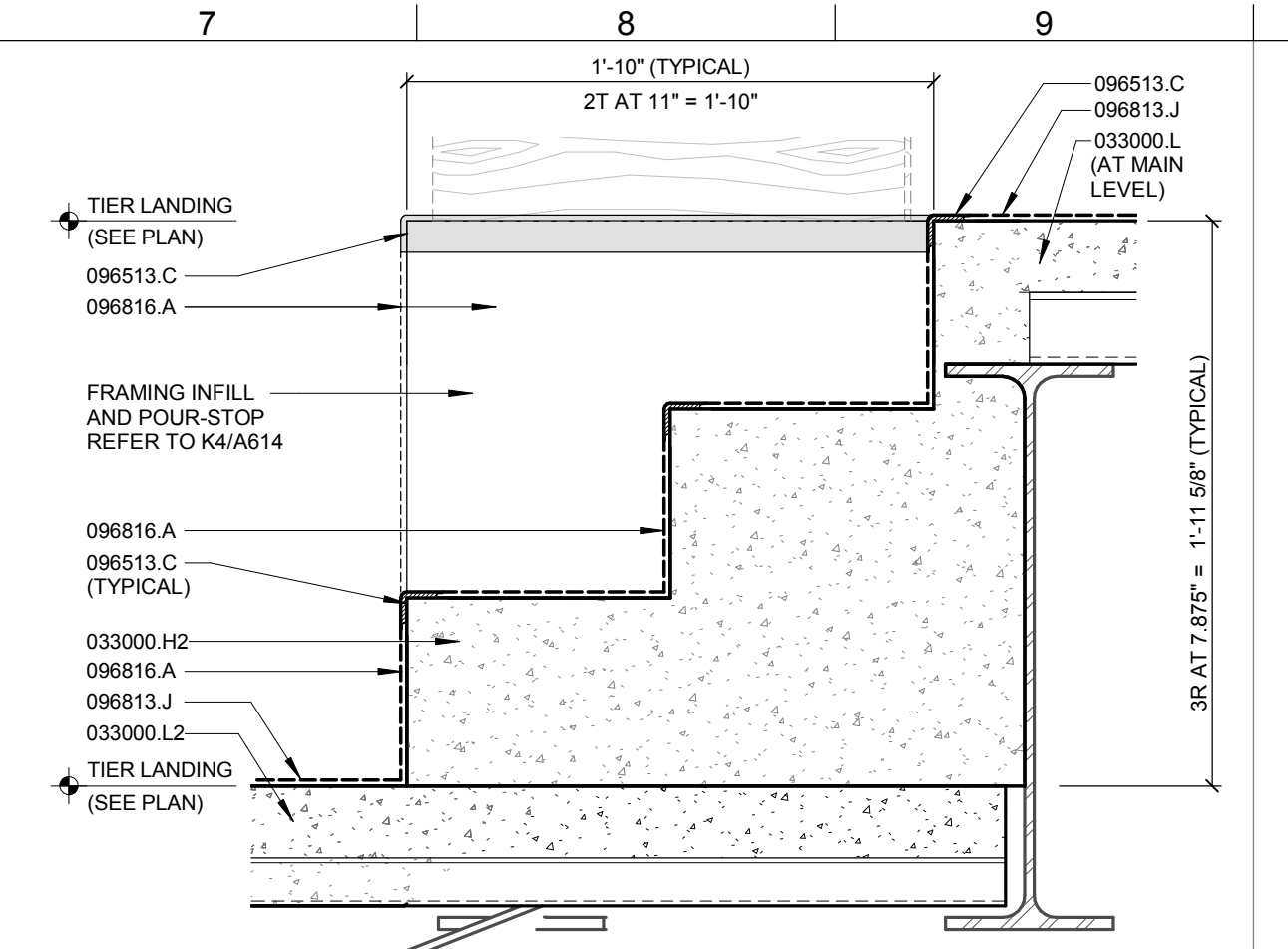
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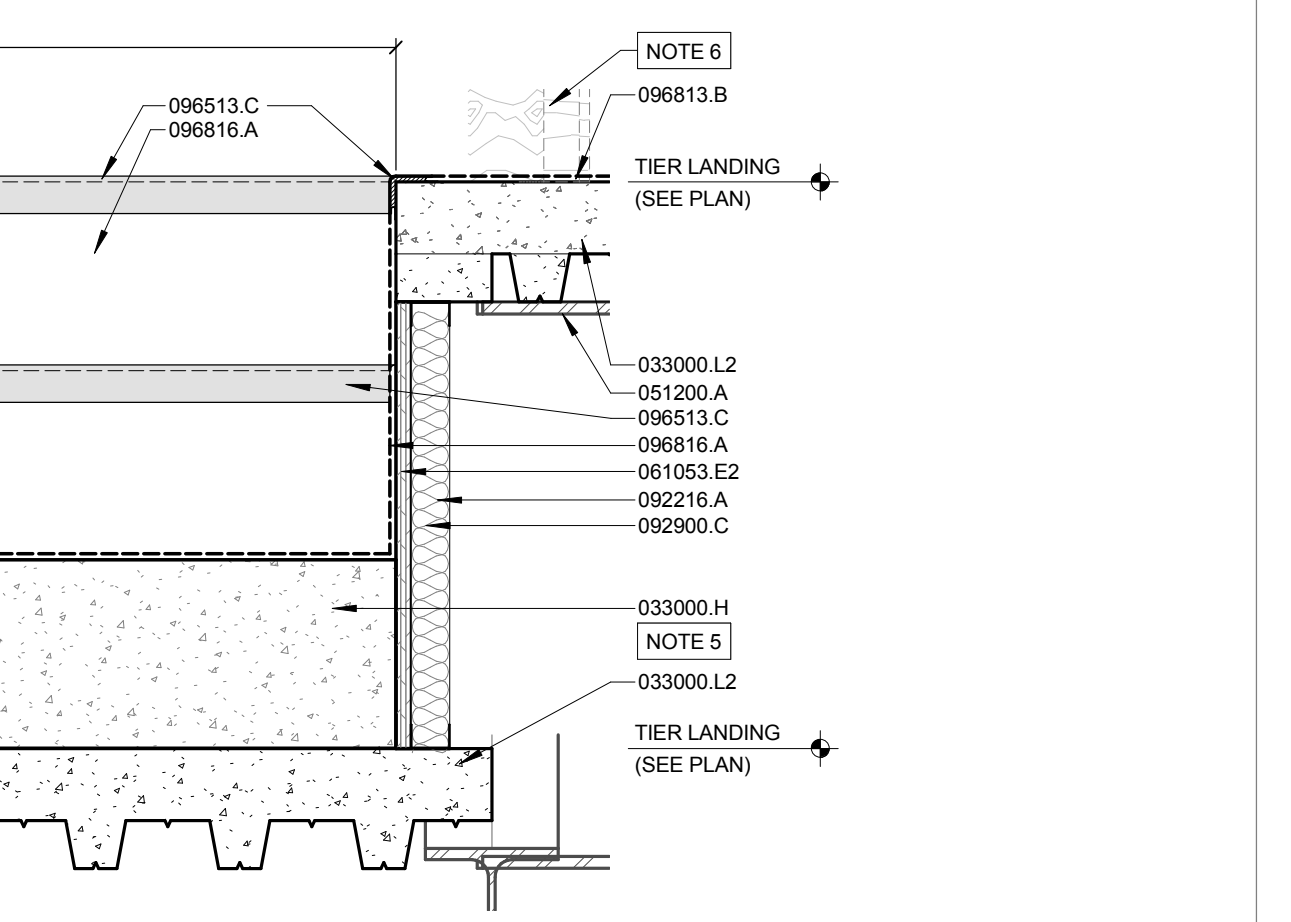
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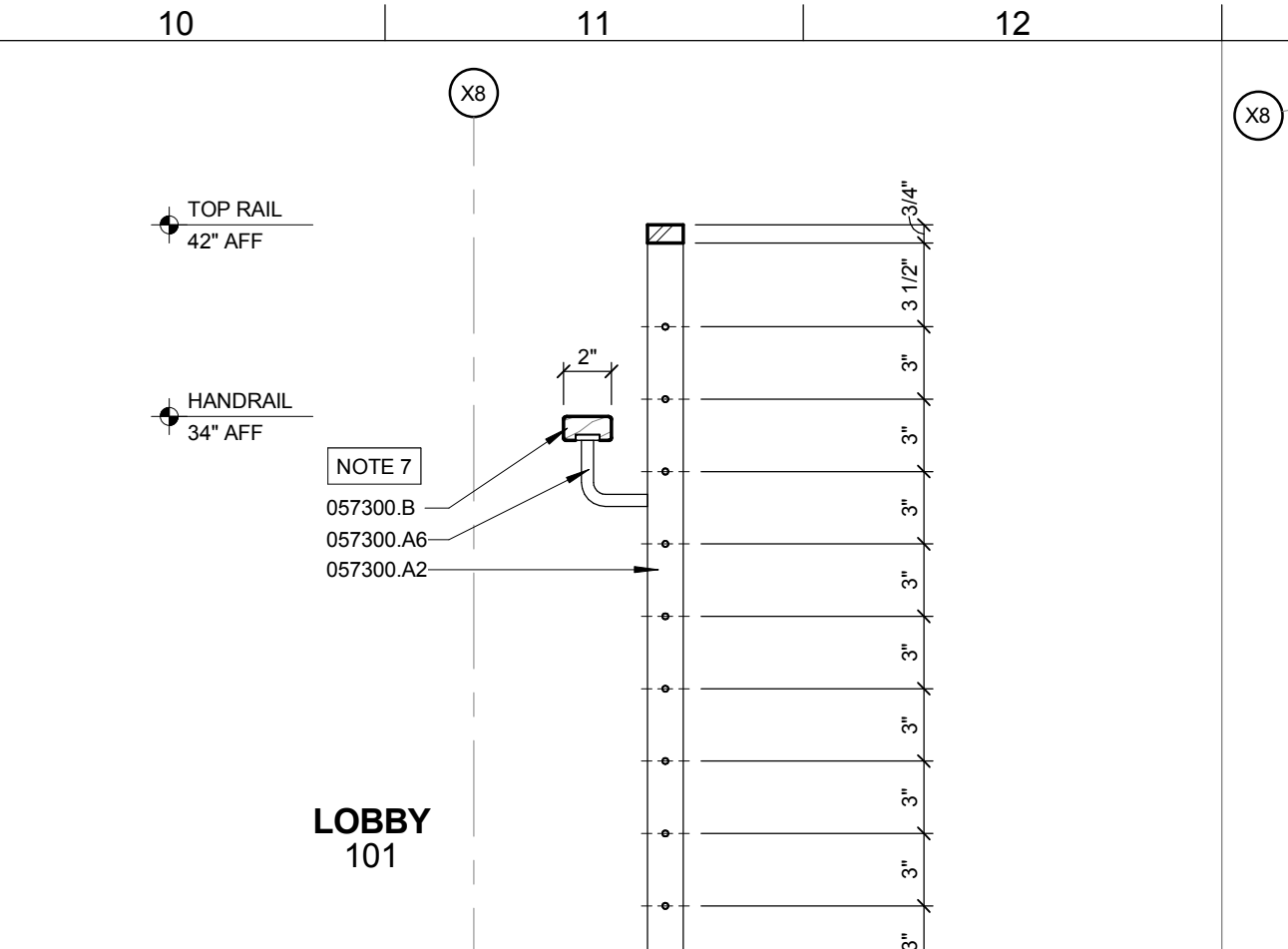
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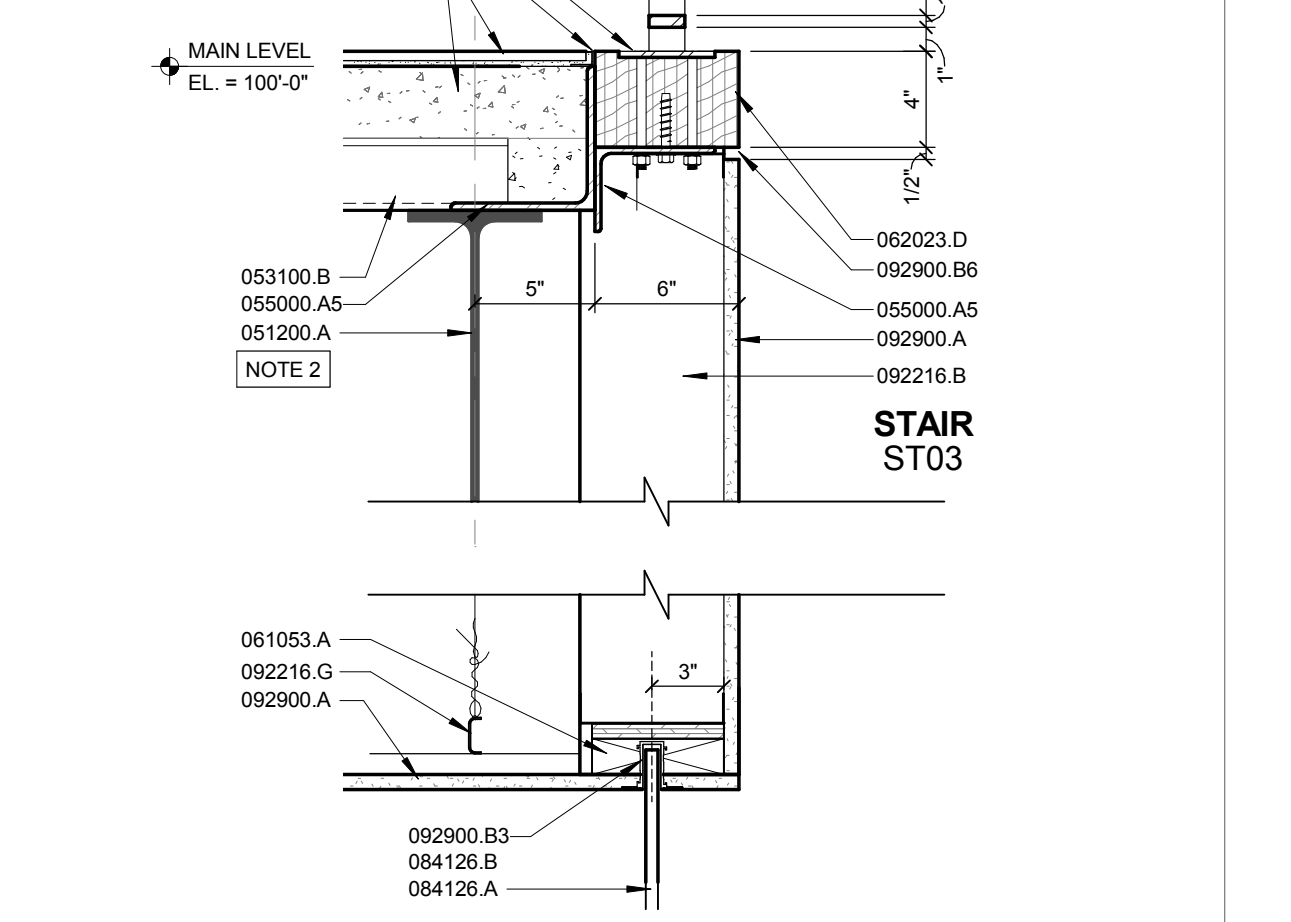
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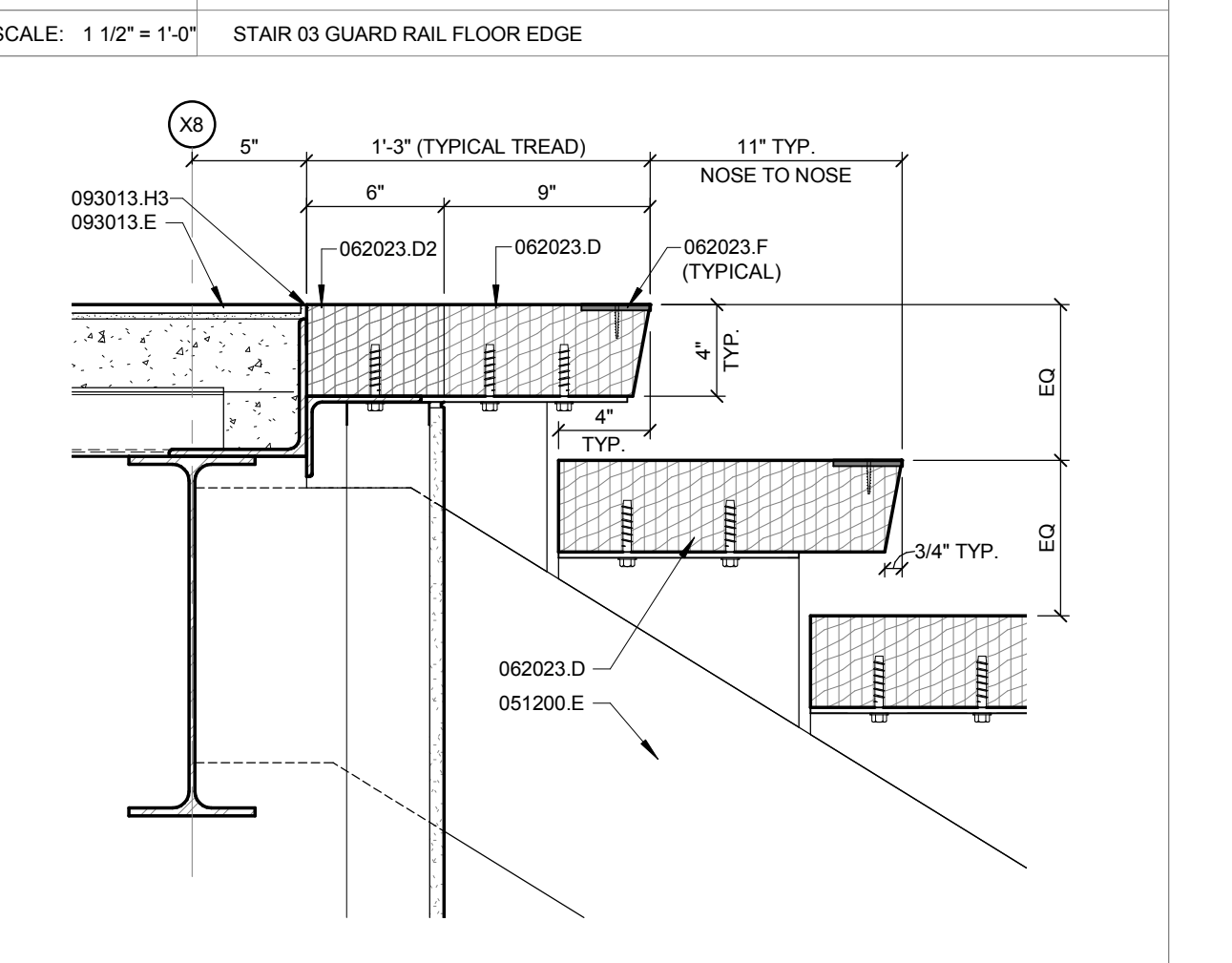
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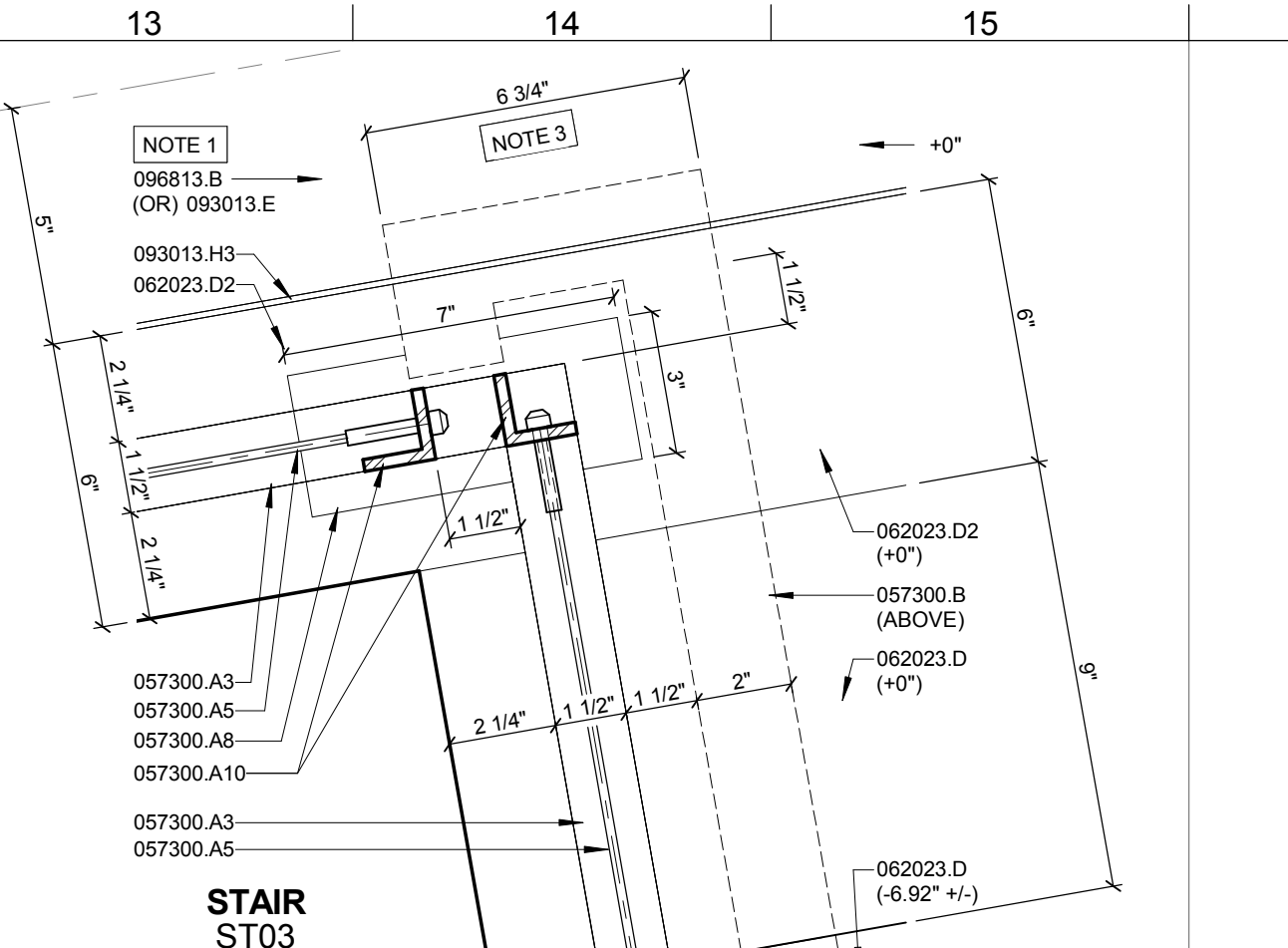
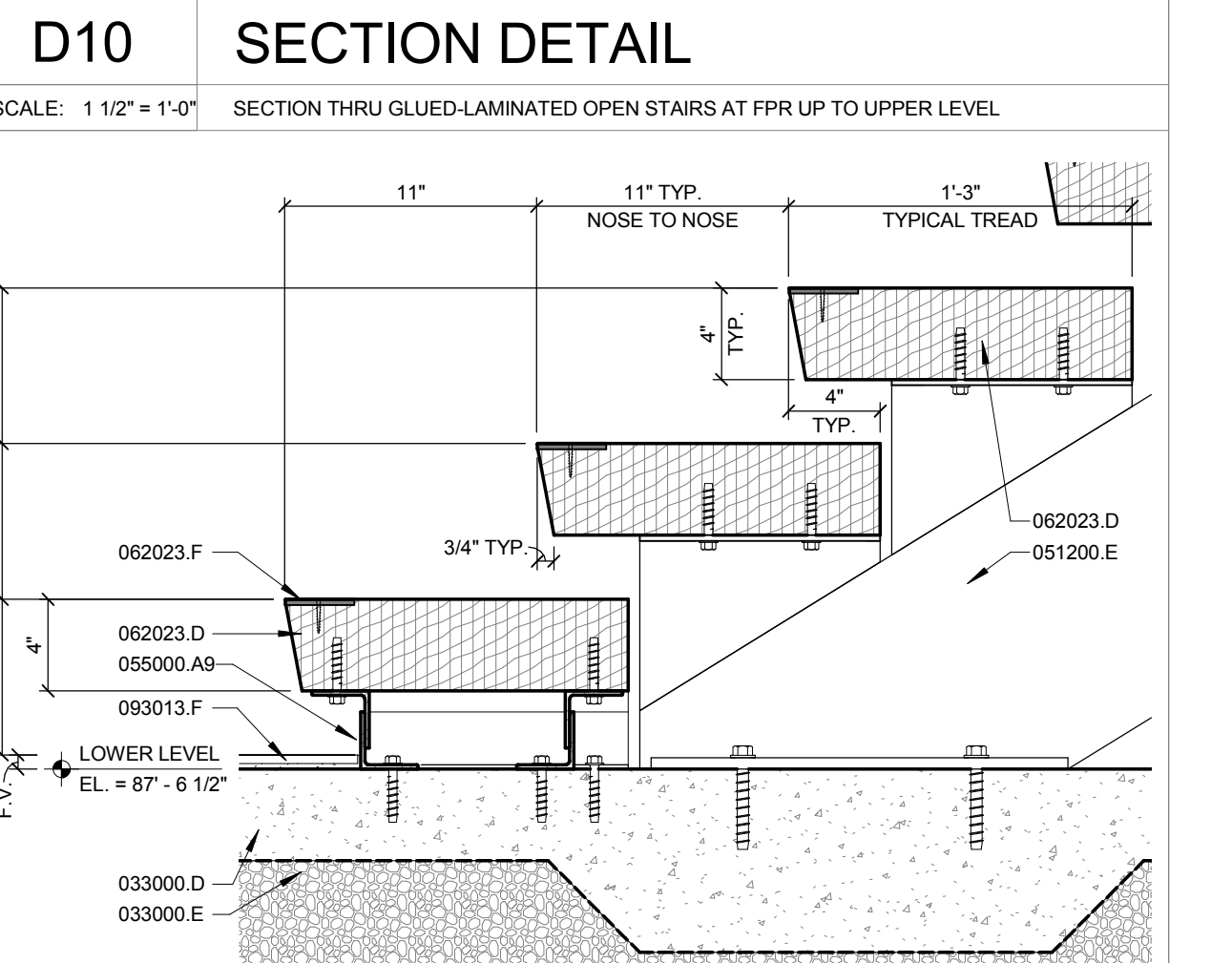
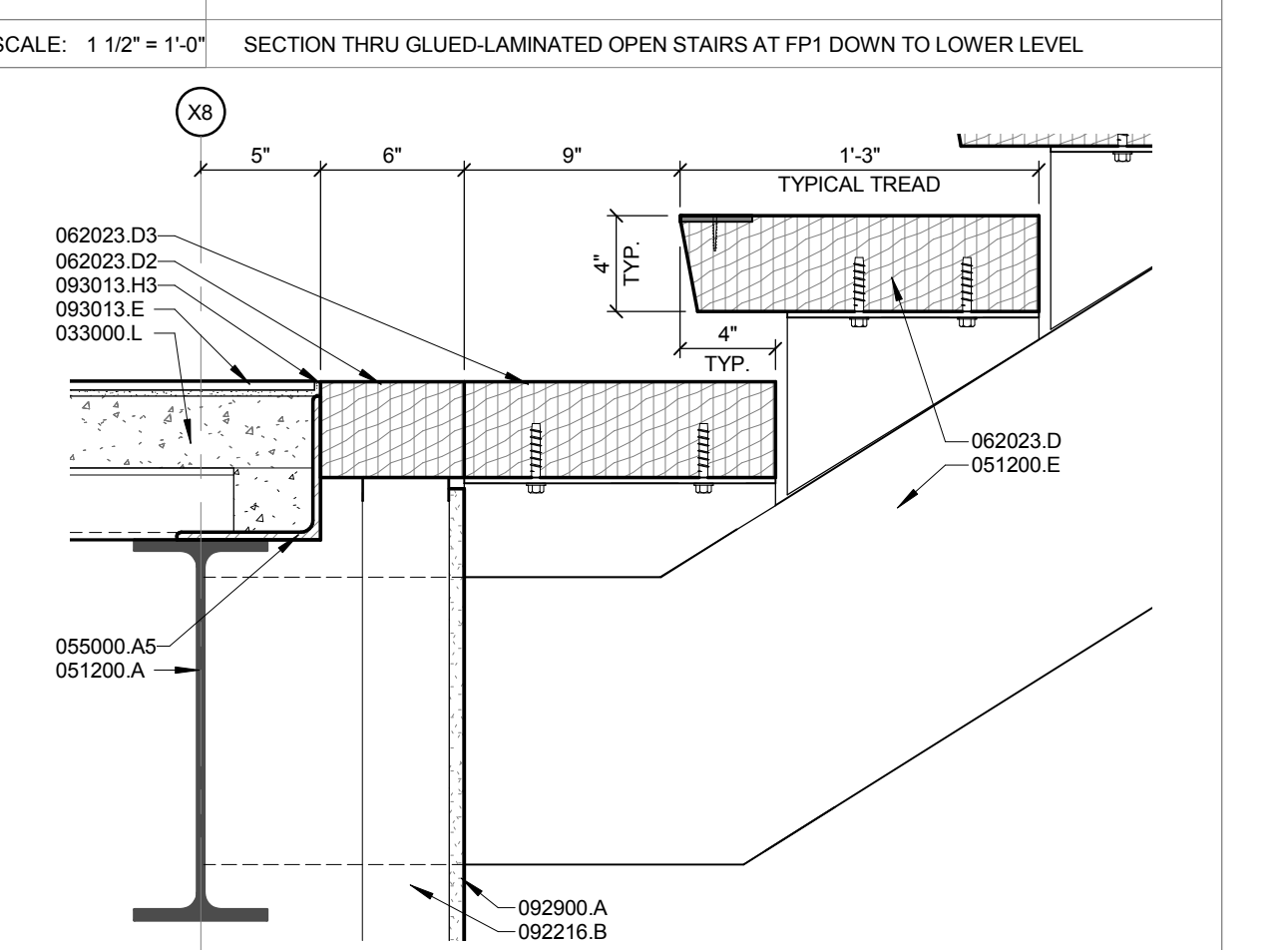
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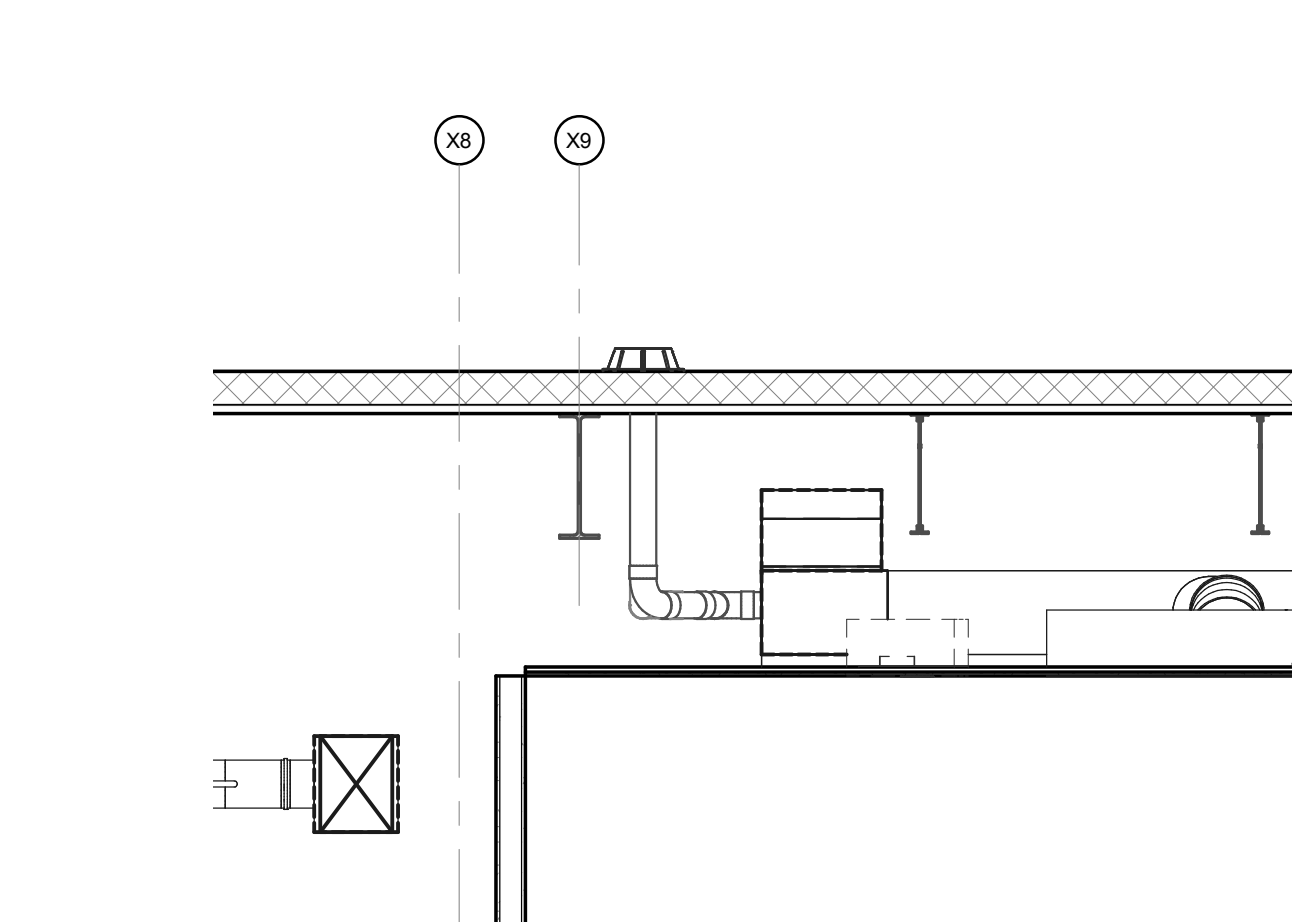
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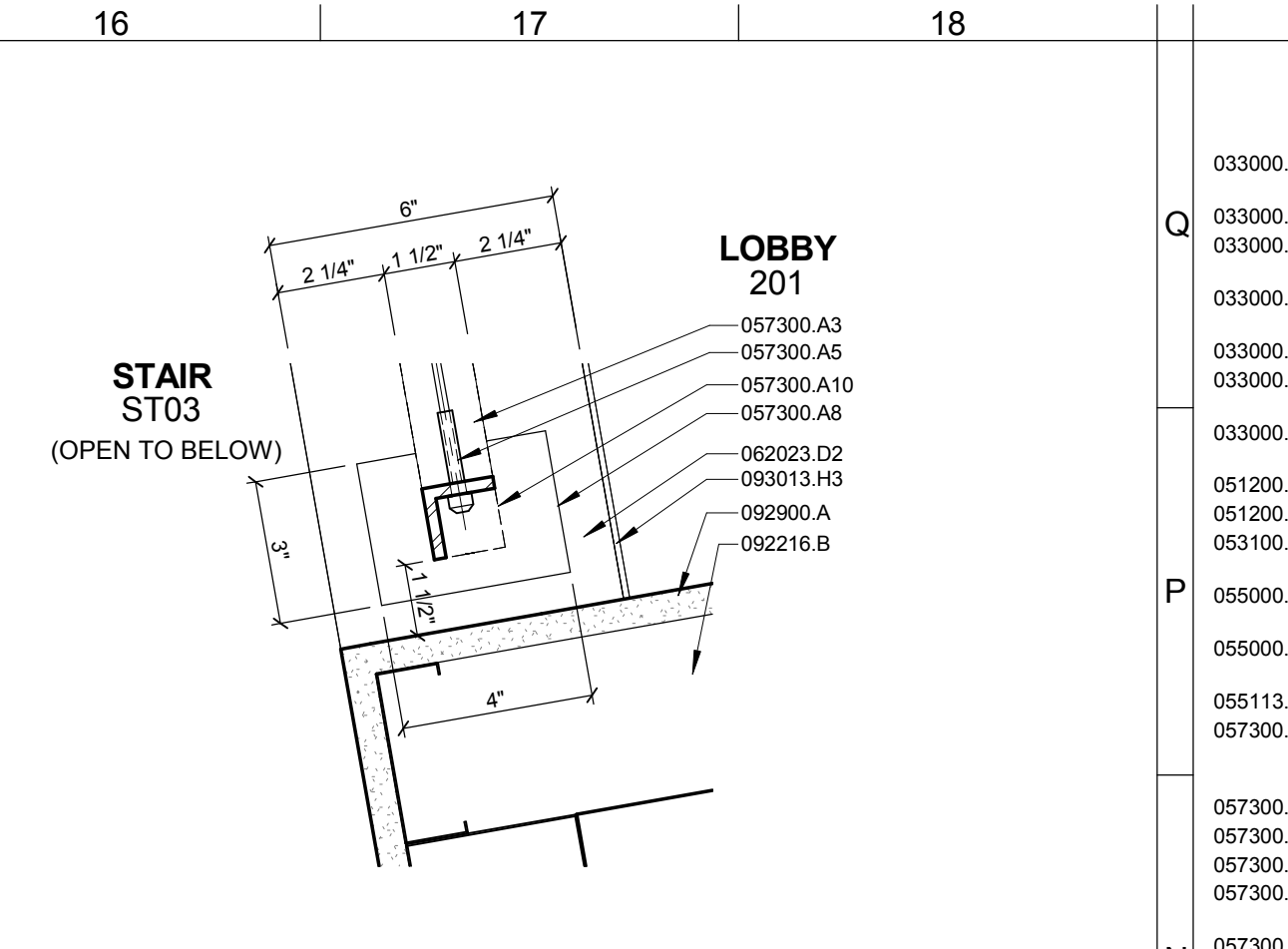
G10	SECTION DETAIL
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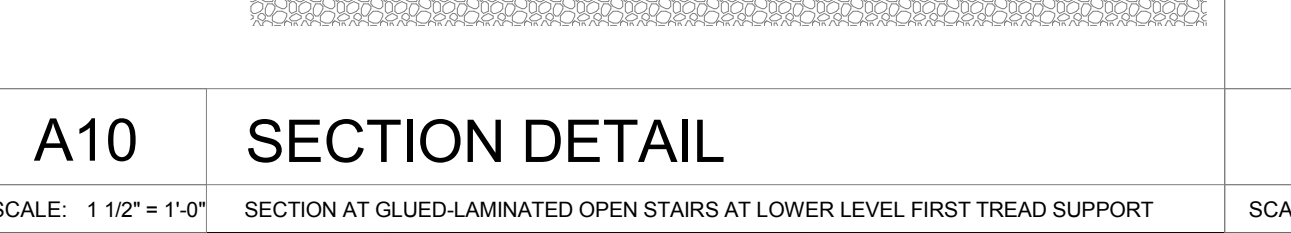
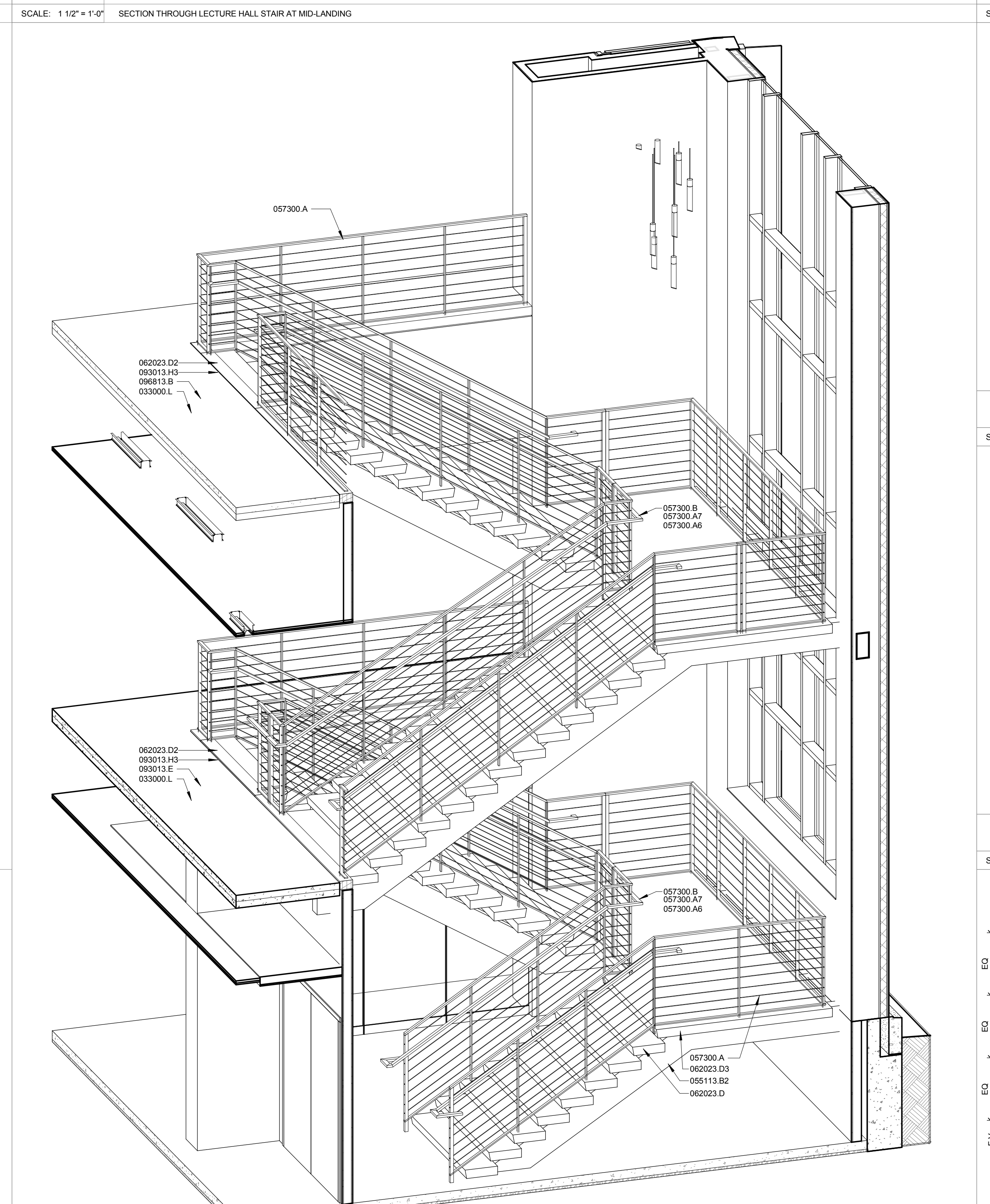
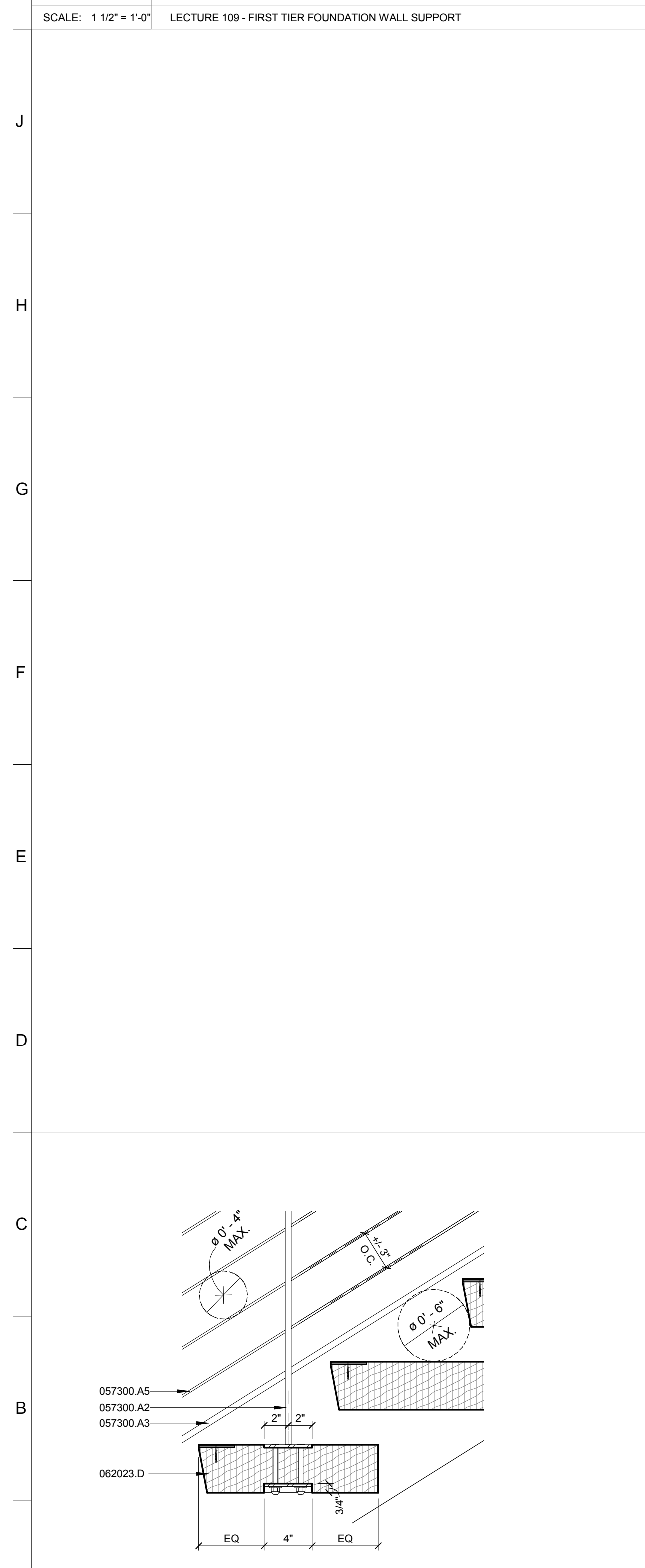
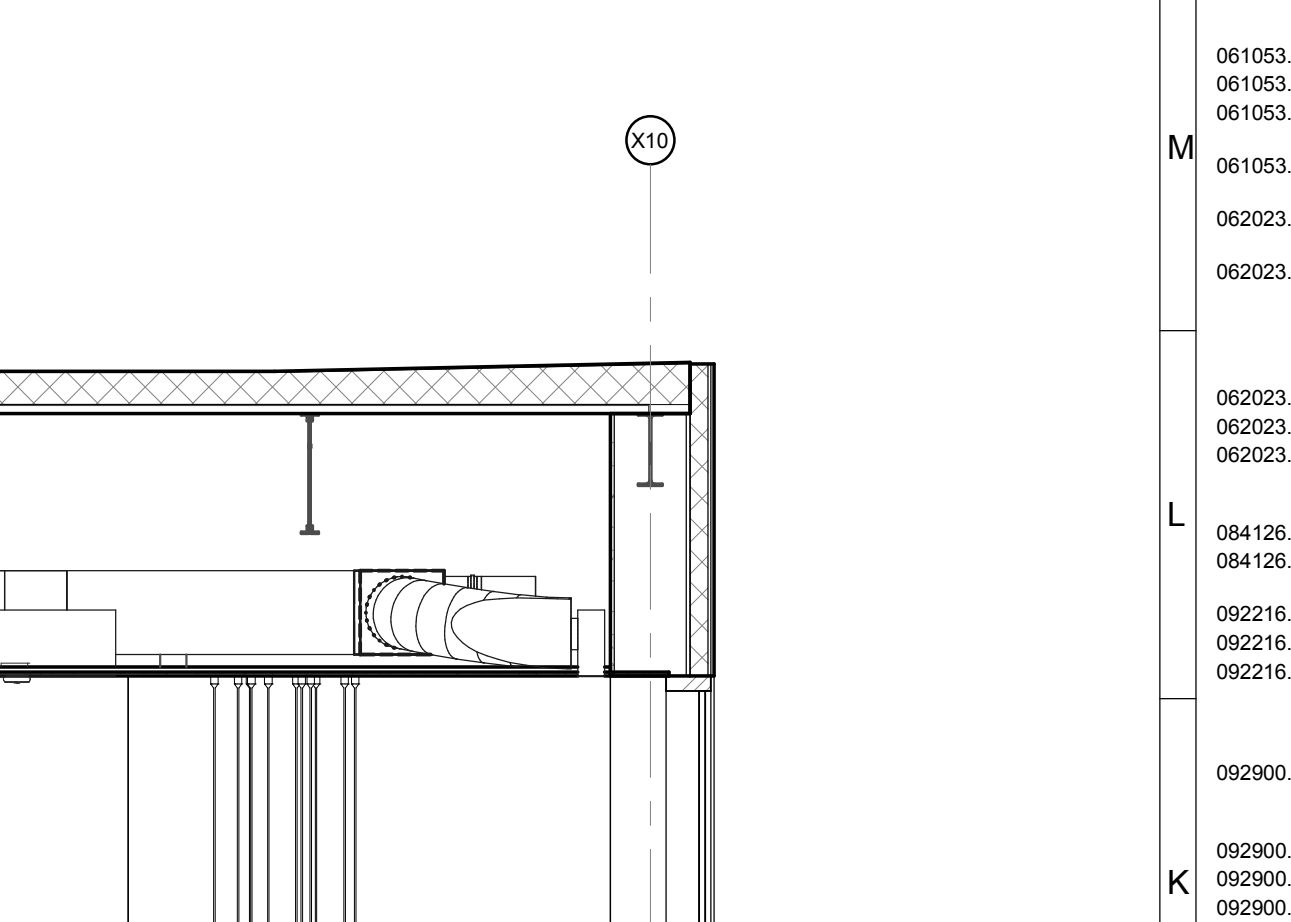
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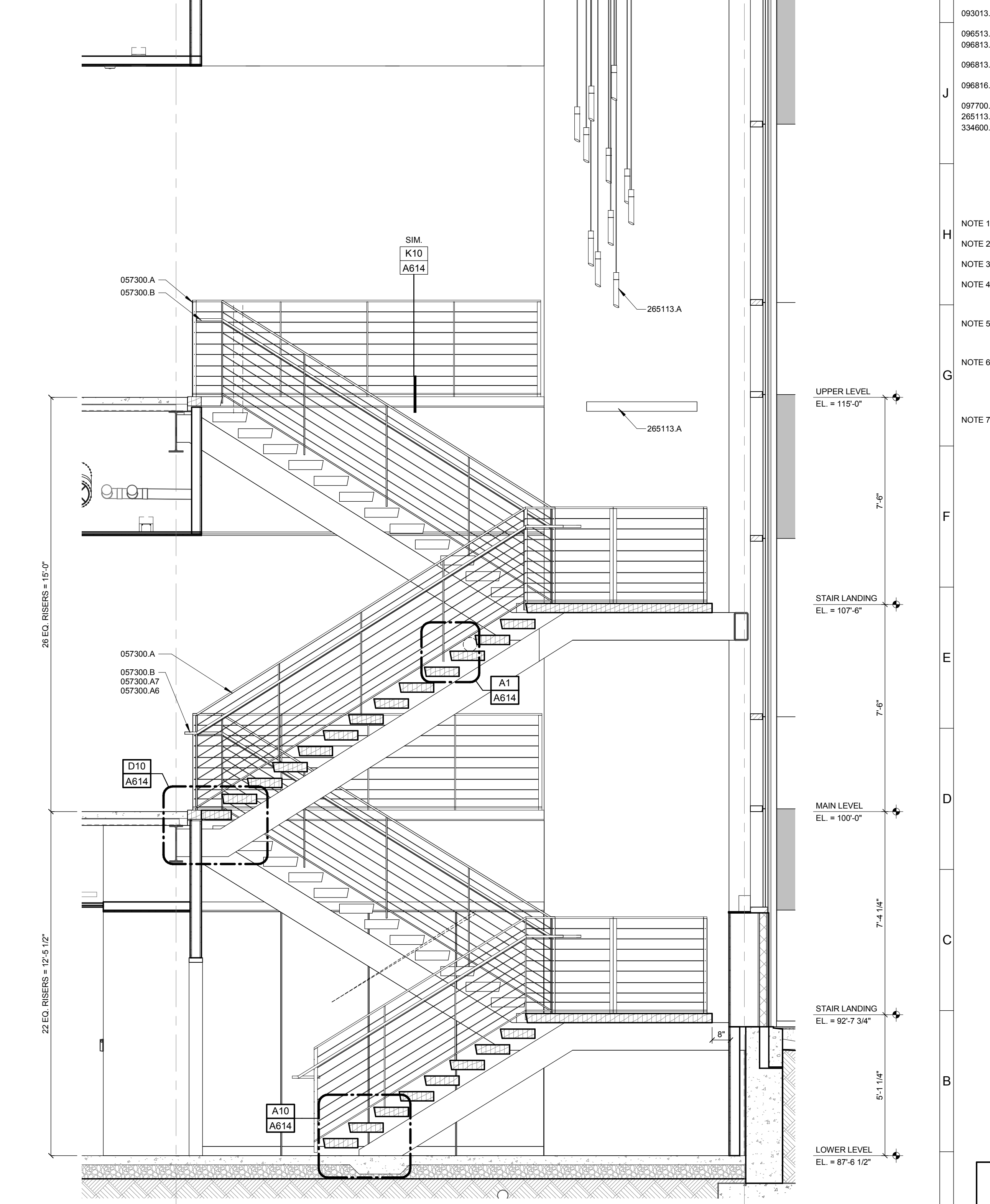
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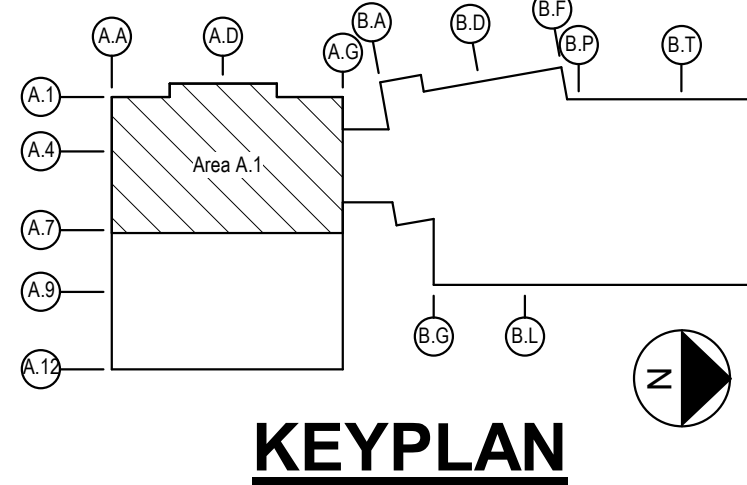
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10	11	12
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1 Lower Level Mechanical Ductwork Plan – Area A.1
1/4" = 1'-0"



GENERAL NOTES

- WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL."
- ELEVATIONS NOTED ARE FROM 0'-0" ABOVE FINISHED FLOOR.
- DO NOT SCALE DRAWINGS.
- COORDINATE DUCT INSTALLATION WITH ALL OTHER TRADES PRIOR TO INSTALLATION. COORDINATE ALL SERVICES WITHIN WALLS WITH ELECTRICAL PANELS, UTILITY STATIONS, PIPING, PLUMBING WASTE & VENTS, ETC.
- PROVIDE MANUAL BALANCE DAMPER IN BRANCH DUCT TO EACH DIFFUSER / GRILLE LOCATION. DAMPER HANDLES SHALL HAVE EXTENSIONS TO SLEEVE THROUGH INSULATION (WHERE APPLICABLE). MAINTAIN A MINIMUM DISTANCE OF 3'-0" BETWEEN DIFFUSER / GRILLE AND DAMPER (INCLUDING FLEXIBLE DUCT).
- FIELD VERIFY CONDITIONS PRIOR TO STARTING WORK. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES WITH PLANS.
- HANDLE MATERIAL DEBRIS IN AN EFFORT TO AVOID ANY DISRUPTIONS OF ONGOING BUILDING OPERATIONS. CLEAN PROJECT SITE DEBRIS AT THE END OF EACH WORK DAY.
- VERIFY CONNECTIONS, SIZES, LOCATION, AND PHYSICAL SIZE OF EQUIPMENT WITH APPROVED CERTIFIED SHOP DRAWINGS.
- FLEX DUCT SHALL NOT EXCEED LENGTH LISTED IN SPECIFICATIONS.
- PROVIDE TURNING VANES IN ALL RECTANGULAR ELBOWS. REFER TO SPECIFICATIONS FOR TYPE.
- REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL LOCATIONS. PENETRATIONS THROUGH FIRE-RESISTIVE WALLS, FLOORS, AND ROOF CEILINGS SHALL BE PROTECTED AS REQUIRED BY THE APPLICABLE CODE.
- DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
- FIELD VERIFY TIE-IN LOCATIONS PRIOR TO FABRICATION OR INSTALLATION.

SHEET NOTES

- PROVIDE 2" LONG RETURN DUCT COLLAR OFF RETURN CONNECTION TO FAN COIL UNIT.

PROJECT CONSULTANTS

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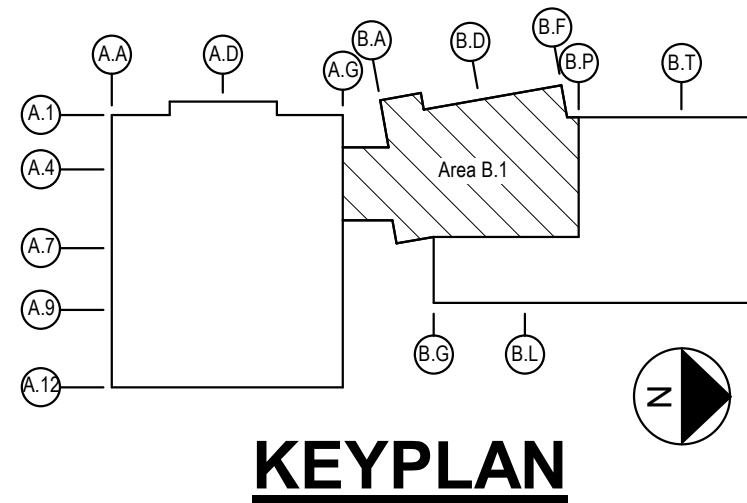
Lower Level Mechanical Ductwork
Plan – Area A.1

SHA PROJECT NO.

16022

M100A.1

1 Main Level Mechanical Ductwork Plan – Area B.1
1/4" = 1'-0"



GENERAL NOTES

- WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL."
- ELEVATIONS NOTED ARE FROM 0'-0" ABOVE FINISHED FLOOR.
- DO NOT SCALE DRAWINGS.
- COORDINATE DUCT INSTALLATION WITH ALL OTHER TRADES PRIOR TO INSTALLATION. COORDINATE ALL SERVICES WITHIN WALLS WITH ELECTRICAL PANELS, UTILITY STATIONS, PIPING, PLUMBING WASTE & VENTS, ETC.
- PROVIDE MANUAL BALANCE DAMPER IN BRANCH DUCT TO EACH DIFFUSER / GRILLE LOCATION. DAMPER HANDLES SHALL HAVE EXTENSIONS TO SLEEVE THROUGH INSULATION (WHERE APPLICABLE). MAINTAIN A MINIMUM DISTANCE OF 3'-0" BETWEEN DIFFUSER / GRILLE AND DAMPER (INCLUDING FLEXIBLE DUCT).
- FIELD VERIFY CONDITIONS PRIOR TO STARTING WORK. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES WITH PLANS.
- HANDLE MATERIAL DEBRIS IN AN EFFORT TO AVOID ANY DISRUPTIONS OF ONGOING BUILDING OPERATIONS. CLEAN PROJECT SITE DEBRIS AT THE END OF EACH WORK DAY.
- VERIFY CONNECTIONS, SIZES, LOCATION, AND PHYSICAL SIZE OF EQUIPMENT WITH APPROVED CERTIFIED SHOP DRAWINGS.
- FLEX DUCT SHALL NOT EXCEED LENGTH LISTED IN SPECIFICATIONS.
- PROVIDE TURNING VANES IN ALL RECTANGULAR ELBOWS. REFER TO SPECIFICATIONS FOR TYPE.
- REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL LOCATIONS. PENETRATIONS THROUGH FIRE-RESISTIVE WALLS, FLOORS, AND ROOF CEILINGS SHALL BE PROTECTED AS REQUIRED BY THE APPLICABLE CODE.
- DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
- FIELD VERIFY TIE-IN LOCATIONS PRIOR TO FABRICATION OR INSTALLATION.

SHEET NOTES

- VOLUME DAMPER IN VERTICAL DUCT.

PROJECT CONSULTANTS

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700 O St.
Main Level Mechanical Ductwork Plan
– Area B.1

SHA PROJECT NO. 16022

M101B.1

AIR HANDLING UNIT SCHEDULE

	TAG NUMBER	MANUFACTURER OR APPROVED EQUAL	RTU-001A	RTU-001B	RTU-002	RTU-003
			DAIKIN	DAIKIN	DAIKIN	DAIKIN
GENERAL	MODEL NO.		RPS12SD	RPS130D	RPS120D	DPS028A
	TYPE		SEMI-CUSTOM	SEMI-CUSTOM	SEMI-CUSTOM	SEMI-CUSTOM
	MOUNTING		ROOF	ROOF	ROOF	ROOF
	LOCATION		ROOF (NEW BUILDING)	ROOF (NEW BUILDING)	ROOF (NEW BUILDING)	ROOF (EXISTING BUILDING)
	AREAS SERVED		LABS, LAB STORAGE	LABS, LAB STORAGE	CLASSROOMS, OFFICES, CORR.	CLASSROOMS, OFFICES, CORR.
	DESIGN TOTAL AIRFLOW (ACFM)		16,500	18,000	34,000	7,100
	DESIGN OUTSIDE AIRFLOW (ACFM)		16,500	18,000	7,100	7,100
	EXTERNAL STATIC PRESSURE (IN. WG.)		3.00	3.00	4.00	2.50
	TOTAL STATIC PRESSURE (IN. WG.)		4.93	5.13	6.00	6.51
	MAXIMUM UNIT DIMENSIONS (INCHES), L x W x H		475" x 99" x 97"	475" x 99" x 97"	571" x 99" x 97"	183" x 77" x 71"
SUPPLY FAN	UNIT WEIGHT (LBS)		VS *	VS *	VS *	VS *
	FAN TYPE		AF DWDI	AF DWDI	AF DWDI	AF SWSI
	TOTAL AIRFLOW (ACFM) (DESIGN)		16,500	18,000	34,000	7,100
	STATIC PRESSURE (IN. WG.)		4.93	5.13	6.00	6.51
	DRIVE TYPE		STD. SERVICE FACTOR, FIXED	STD. SERVICE FACTOR, FIXED	STD. SERVICE FACTOR, FIXED	DIRECT
	MOTOR TYPE		ODP, PREMIUM EFF.	ODP, PREMIUM EFF.	ODP, PREMIUM EFF.	PREMIUM EFF., INDUCTION
	MOTOR SIZE (HP)		1 @ 25	1 @ 25	1 @ 25	1 @ 15
	MAXIMUM TOTAL MOTOR HORSEPOWER		25	25	15	15
	ELECTRICAL (VOLTS/PHASE/HZ)		460/3/60	460/3/60	460/3/60	460/3/60
	DESIGN OA VOLUME (ACFM)					
ECONOMIZER & POWER EXHAUST	DESIGN EXHAUST VOLUME (ACFM)					
	EXTERNAL STATIC PRESSURE (IN. WG.)					
	EXHAUST FAN TYPE					
	DRIVE TYPE					
	MOTOR TYPE					
	MOTOR SIZE (HP)					
	MAXIMUM TOTAL MOTOR HORSEPOWER					
	ELECTRICAL (VOLTS/PHASE/HZ)					
	DESIGN OA VOLUME (ACFM)					
	DESIGN EXHAUST VOLUME (ACFM)					
ECONOMIZER & RETURN FAN	EXTERNAL STATIC PRESSURE (IN. WG.)					
	EXHAUST FAN TYPE					
	DRIVE TYPE					
	MOTOR TYPE					
	MOTOR SIZE (HP)					
	MAXIMUM TOTAL MOTOR HORSEPOWER					
	ELECTRICAL (VOLTS/PHASE/HZ)					
	REFRIGERATION					
	FACE AREA (SQ. FT.)					
	ROWS					
EVAPORATOR (COOLING) COIL	STATIC PRESSURE (IN. WG.)					
	TOTAL CAPACITY (MBH)					
	ENTERING AIR TEMP (°F)					
	LEAVING AIR TEMP (°F)					
	COMPRESSOR TYPE					
	NO. OF COMPRESSORS					
	TOTAL COMPRESSOR POWER (kW)					
	TYPE					
	STATIC PRESSURE (IN. WG.)					
	INPUT CAPACITY (MBH)					
HEATING SECTION	OUTPUT CAPACITY (MBH)					
	ENTERING AIR TEMP (°F)					
	LEAVING AIR TEMP (°F)					
	TURNDOWN RATIO					
	TYPE					
	STATIC PRESSURE (IN. WG.)					
	CAPACITY (MBH)					
	ENTERING AIR TEMP (°F)					
	LEAVING AIR TEMP (°F)					
	TURNDOWN RATIO					
RE-HEAT COIL	TYPE					
	STATIC PRESSURE (IN. WG.)					
	CAPACITY (MBH)					
	ENTERING AIR TEMP (°F)					
	LEAVING AIR TEMP (°F)					
	TURNDOWN RATIO					
	TYPE					
	MODEL					
	SUMMER: OA TEMP (°F)					
	RA TEMP (°F)					
ENERGY RECOVERY (WHEEL)	WHEEL LEAVE TEMP (°F)					
	RECOVERED CAPACITY (MBH)					
	WINTER: OA TEMP (°F)					
	RA TEMP (°F)					
	WHEEL LEAVE TEMP (°F)					
	RECOVERED CAPACITY (MBH)					
	TYPE					
	MODEL					
	WINTER: FACE VELOCITY (FPM)					
	WATER PRESSURE DROP (FT)					
ENERGY RECOVERY (COIL)	AIR PRESSURE DROP (IN. W.C.)					
	FLOW RATE (GPM)					
	ENTERING AIR TEMP (°F)					
	LEAVING AIR TEMP (°F)					
	TYPE					
	MODEL					
	WINTER: FACE VELOCITY (FPM)					
	WATER PRESSURE DROP (FT)					
	AIR PRESSURE DROP (IN. W.C.)					
	FLOW RATE (GPM)					
PRE FILTERS	ENTERING AIR TEMP (°F)					
	LEAVING AIR TEMP (°F)					
	TYPE					
	MANUFACTURER					
	CAMFIL FARR					
	2" PLEATED					
	2" PLEATED					
	2" PLEATED					
	2" PLEATED					
	2" PLEATED					
FINAL FILTERS	MAX ALLOWED FACE VELOCITY (FPM)					
	MANUFACTURER					
	CAMFIL FARR					
	4" PLEATED					
	4" PLEATED					
	4" PLEATED					
	4" PLEATED					
	4" PLEATED					
	4" PLEATED					
	4" PLEATED					
OTHER	ACCESS DOOR SIDE					
	PIPING CONNECTION SIDE					
	LEFT					
	LEFT					
	LEFT					
	LEFT					
	LEFT					
	LEFT					
	LEFT					
	LEFT					
VS* (VENDOR SPECIFIED)						
NOTES:						
1. REFER TO SPECIFICATION 230782 FOR ADDITIONAL INFORMATION AND A COMPLETE LIST OF REQUIRED COMPONENTS. THE FLOWS AND CAPACITIES SHOWN ARE FOR DESIGN CONDITIONS.						
2. ENERGY RECOVERY PLENUM SHALL BE PROVIDED BY THE RTU MANUFACTURER. IT SHALL HAVE LABORATORY AND GENERAL LABORATORY EXHAUST ROUTED THRU THE PLENUM TO EXCHANGE HEAT WITH THE ENERGY RECOVERY LOOP WATER.						
3. UNIT SHALL BE PROVIDED WITH SCOR RATING OF 65 KAIC FOR ALL ELECTRICAL CIRCUITS.						

VAV TERMINAL UNIT SCHEDULE

EQUIPMENT TAG	AREA SERVED	FLOOR LEVEL	MANUFACTURER	MODEL	INLET SIZE (IN.)	CFM		MIN. OPERATING PD (IN. W.G.)	ELECTRIC RE-HEAT COIL				NOTES
						MAX.	MIN.		CFM	LAT (DEG. F)	COIL CAPACITY (KW)	VOLTS-PHASE	
VAV-001A-001	GROSS ANATOMY / GROSS ANCILLARIES	LOWER	PRICE	SDVS	14	3380	1690	0.01	3,380	90	39.6	480-3	A,B,C,F
VAV-001A-002A	FUTURE BIO.	LOWER	PRICE	SDVS	12	1500	750	0.01	1,500	90	17.6	480-3	A,B,C,F
VAV-001A-002B	FUTURE BIO.	LOWER	PRICE	SDS8	12	1650	825	0.22			N/A		D,E,F
VAV-001A-003A	BIO ENTRY	LOWER	PRICE	SDVS	6	240	120	0.01	240	90	3.0	480-3	A,B,C,F
VAV-001A-003B	BIO ENTRY	LOWER	PRICE	SDS8	6	390	195	0.40			N/A		D,E,F
VAV-001A-004A	ECOLOGY / AG.	LOWER	PRICE	SDVS	12	1900	950	0.01	1,900	90	22.2	480-3	A,B,C,F
VAV-001A-004B	ECOLOGY / AG.	LOWER	PRICE	SDS8	14	2050	1025	0.19			N/A		D,E,F
VAV-001A-005A	HERB / ANIMAL	LOWER	PRICE	SDVS	8	530	265	0.01	530	90	6.2	480-3	A,B,C,F
VAV-001A-005B	HERB / ANIMAL	LOWER	PRICE	SDS8	8	680	340	0.25			N/A		D,E,F
VAV-001A-006A	BIO STORAGE	LOWER	PRICE	SDVS	10	820	410	0.01	820	90	9.6	480-3	A,B,C,F
VAV-001A-006B	BIO STORAGE	LOWER	PRICE	SDS8	10	970	485	0.18			N/A		D,E,F
VAV-001A-007A	FUTURE LAB	MAIN	PRICE	SDVS	12	1590	795	0.01	1,590	90	13.6	480-3	A,B,C,F
VAV-001A-007B	FUTURE LAB	MAIN	PRICE	SDS8	14	1890	945	0.16			N/A		D,E,F
VAV-001A-008A	FUTURE STORAGE	MAIN	PRICE	SDVS	6	290	145	0.08	290	90	3.4	480-3	A,B,C,F
VAV-001A-008B	FUTURE STORAGE	MAIN	PRICE	SDS8	8	440	220	0.11			N/A		D,E,F
VAV-001A-009A	UPPER PHYSICS	MAIN	PRICE	SDVS	12	1630	815	0.01	1,630	90	16.5	480-3	A,B,C,F
VAV-001A-009B	UPPER PHYSICS	MAIN	PRICE	SDS8	14	1780	890	0.14			N/A		D,E,F
VAV-001A-010A	PHYSICS STORAGE	MAIN	PRICE	SDVS	6	290	145	0.08	290	90	3.4	480-3	A,B,C,F
VAV-001A-010B	PHYSICS STORAGE	MAIN	PRICE	SDS8	8	440	220	0.11			N/A		D,E,F
VAV-001A-011A	ENTRY PHYSICS	MAIN	PRICE	SDVS	12	1760	880	0.01	1,760	90	15.1	480-3	A,B,C,F
VAV-001A-011B	ENTRY PHYSICS	MAIN	PRICE	SDS8	14	1910	955	0.17			N/A		D,E,F
VAV-001A-012A	FUTURE RES.	MAIN	PRICE	SDVS	6	210	105	0.07	210	90	3.3	480-3	A,B,C,F
VAV-001A-012B	FUTURE RES.	MAIN	PRICE	SDS8	6	360	180	0.35			N/A		D,E,F
VAV-001A-013A	ADVANCED PHYSICS RES.	MAIN	PRICE	SDVS	6	220	110	0.01	220	90	2.6	480-3	A,B,C,F
VAV-001A-013B	ADVANCED PHYSICS RES.	MAIN	PRICE	SDS8	6	370	185	0.36			N/A		D,E,F
VAV-001B-014A	BIOLOGY RES.	UPPER	PRICE	SDVS	8	540	270	0.01	540	90	6.3	480-3	A,B,C,F
VAV-001B-014B	BIOLOGY RES.	UPPER	PRICE	SDS8	8	690	345	0.25			N/A		D,E,F
VAV-001B-015A	BIOLOGY RES. / STORAGE	UPPER	PRICE	SDVS	10	1100	550	0.01	1,100	90	12.9	480-3	A,B,C,F
VAV-001B-015B	BIOLOGY RES. / STORAGE	UPPER	PRICE	SDS8	12	1250	625	0.13			N/A		D,E,F
VAV-001B-016A	GLASS	UPPER	PRICE	SDVS	6	220	110	0.01	220	90	2.6	480-3	A,B,C,F
VAV-001B-016B	GLASS	UPPER	PRICE	SDS8	6	370	185	0.36			N/A		D,E,F
VAV-001B-017A	LAB PREP.	UPPER	PRICE	SDVS	8	510	255	0.01	510	90	6.0	480-3	A,B,C,F
VAV-001B-017B	LAB PREP.	UPPER	PRICE	SDS8	8	510	255	0.15			N/A		D,E,F
VAV-002-001	DELIVERY / DELIVERY CORR. / H.W.	LOWER	PRICE	SDVS	10	940	470	0.01	470	90	5.6	480-3	A,B,C,F
VAV-002-002A	CORRIDOR / VESTIBULE	LOWER	PRICE	SDVS	8	510	255	0.01	255	90	3.0	480-3	A,B,C,F
VAV-002-002B	CORRIDOR	LOWER	PRICE	SDVS	8	800	400	0.01	400	90	4.7	480-3	A,B,C,F
VAV-002-003	RESTROOMS	LOWER	PRICE	SDVS	8	600	600	0.01	600	90	7.0	480-3	A,B,C,F
VAV-002-004	LECTURE HALL ENTRY / PREP. STORAGE	LOWER	PRICE	SDVS	6	190	95	0.01	95	90	1.1	480-3	A,B,C,F
VAV-002-005	C.S. ROOMS	LOWER	PRICE	SDVS	8	770	385	0.01	385	90	4.5	480-3	A,B,C,F
VAV-002-006	FUTURE OFFICES	LOWER	PRICE	SDVS	6	180	90	0.01	90	90	1.1	480-3	A,B,C,F
VAV-002-007	BREAK	MAIN	PRICE	SDVS	8	850	425	0.01	425	90	5.0	480-3	A,B,C,F
VAV-002-008	COPY / CONF.	MAIN	PRICE	SDVS	10	1140	570	0.01	570	90	6.7	480-3	A,B,C,F
VAV-002-009	RECEPTION / OFFICE	MAIN	PRICE	SDVS	10	950	475	0.01	475	90	5.6	480-3	A,B,C,F
VAV-002-010	LECTURE HALL	MAIN	PRICE	SDVS	14	3090	1545	0.01	1,545	90	18.1	480-3	A,B,C,F
VAV-002-011	M. CLASSROOM	MAIN	PRICE	SDVS	10	950	475	0.01	475	90	5.6	480-3	A,B,C,F
VAV-002-012	OFFICES (3)	MAIN	PRICE	SDVS	8	660	330	0.01	330	90	3.9	480-3	A,B,C,F
VAV-002-013	OFFICES (3)	MAIN	PRICE	SDVS	8	660	330	0.01	330	90	3.9	480-3	A,B,C,F
VAV-002-014	COLLABORATION	MAIN	PRICE	SDVS	4	120	60	0.01	90	90	1.1	480-3	A,B,C,F
VAV-002-015	CORRIDOR (WEST)	MAIN	PRICE	SDVS	8	960	480	0.01	480	90	5.7	480-3	A,B,C,F
VAV-002-016	COLLABORATION (NORTH CORRIDOR)	MAIN	PRICE	SDVS	8	1370	685	0.01	685	90	7.2	480-3	A,B,C,F
VAV-002-017	CORRIDOR (EAST)	MAIN	PRICE	SDVS	8	900	450	0.01	450	90	5.3	480-3	A,B,C,F
VAV-002-018	RESTROOMS	MAIN	PRICE	SDVS	8	600	600	0.01	600	90	7.0	480-3	A,B,C,F
VAV-002-019	LOBBY (SOUTH CORRIDOR)	MAIN	PRICE	SDVS	14	3030	1515	0.01	1,515	90	17.7	480-3	A,B,C,F
VAV-002-020	OFFICES (3)	UPPER	PRICE	SDVS	8	690	345	0.01	345	90	4.0	480-3	A,B,C,F
VAV-002-021	OFFICES (3)	UPPER	PRICE	SDVS	8	690	345	0.01	345	90	4.0	480-3	A,B,C,F
VAV-002-022	COLLABORATION	UPPER	PRICE	SDVS	6	300	150	0.01	150	90	1.8	480-3	A,B,C,F
VAV-002-023	CORRIDOR (WEST)	UPPER	PRICE	SDVS	8	1240	620	0.01	620	90	7.2	480-3	A,B,C,F
VAV-002-024	COLLABORATION (NORTH CORRIDOR)	UPPER	PRICE	SDVS	10	1530	765	0.01	765	90	9.0	480-3	A,B,C,F
VAV-002-025	CORRIDOR (EAST)	UPPER	PRICE	SDVS	10	1160	580	0.01	580	90	6.8	480-3	A,B,C,F
VAV-002-026	RESTROOMS	UPPER	PRICE	SDVS	6	220	220	0.01	220	90	2.6	480-3	A,B,C,F
VAV-002-027	MAIN STAIRS	UPPER	PRICE	SDVS	18	1900	950	0.01	950	90	12.6	480-3	A,B,C,F
VAV-002-028	COLLABORATION (SOUTH CORRIDOR) / KITCHEN	UPPER	PRICE	SDVS	16	4130	2065	0.01	2,065	90	24.2	480-3	A,B,C,F
NOTES													
A. SCR ELECTRIC RE-HEAT TERMINAL BOX.													
B. 54 DEG. ENTERING AIRSTREAM TEMPERATURE.													
C. SCR CONTROL (0-10 VDC SIGNAL) TO BE PROVIDED BY MANUFACTURER.													
D. EXHAUST TERMINAL BOX.													
E. MANUFACTURER SHALL PROVIDE A FACTORY MOUNTED DISCONNECT SWITCH.													
F. MANUFACTURER SHALL PROVIDE A FACTORY MOUNTED DISCONNECT SWITCH.													

VARIABLE REFRIGERANT VOLUME (VRV SYSTEM) EVAPORATOR UNIT SCHEDULE

EQUIPMENT TAG	AREA SERVED	FLOOR LEVEL	ASSOCIATED CONDENSING UNIT	MANUFACTURER	MODEL	FAN CFM	EAT DB (DEG. F)	EAT WB (DEG. F)	TOTAL COOLING CAPACITY (BTU/H)	SENSIBLE COOLING CAPACITY (BTU/H)	EAT (DEG. F)	HEATING CAPACITY (BTU/H)	ELECTRICAL VOLTS / PHASE	MCA	MOCP	NOTES
CEILING CONDITIONING UNITS																
CCU - 003 - 001	052 - Office	Lower	CU-018A/B	DAIKIN	FXZQ05TAVJU	460	72.0	61.2	5,002	4,269	68.0	6,824	230 / 1	0.3	15.0	A
CCU - 003 - 002	053 - Office	Lower	CU-018A/B	DAIKIN	FXZQ05TAVJU	460	72.0	61.2	5,002	4,269	68.0	6,824	230 / 1	0.3	15.0	A
CCU - 003 - 003	057 - Office	Lower	CU-018A/B	DAIKIN	FXZQ05TAVJU	460	72.0	61.2	5,002	4,269	68.0	6,824	230 / 1	0.3	15.0	A
CCU - 003 - 004	061 - Office	Lower	CU-018A/B	DAIKIN	FXZQ05TAVJU	460	72.0	61.2	5,002	4,269	68.0	6,824	230 / 1	0.3	15.0	A
CCU - 003 - 005	062 - Office	Lower	CU-018A/B	DAIKIN	FXZQ05TAVJU	460	72.0	61.2	5,002	4,269	68.0	6,824	230 / 1	0.3	15.0	A
CCU - 003 - 006	069 - Office	Lower	CU-018A/B	DAIKIN	FXZQ05TAVJU	460	72.0	61.2	5,002	4,269	68.0	6,824	230 / 1	0.3	15.0	A
CCU - 003 - 007	054 - Office	Lower	CU-018A/B	DAIKIN	FXZQ09TAVJU	460	72.0	61.2	8,182	5,826	68.0	10,919	230 / 1	0.3	15.0	A
CCU - 003 - 008	050 - Office	Lower	CU-018A/B	DAIKIN	FXZQ09TAVJU	460	72.0	61.2	8,182	5,826	68.0	10,919	230 / 1	0.3	15.0	A
CCU - 003 - 009	055 - Office	Lower	CU-018A/B	DAIKIN	FXZQ09TAVJU	460	72.0	61.2	8,182	5,826	68.0	10,919	230 / 1	0.3	15.0	A
CCU - 003 - 010	059 - Office	Lower	CU-018A/B	DAIKIN	FXZQ07TAVJU	460	72.0	61.2	6,592	5,135	68.0	8,872	230 / 1	0.3	15.0	A
CCU - 003 - 011	060 - Office	Lower	CU-018A/B	DAIKIN	FXZQ12TAVJU	460	72.0	61.2	10,455	7,038	68.0	13,990	230 / 1	0.3	15.0	A
CCU - 003 - 012	064 - Work	Lower	CU-018A/B	DAIKIN	FXZQ05TAVJU	460	72.0	61.2	5,002	4,269	68.0	6,824	230 / 1	0.3	15.0	A
CCU - 003 - 013	042 - Work	Lower	CU-018A/B	DAIKIN	FXZQ18TAVJU	742	72.0	61.2	15,457	11,301	68.0	20,814	230 / 1	0.6	15.0	A
CCU - 003 - 014	160 Bus Office	1	CU-017A/B	DAIKIN	FXZQ18TAVJU	742	72.0	61.2	14,431	11,916	68.0	20,814	230 / 1	0.6	15.0	A
CCU - 003 - 015	161 - Bus Office	1	CU-017A/B	DAIKIN	FXZQ15TAVJU	742	72.0	61.2	12,043	10,095	68.0	17,743	230 / 1	0.6	15.0	A
CCU - 003 - 016	162 - Bus Office	1	CU-017A/B	DAIKIN	FXZQ12TAVJU	460	72.0	61.2	9,634	7,183	68.0	13,990	230 / 1	0.3	15.0	A
CCU - 003 - 017	159 - Bus Office	1	CU-018A/B	DAIKIN	FXZQ15TAVJU	512	72.0	61.2	12,043	10,095	68.0	17,743	230 / 1	0.4	15.0	A
CCU - 003 - 018	139 - Math Office	1	CU-018A/B	DAIKIN	FXZQ15TAVJU	742	72.0	61.2	12,043	10,095	68.0	17,743	230 / 1	0.6	15.0	A
CCU - 003 - 019	138 - Math Office	1	CU-018A/B	DAIKIN	FXZQ18TAVJU	742	72.0	61.2	14,431	11,916	68.0	20,814	230 / 1	0.6	15.0	A
CCU - 003 - 020	137 - Office	1	CU-018A/B	DAIKIN	FXZQ12TAVJU	436	72.0	61.2	9,634	7,183	68.0	13,990	230 / 1	0.3	15.0	A
CCU - 003 - 021	157 - Bus Office	1	CU-017A/B	DAIKIN	FXZQ12TAVJU	460	72.0	61.2	9,634	7,183	68.0	13,990	230 / 1	0.3	15.0	A
CCU - 003 - 022	148 - Adjunct	1	CU-018A/B	DAIKIN	FXQ124TAVJU	1,112	72.0	61.2	20,642	16,860	68.0	28,014	230 / 1	1.3	15.0	A
CCU - 003 - 023	159 - Bus Office	1	CU-017A/B	DAIKIN	FXZQ15TAVJU	512	72.0	61.2	12,043	10,095	68.0	17,743	230 / 1	0.4	15.0	A
FAN COIL UNITS																
FCU - 003 - 001	033 - CS Lab	Lower	CU-018A/B	DAIKIN	FXMQ30PBVJU	1,094	75.0	62.5	25,794	20,116	68.0	35,247	230 / 1	2.8	15.0	A
FCU - 003 - 002	035 - M Conf	Lower	CU-018A/B	DAIKIN	FXMQ12PBVJU	450	75.0	62.5	8,211	6,211	68.0	13,990	230 / 1	1.4	15.0	A
FCU - 003 - 003	036 - M Class	Lower	CU-018A/B	DAIKIN	FXMQ30PBVJU	1,130	75.0	62.5	30,946	24,239	68.0	41,492	230 / 1	2.9	15.0	A
FCU - 003 - 004	048 - Workroom	Lower	CU-018A/B	DAIKIN	FXMQ24PBVJU	688	75.0	62.5	20,642	15,993	68.0	28,014	230 / 1	1.8	15.0	A
FCU - 003 - 005	056 - Recept/corr	Lower	CU-018A/B	DAIKIN	FXZQ12TAVJU	460	72.0	61.2	10,455	7,038	68.0	13,990	230 / 1	0.3	15.0	A
FCU - 003 - 006	046 - Comp Lab	Lower	CU-018A/B	DAIKIN	FXMQ04PBVJU	1,624	75.0	62.5	46,413	34,258	68.0	62,203	230 / 1	3.4	15.0	A
FCU - 003 - 007	045 - CS Lab	Lower	CU-018A/B	DAIKIN	FXMQ30PBVJU	1,094	75.0	62.5	25,794	20,116	68.0	35,247	230 / 1	2.8	15.0	A
FCU - 003 - 008	044 - S Class	Lower	CU-018A/B	DAIKIN	FXMQ24PBVJU	688	75.0	62.5	20,642	15,993	68.0	28,014	230 / 1	1.8	15.0	A
FCU - 003 - 009	039 - Corr	Lower	CU-018A/B	DAIKIN	FXMQ18PBVJU	560	75.0	62.5	15,467	13,227	68.0	20,746	230 / 1	1.5	15.0	A
FCU - 003 - 010	047 - Corr	Lower	CU-018A/B	DAIKIN	FXMQ18PBVJU	635	75.0	62.5	15,467	13,227	68.0	20,746	230 / 1	1.6	15.0	A
FCU - 003 - 011	067 - Corr & West Collab	Lower	CU-018A/B	DAIKIN	FXP181TVJU	635	75.0	62.5	15,467	13,658	68.0	20,700	230 / 1	1.6	15.0	A
FCU - 003 - 012	140 - C	1	CU-018A/B	DAIKIN	FXMQ18PBVJU	635	75.0	62.5	14,297	14,297	68.0	20,746	230 / 1	1.6	15.0	A
FCU - 003 - 013	142 - M Class	1	CU-018A/B	DAIKIN	FXMQ48PBVJU	1,624	75.0	62.5	38,151	33,161	68.0	55,993	230 / 1	3.4	15.0	A
FCU - 003 - 014	143 - S Class	1	CU-018A/B	DAIKIN	FXMQ48PBVJU	1,377	75.0	62.5	41,284	30,449	68.0	55,993	230 / 1	3.4	15.0	A
FCU - 003 - 015	144 - S Class	1	CU-018A/B	DAIKIN	FXMQ36PBVJU	1,130	75.0	62.5	30,946	24,239	68.0	41,492	230 / 1	2.9	15.0	A
FCU - 003 - 016	153 - S Class	1	CU-018A/B	DAIKIN	FXMQ48PBVJU	1,377	75.0	62.5	41,284	30,449	68.0	55,993	230 / 1	3.4	15.0	A
FCU - 003 - 017	154-S Class	1	CU-018A/B	DAIKIN	FXMQ48PBVJU	1,377	75.0	62.5	41,284	30,449	68.0	55,993	230 / 1	3.4	15.0	A
FCU - 003 - 018	155 - M Class	1	CU-017A/B	DAIKIN	FXMQ04PBVJU	1,624	75.0	62.5	46,337	34,349	68.0	62,203	230 / 1	3.4	15.0	A
FCU - 003 - 019	158 - Collab	1	CU-017A/B	DAIKIN	FXMQ15PBVJU	560	75.0	62.5	11,925	11,452	68.0	17,095	230 / 1	1.5	15.0	A
FCU - 003 - 020	155 - M Class	1	CU-017A/B	DAIKIN	FXMQ72MVJU	2,048	75.0	62.5	61,895	47,752	68.0	84,000	230 / 1	9.0	15.0	A
FCU - 003 - 021	150 - I. Class	1	CU-018A/B	DAIKIN	FXMQ72MVJU	2,048	75.0	62.5	61,895	47,752	68.0	84,000	230 / 1	9.0	15.0	A
FCU - 003 - 022	145 - Corridor	1	CU-018A/B	DAIKIN	FXMQ24PBVJU	688	75.0	62.5	41,284	30,449	68.0	55,993	230 / 1	2.9	15.0	A
FCU - 003 - 023	152 - Corridor	1	CU-018A/B	DAIKIN	FXMQ48PBVJU	1,130	75.0	62.5	41,284	30,449	68.0	55,993	230 / 1	2.9	15.0	A
FCU - 003 - 024	165 - Corr/Collab	1	CU-017A/B	DAIKIN	FXMQ72MVJU	2,543	75.0	62.5	61,895	47,752	68.0	84,000	230 / 1	10.1	15.0	A
NOTES: A. R410A REFRIGERANT USED.																

VARIABLE REFRIGERANT VOLUME (VRV SYSTEM) CONDENSING UNIT SCHEDULE

EQUIPMENT TAG	LOCATION	MANUFACTURER	MODEL	NOMINAL TONNAGE	CONDENSING UNIT TYPE DESCRIPTION	DIMENSIONS 1 (WxHxD) (IN)	WEIGHT 1 / WEIGHT 2 (LB)	TOTAL COOLING CAPACITY BTU/H	AMBIENT TEMP (DF DB)	TOTAL HEATING CAPACITY BTU/H	AMBIENT TEMP (DF DB / DF WB)	CONNECTION RATIO (%)	ELECTRICAL VOLTS / PHASE	MCA 1 / MCA 2	MOCP 1 / MOCP 2	NOTES
CU-17A / CU-17B	ROOF	DAIKIN	REYQ216TYDN	18	Air cooled heat recovery (2)	48.9 x 66.7 x 30.2 / 48.9 x 66.7 x 30.2	716.5 / 716.5	213,781	100	137,934	-10 / -10	142.1	460 / 3	21.1 / 21.1	25.0 / 25.0	A-R
CU-18A / CU-18B	ROOF	DAIKIN	REYQ336TYDN	28	Air cooled heat recovery (2)	48.9 x 66.7 x 30.2 / 48.9 x 66.7 x 30.2	783.7 / 783.7	332,590	100	189,838	-10 / -10	159.3	460 / 3	36.1 / 36.1	40.0 / 40.0	A-R
CU-19A / CU-19B	ROOF	DAIKIN	REYQ216TYDN	18	Air cooled heat recovery (2)	48.9 x 66.7 x 30.2 / 48.9 x 66.7 x 30.2	716.5 / 716.5	213,375	100	137,671	-10 / -10	150.5	460 / 3	21.1 / 21.1	25.0 / 25.0	A-R
NOTES: A. Manufacturer must be certified, listed, and labeled per AHRI 1230. B. System rating data based on design ambient conditions for cooling and for heating. C. Submitted performance data must be fully de-rated for all components and accessories, including but not limited to, line length, vertical separation, connection ratio, design D. System must provide continuous heating during defrost and oil return. Systems without this capability must be de-rated to account for heating lost during defrost cycle and unit E. Condensing units must have fully modulating INVERTER compressors with a minimum of two compressors per module. F. Non - VFD compressors (including digital scroll compressors and compressors with hot gas bypass) will not be permitted. G. Condensing units must have auto chargeover functions. H. All Mode Changeover Devices and FCU refrigerant controls shall be via Electronic Expansion Valves (EEV's) with 2000:1 throttling range. I. EEV actuators must be removable from valve body without disturbing the refrigerant system. J. Systems using solenoid control valves must include full port isolation valves before and after refrigerant control box and acoustic treatment to provide no greater than NC20 in the occupied mode. K. Solenoid control valves and full port isolation valves must be rated for 2.5 times the maximum working pressure in the system and be rated for a minimum 10 life of 500,000 hours L. VRV systems using solenoid control valves must provide acoustic treatment to attenuate valve noise below NC20 in all occupied modes. M. System shall be provided with i - Touch Manager controller with WEB based software for displaying up to 8 DII - Net systems with 128 indoor units per system.PC by others. N. Installing contractor must have successfully completed manufacturers certified installation class within past 36 months. O. Manufacturers Representative must have local stock of parts and factory certified technician on staff. P. Manufacturers Representative shall provide proof of ongoing installation training at their local facility for at least the past 5 years. Q. Manufacturers Representative shall provide proof of continuous sales and support of their products for at least 15 years. R. Manufacturer must provide 10 years parts warranty on all FCUs, Condensing Units, Mode Changeover Devices and Zone Controls. Warranty conditions must be clarified during submittal phase.																

AIR SEPARATOR SCHEDULE

EQUIPMENT TAG	MANUFACTURER	MODEL	SERVES	DESIGN CAPACITY (GPM)	MAX P.D. (FT. HD)	Cv	OPENINGS (IN.)	NOTES:
AS-001	BELL & GOSSETT	ROLAIRTROL R-5	ENERGY RECOVERY LOOP (RTU-001A/001B & ERS PLENUM)	500	5	215	5	N/A

EXPANSION TANK SCHEDULE

EQUIPMENT TAG	MANUFACTURER	MODEL	SERVES	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	SYSTEM CONNECTION (IN.)	ARRANGEMENT	NOTES
ET-002	ARMSTRONG	AX-40V	ENERGY RECOVERY LOOP	25	20.2	1" NPT	VERTICAL MOUNT	N/A

INTAKE HOOD SCHEDULE

EQUIPMENT TAG	MANUFACTURER	AREA SERVED	MODEL	DIMENSIONS (LxWxH)	MODEL SIZE (IN.)	MOUNTING	DESIGN FLOW (CFM)	S.P. (IN. W.G.)	MATERIAL	ELECTRICAL (V/PH)	NOTES
IH-001	GREENHECK	237 - GREENHOUSE	GRSI-8	20.5" x 20.5" x 7.25"	8	ROOF	60	0.005	ALUMINUM	115V/160	A,B
NOTES: A. INSTALL WITH 18" ROOF CURB. B. PROVIDE WITH 24V TWO-POSITION MOTORIZED DAMPER AT DUCT ROOF PENETRATION. POSITION NORMALLY CLOSED. DAMPER TO BE INTERLOCKED WITH EF-006 AND FCU-010.											

UNIT HEATER SCHEDULE

EQUIPMENT TAG	MANUFACTURER & MODEL OR EQUAL	SERVES	MOUNTING	HEATER KW (HIGH)	FLA	ELECTRICAL VOLTS/PHHZ	NOTES
CUH-001	QMARK, CDF-547	028 - VESTIBULE (LOWER LEVEL)	RECESSED CEILING	4	14.4	277/1/60	A,F
CUH-002	QMARK, CDF-547	100 - VESTIBULE (MAIN LEVEL)	RECESSED CEILING	4	14.4	277/1/60	A,F
CUH-003	QMARK, CU-935	ST02 - NW STAIRS	FLOOR, RECESSED IN WALL	3	12	277/1/60	B,C,D,E,F
CUH-004	QMARK, CU-935	ST01 - CENTRAL EGRESS STAIRS	FLOOR, RECESSED IN WALL	2	8	277/1/60	B,C,D,E,F
CUH-005	QMARK, CU-935	ST04 - STAIRS (OLD NORTH)	FLOOR, RECESSED IN WALL	3	12	277/1/60	B,C,D,E,F
CUH-006	QMARK, CU-935	ST05 - STAIRS (OLD SOUTH)	FLOOR, RECESSED IN WALL	3	12	277/1/60	B,C,D,E,F
NOTES: A. FIELD WIRING MUST BE #10 AWG. MIN. RATED 90 DEG C MIN. B. CABINET UNIT HEATER RECESSED INTO WALL WITH FRONT COVER FLUSH WITH WALL. C. AIR FLOW INLET AND OUTLET CONFIGURATION SHALL BOTH BE ON FRONT OF UNIT (FIFO CONFIGURATION). D. DEAD FRONT DISCONNECT SWITCH AND KEY LOCK FOR FRONT COVER ACCESSORIES TO BE INCLUDED AND FACTORY INSTALLED. E. REVERSING SWITCH AND THERMOCOUPLE TO BE INCLUDED AND FACTORY INSTALLED. F. MANUFACTURER SHALL PROVIDE A FACTORY MOUNTED DISCONNECT SWITCH.							

ELECTRIC DUCT HEATER SCHEDULE

EQUIPMENT TAG	MANUFACTUR
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EXHAUST FAN SCHEDULE

EXHAUST FAN #	MANUFACTURER	AREA SERVED	MODEL	DIMENSIONS (IN.) (LxWxH)	TYPE	DRIVE	MOUNTING	DISCHARGE	MAX FLOW (CFM)	E.S.P. (IN. W.G.)	T.S.P. (IN. W.G.)	MOTOR POWER (HP)	MATERIAL	ELECTRICAL (VOLTS/PHASE/HERTZ)	COMMENTS
EF-001/002/003	GREENHECK	LABS	VEKTOR-MS-30-9-70	300" x 154" x 193.75"	CENTRIFUGAL	BELT	ROOF	UPBLAST	38,700	6.00	6.15	3 @ 40 HP	STEEL	460/3/60	A
EF-004	GREENHECK	RESTROOMS	G-163-VG	28.5" x 28.5" x 25.5"	CENTRIFUGAL	DIRECT	ROOF	DOWNBLAST	3,000	0.75	0.75	1	ALUMINUM	115/1/60	B,C
EF-005	GREENHECK	JANITOR CLOSETS (NEW BUILDING)	G-103HP-VG	24.5" x 24.5" x 25.5"	CENTRIFUGAL	DIRECT	ROOF	DOWNBLAST	550	0.75	0.75	0.5	ALUMINUM	115/1/60	B,C
EF-006	GREENHECK	H.W. (WASTE)	SQ-70-VG	16" x 12" x 12"	CENTRIFUGAL	DIRECT	INLINE	INLINE	180	0.25	0.25	0.1	STEEL	115/1/60	D,E,F
EF-007	GREENHECK	GREENHOUSE	CUE-080-VG	21" x 21" x 15.25"	CENTRIFUGAL	DIRECT	ROOF	UPBLAST	210	0.5	0.5	0.1	ALUMINUM	115/1/60	B,C
EF-008	GREENHECK	JANITOR CLOSETS (EXISTING BUILDING)	G-103HP-VG	24.5" x 24.5" x 25.5"	CENTRIFUGAL	DIRECT	ROOF	DOWNBLAST	410	1.0	1.0	0.5	ALUMINUM	115/1/60	B,G
EF-009	FANTECH	ELEVATOR EQUIPMENT VENTING	DBF4XL	10" DIA X 8.675" LONG	CENTRIFUGAL	DIRECT	INLINE	INLINE	188	NA	NA	64.8 WATTS	STEEL	115/1/60	B,H

NOTES:
A. SYSTEM DESIGNED TO HAVE ALL THREE FANS OPERATING AT 1/3 TOTAL EXHAUST CFM EACH, WITH CAPABILITY TO RAMP UP TWO FANS OPERATING AT 1/2 TOTAL EXHAUST CFM EACH IN ALARM CONDITION WITH LOSS OF ONE FAN.
B. PROVIDE FAN WITH LOW-LEAKAGE DAMPER AT ROOF PENETRATION.
C. PROVIDE ELECTRIC MOTOR INTERLOCK WITH RTU-002.
D. PROVIDE ELECTRIC MOTOR INTERLOCK WITH RTU-001A.
E. FAN SHALL BE CONTROLLED BY WALL MOUNTED THERMOSTAT.
F. PROVIDE FAN WITH INTEGRAL VOLUME DAMPER AT DISCHARGE.
G. PROVIDE ELECTRIC MOTOR INTERLOCK WITH RTU-003.
H. PROVIDE WITH PRESSURE SWITCH TO BE SET TO RUN CONTINUOUSLY. PROVIDE ROOF TERMINATION KIT FOR VENTING ABOVE THE HATCH ROOF.
I. VFD AND DISCONNECT SWITCH FOR EF-001/002/003 SHALL BE FURNISHED AND INSTALLED BY DIVISION 26 CONTRACTOR. VFD SHALL BE INSTALLED IN LOWER LEVEL MECHANICAL ROOM OF NEW BUILDING ADDITION.

EXHAUST PLENUM SCHEDULE

EXHAUST PLENUM	TAG NUMBER	EF-001/002/003 ERS PLENUM
	MANUFACTURER OR APPROVED EQUAL	DAIKIN
	MODEL NO.	OAC079GBAM
	TYPE	SEMI-CUSTOM
	MOUNTING	ROOF
	LOCATION	ROOF (NEW BUILDING)
	AREAS SERVED	LABS, LAB STORAGE
	DESIGN TOTAL EXHAUST AIRFLOW (ACFM)	38,500
	MAX. UNIT DIMENSIONS (INCHES), L x W x H	116" x 140" x 98"
	UNIT WEIGHT (LBS)	VS *
	TYPE	30% PROPYLENE GLYCOL
	MODEL	5WVD0604A
	SUMMER: FACE VELOCITY (FPM)	519.7
	WATER PRESSURE DROP (FT)	11.0
	AIR PRESSURE DROP (IN W.C.)	1.19
	FLOW RATE (GPM)	140
	ENTERING AIR TEMP (°F)	72.0
	LEAVING AIR TEMP (°F)	80.8
	TYPE	30% PROPYLENE GLYCOL
	MODEL	5WVD0604A
	WINTER: FACE VELOCITY (FPM)	519.7
	WATER PRESSURE DROP (FT)	16.6
	AIR PRESSURE DROP (IN W.C.)	0.19
	FLOW RATE (GPM)	140
	ENTERING AIR TEMP (°F)	68
	LEAVING AIR TEMP (°F)	47.2

VS * (VENDER SPECIFIED)

NOTES:
1. THE FLOWS AND CAPACITIES SHOWN ARE FOR DESIGN CONDITIONS.

ELECTRIC BASEBOARD HEATER SCHEDULE

EQUIPMENT TAG	MANUFACTURER	MODEL	SERVES	HEATER KW (HIGH)	ELECTRICAL		NOTES
					FLA	VOLTS/PHIHZ	
EBH-001	QMARK	DSH07A10375	165 - COLLABORATION	3.75	13.5	277/1/60	A,B,C
EBH-002	QMARK	DSH07A10375	165 - COLLABORATION	3.75	13.5	277/1/60	A,B,C
EBH-003	QMARK	DSH07A10125	101A - LOBBY	1.25	4.5	277/1/60	A,B,C
EBH-004	QMARK	DSH07A10125	101A - LOBBY	1.25	4.5	277/1/60	A,B,C
EBH-005	QMARK	DSH07A5125	101A - LOBBY	0.625	2.3	277/1/60	A,B,C
EBH-006	QMARK	DSH07A8125	101A - LOBBY	1	3.6	277/1/60	A,B,C
EBH-007	QMARK	DSH07A8750	100 - VESTIBULE	6	21.7	277/1/60	A,B,C
EBH-008	QMARK	DSH07A5125	102 - VENDING	0.625	2.3	277/1/60	A,B,C
EBH-009	QMARK	DSH07A8125	102 - VENDING	1	3.6	277/1/60	A,B,C
EBH-010	QMARK	DSH07A6375	202 - COLLABORATION	2.25	8.1	277/1/60	A,B,C
EBH-011	QMARK	DSH07A6375	202 - COLLABORATION	2.25	8.1	277/1/60	A,B,C
EBH-012	QMARK	DSH07A8375	202 - COLLABORATION	3	10.8	277/1/60	A,B,C
EBH-013	QMARK	DSH07A5375	202 - COLLABORATION	1.875	6.8	277/1/60	A,B,C
EBH-014	QMARK	DSH07A8375	202 - COLLABORATION	3	10.8	277/1/60	A,B,C
EBH-015	QMARK	DSH07A8188	204 - CATER/KITCHEN	1.5	5.4	277/1/60	A,B,C
EBH-016	QMARK	DSH07A3125	228 - COLLABORATION	0.375	1.4	277/1/60	A,B,C
EBH-017	QMARK	DSH07A4125	228 - COLLABORATION	0.5	1.8	277/1/60	A,B,C
EBH-018	QMARK	DSH07A4125	228 - COLLABORATION	0.5	1.8	277/1/60	A,B,C
EBH-019	QMARK	DSH07A10125	228 - COLLABORATION	1.25	4.5	277/1/60	A,B,C
EBH-020	QMARK	DSH07A8125	228 - COLLABORATION	1	3.6	277/1/60	A,B,C
EBH-021	QMARK	DSH07A10125	228 - COLLABORATION	1.25	4.5	277/1/60	A,B,C
EBH-022	QMARK	DSH07A4125	228 - COLLABORATION	0.5	1.8	277/1/60	A,B,C
EBH-023	QMARK	DSH07A4125	228 - COLLABORATION	0.5	1.8	277/1/60	A,B,C
EBH-024	QMARK	DSH07A3125	228 - COLLABORATION	0.375	1.4	277/1/60	A,B,C
EBH-025	QMARK	DSH07A6375	ST03 - MAIN STAIR	2.25	8.1	277/1/60	A,B,C
EBH-026	QMARK	DSH07A6375	ST03 - MAIN STAIR	2.25	8.1	277/1/60	A,B,C

NOTES:
A. FIELD-MOUNTED IN LOCATION SPECIFIED ON PLANS. INCLUDE ALL BASEBOARD INSTALLATION ACCESSORIES, SUCH AS END CAPS, BLANK SECTIONS, INSIDE/OUTSIDE CORNER PIECES, ETC., TO ENSURE A CLEAN AND CONTINUOUS BASEBOARD INSTALLATION. ALL ACCESSORIES SHALL BE COMPLETELY ENCLOSED IN.
B. FIELD-MOUNTED TO BE COORDINATED WITH FINISHES.
C. MANUFACTURER SHALL PROVIDE A FACTORY MOUNTED DISCONNECT SWITCH.

SPLIT SYSTEMS SCHEDULE

PLAN DESIGNATION		EV-001	EV-002	EV-003	EV-004	EV-005	FCU-001	FCU-002A	FCU-002B	FCU-003	FCU-004	FCU-005	FCU-006	FCU-007	FCU-008	FCU-009	FCU-010
MANUFACTURER		DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	ADDISON
MODEL NUMBER		FTK09NMVJU	FTK09NMVJU	FTK09NMVJU	FTK09NMVJU	FTK09NMVJU	FBQ18PVJU	FBQ42PVJU	FBQ42PVJU	FBQ24PVJU	FBQ18PVJU	FBQ18PVJU	FBQ18PVJU	FBQ18PVJU	FBQ18PVJU	FBQ42PVJU	FCRA150C04HBFDF0AC00AAA4000001000
SYSTEM TYPE		SPLIT SYSTEM, WALL-MOUNTED EVAP. W/ DX COOLING ONLY	SPLIT SYSTEM, WALL-MOUNTED EVAP. W/ DX COOLING ONLY	SPLIT SYSTEM, WALL-MOUNTED EVAP. W/ DX COOLING ONLY	SPLIT SYSTEM, WALL-MOUNTED EVAP. W/ DX COOLING ONLY	SPLIT SYSTEM, WALL-MOUNTED EVAP. W/ DX COOLING ONLY	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT	SPLIT SYSTEM, DUCTED FCU W/ DX COOLING & ELEC. HEAT
LOCATION		NEW BUILDING	NEW BUILDING	NEW BUILDING	EXISTING BUILDING	EXISTING BUILDING	NEW BUILDING	NEW BUILDING	NEW BUILDING	NEW BUILDING	NEW BUILDING	EXISTING BUILDING	EXISTING BUILDING	EXISTING BUILDING	EXISTING BUILDING	EXISTING BUILDING	NEW BUILDING
AREA SERVED		011 - WIRING CLOSET	120B - WIRING CLOSET	223 - WIRING CLOSET	041 - WIRING CLOSET	147 - WIRING CLOSET	015 - BUILDING STORAGE	014 - MECHANICAL	010 - ELECTRICAL	ST02 - NW STAIRS	ST01 - CENTRAL EGRESS STAIRS	ST04 - STAIRS (NORTH)	ST05 - STAIRS (SOUTH)	037 - MECHANICAL/ELECTRICAL	038 - FIBER	066 - RACK	236/237 - HEAD/GREENHOUSE
CFM (DESIGN)		50	50	50	80	100	260	1520	1980	1000	70	620	500	240	170	1450	3020
EXTERNAL STATIC PRESSURE (IN. W.C.)		N/A	N/A	N/A	N/A	N/A	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	2.0
TOTAL COOLING CAPACITY (MBH)		9.0	9.0	9.0	9.0	9.0	18.0	42.0	42.0	24.0	18.0	18.0	18.0	18.0	42.0	146.9	
COOLING POWER INPUT (KW)		0.021	0.021	0.021	0.021	0.021	1.28	4.12	4.12	2.0	1.28	1.28	1.28	1.28	4.12	11.9	
TOTAL HEATING CAPACITY (MBH)							20.0	47.0	47.0	27.0	20.0	20.0	20.0	20.0	47.0	102.4	
HEATING POWER INPUT (KW)		N/A	N/A	N/A	N/A	N/A	1.54	4.05	4.05	2.33	1.54	1.54	1.54	1.54	1.54	4.05	30.0
CURRENT (A)		0.2 FLA	0.2 FLA	0.2 FLA	0.2 FLA	0.2 FLA	1.6 MCA, 15 MOCP	3.4 MCA, 15 MOCP	3.4 MCA, 15 MOCP	1.8 MCA, 15 MOCP	1.6 MCA, 15 MOCP	1.6 MCA, 15 MOCP	1.6 MCA, 15 MOCP	1.6 MCA, 15 MOCP	1.6 MCA, 15 MOCP	3.4 MCA, 15 MOCP	52.3 FLA, 65.375 MCA
VOLTAGE/PHASE/HERTZ		208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	460/3/60
UNIT WEIGHT (LBS)																	
NOTES																	
PLAN DESIGNATION		CU-001	CU-002	CU-003	CU-010	CU-011	CU-004	CU-005	CU-006	CU-007	CU-008	CU-014	CU-015	CU-012	CU-013	CU-016	CU-009
MANUFACTURER		DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	DAIKIN	ADDISON
MODEL NUMBER		RK09NMVJU	RK09NMVJU	RK09NMVJU	RK09NMVJU	RK09NMVJU	RZQ18PVJU9	RZQ42PVJU9	RZQ42PVJU9	RZQ42PVJU9	RZQ18PVJU9	RZQ18PVJU9	RZQ18PVJU9	RZQ18PVJU9	RZQ18PVJU9	RZQ42PVJU9	RCRA150C04G00A40000000000000
LOCATION		NEW BUILDING ROOF	NEW BUILDING ROOF	NEW BUILDING ROOF	EXISTING BUILDING ROOF	EXISTING BUILDING ROOF	NEW BUILDING ROOF	NEW BUILDING ROOF	NEW BUILDING ROOF	NEW BUILDING ROOF	NEW BUILDING ROOF	EXISTING BUILDING ROOF	EXISTING BUILDING ROOF	EXISTING BUILDING ROOF	EXISTING BUILDING ROOF	EXISTING BUILDING ROOF	NEW BUILDING ROOF
REFRIGERANT TYPE		R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
COMPRESSOR TYPE		HERMETICALLY SEALED SWING	HERMETICALLY SEALED SWING	HERMETICALLY SEALED SWING	HERMETICALLY SEALED SWING	HERMETICALLY SEALED SWING	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	INVERTER STAGE	SCROLL
FAN POWER INPUT (KW)		0.014	0.014	0.014	0.014	0.014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CURRENT (A)		0.13 FLA	0.13 FLA	0.13 FLA	0.13 FLA	0.13 FLA	16.5 MCA, 20 MOCP	27 MCA, 30 MOCP	27 MCA, 30 MOCP	16.5 MCA, 20 MOCP	16.5 MCA, 20 MOCP	16.5 MCA, 20 MOCP	16.5 MCA, 20 MOCP	16.5 MCA, 20 MOCP	16.5 MCA, 20 MOCP	27 MCA, 30 MOCP	COMPRESSOR: 2 @ 8.2 FLA / 66.1 LRA (EACH) CONDENSER FAN: 2 @ 1.6 FLA (EACH)
VOLTAGE/PHASE/HERTZ		208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	460/3/60
UNIT WEIGHT (LBS)		55	55	55	55	55	150	285	285	150	150	150	150	150	150	285	1230
NOTES																	
A. SCR ELECTRIC HEAT CONTROL.																	
B. CONTROL BY ARCHITECT.																	
C. DISCONNECT SWITCH SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.																	

REVISION SCHEDULE:
0. 04/02/18 - Contract Documents
1. 05/02/2018 - Addendum 1

DESIGN ARCHITECT:
PROJECT ARCHITECT:
DRAWN BY:
DESIGN ENGINEER:
A.D.S.
APRIL 30, 2018

R.O. YOLKER, INC.
CONSULTANTS
1201 O Street, Suite 310
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Fax: 402.477.7840
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CRB ARCHITECTS-ENGINEERS P.C.
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PHONE: 616-880-9800
FAX: 616-880-9888

Concordia University
STEM Building

SINCLAIR hill architects
T: 402.476.8341
Lincoln, NE 68508
700 O St.
SHA PROJECT NO.: 16022

M702



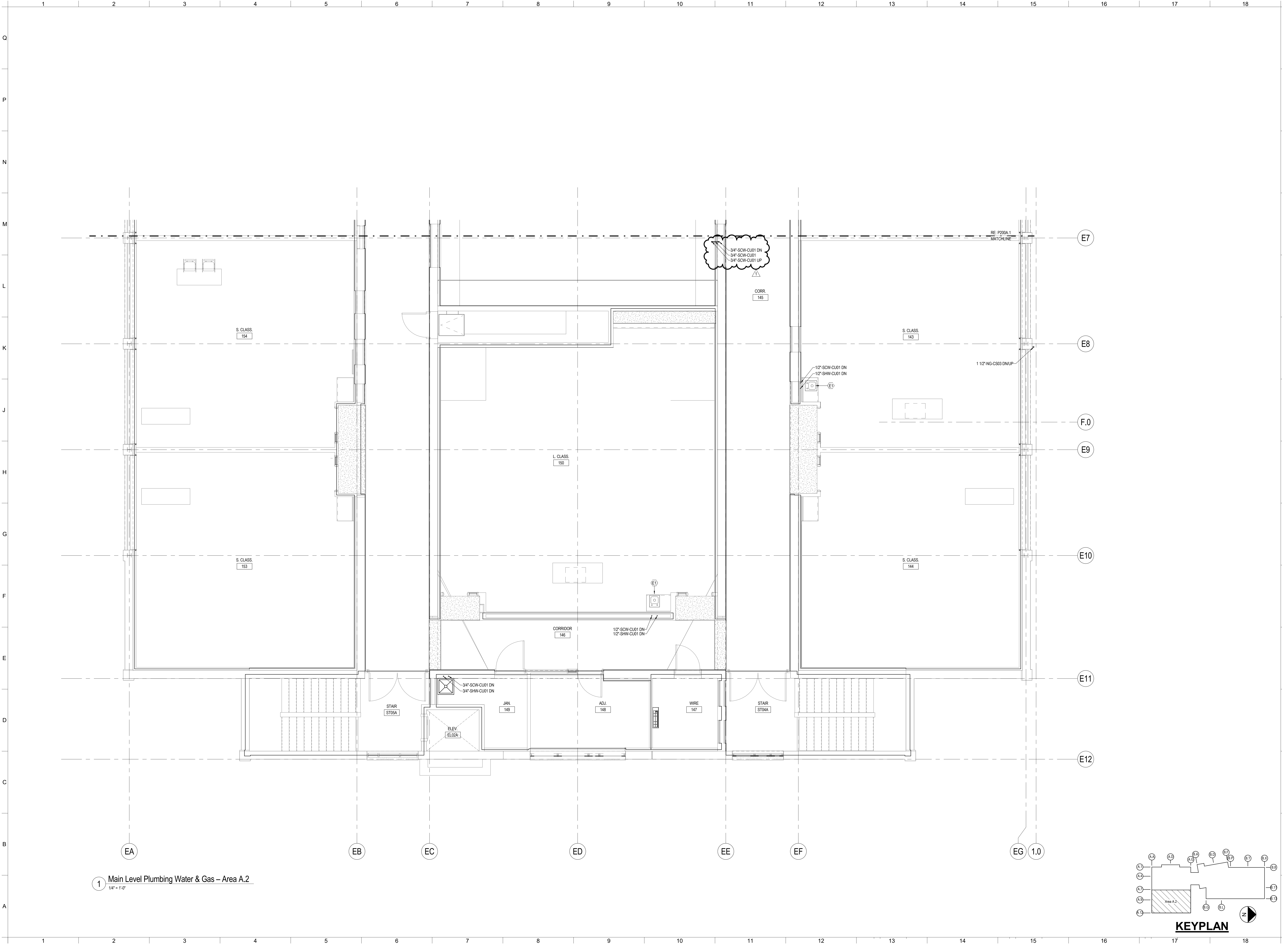
- 1 SET BALANCE VALVE TO 2 GPM.
- 2 EXISTING GAS METER WITH NEW APPROXIMATE CONNECTED LOAD OF 450 CFH. COORDINATE WITH GAS PROVIDER: BLACK HILLS ENERGY - 402-437-1700.

Concordia University
STEM Building

Lower Level Plumbing Water & Gas – Area A.2

16022

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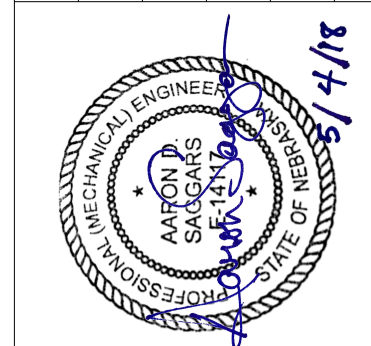


GENERAL NOTES

- Q 1. WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL."
2. ELEVATIONS NOTED ARE FROM 0'-0" ABOVE FINISHED FLOOR.
3. DO NOT SCALE DRAWINGS.
4. COORDINATE PLUMBING INSTALLATION WITH ALL OTHER TRADES PRIOR TO INSTALLATION. COORDINATE ALL SERVICES WITHIN WALLS WITH ELECTRICAL PANELS, UTILITY STATIONS, LOW WALL RETURNS, ETC. COORDINATE CONNECTION SIZES AND LOCATIONS WITH APPROVED SHOP DRAWINGS AND 1 OR PAID'S PRIOR TO INSTALLATION.
- P 5. VALVES SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. VALVES INSTALLED IN INTERSTITIAL LEVELS SHALL BE ACCESSIBLE FROM EQUIPMENT PLATFORMS, ACCESS LEVELS, CONCRETE FLOORS, OR WALKABLE CEILING AREAS. PROVIDE AND LOCATE ACCESS PANELS IN NON ACCESSIBLE CEILINGS AND WALLS FOR PROPER MAINTENANCE ACCESS TO VALVES AND ACCESSORIES. COORDINATE LOCATIONS WITH OTHER TRADES. SEE ARCHITECTURAL SPECIFICATIONS FOR ACCESS PANEL REQUIREMENTS.
- N 6. FOR ALL PENETRATIONS, CONTRACTOR IS RESPONSIBLE FOR MAINTAINING INTEGRITY OF RATED ASSEMBLIES. PROVIDE U.L. FIRESTOP SYSTEMS WHERE REQUIRED. COORDINATE WITH ARCHITECT IF NEEDED.
7. FIELD VERIFY CONDITIONS (IE-INS, INTERFERENCES, ETC.) PRIOR TO STARTING WORK. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES WITH PLANS.
8. HANDLE MATERIAL DEBRIS IN AN EFFORT TO AVOID ANY DISRUPTIONS OF ONGOING BUILDING OPERATIONS. CLEAN PROJECT SITE DEBRIS AT THE END OF EACH WORK DAY.
- M 9. INSTALL ALL PLUMBING COMPONENTS AND ACCESSORY MATERIALS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
10. SLOPE ALL PIPING PER PAIDS AND AS NOTED ON PLANS. SEE PIPING SPECIFICATIONS FOR MINIMUM SLOPE REQUIREMENTS.
11. FOR PLUMBING SYMBOLS AND ABBREVIATIONS, RE: M0000.
- L 12. SEE SPECIFICATIONS, DETAILS, AND SCHEDULES FOR ADDITIONAL REQUIREMENTS (INSULATION, HANGERS, IDENTIFICATION, EQUIPMENT, TESTING, ETC.).
13. THE PLUMBING PLANS ARE TO A GREAT EXTENT SCHEMATIC IN NATURE AND THE INFORMATION PRESENTED IS AS EXACT AS COULD BE SECURED FROM SITE VISIT. THE CONTRACTOR SHALL OBTAIN EXACT LOCATIONS, MEASUREMENTS, LEVELS, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL CONDITIONS. ACCURACY OF THE EXISTING INFORMATION IS NOT GUARANTEED.

REVISION SCHEDULE:	
0	04/26/2018 - Contract Documents
1	05/02/2018 - Addendum 1

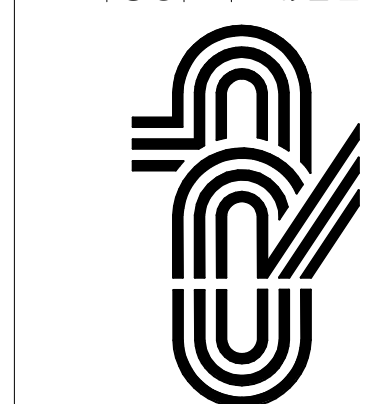
DESIGN ARCHITECT:	PROJECT ARCHITECT:
DRAWN BY:	PROJECT ENGINEER:
DESIGNED BY:	DESIGN ENGINEER:
DATE:	DATE:
APRIL 30, 2018	APRIL 30, 2018



PROJECT CONSULTANTS

CLARK, RICHARDSON AND BISHOP
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1251 NW BRIARCLIFF PARKWAY
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Emp. Proj. Inc.: 17089



Concordia University

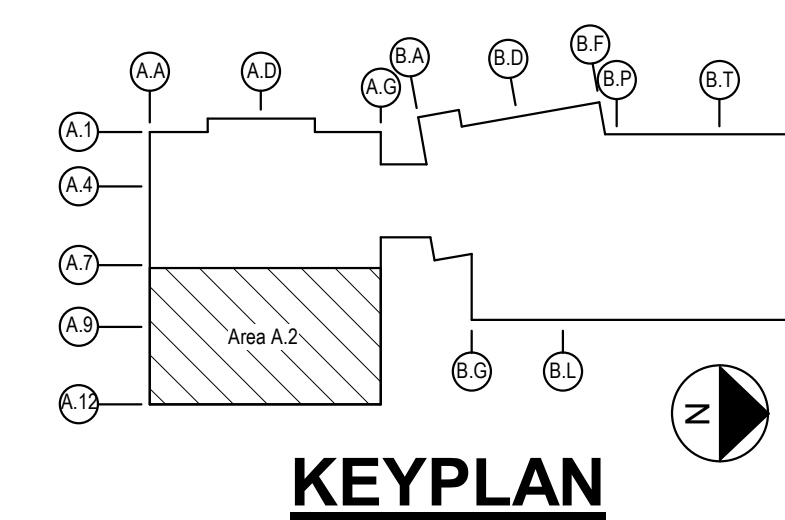
STEM Building

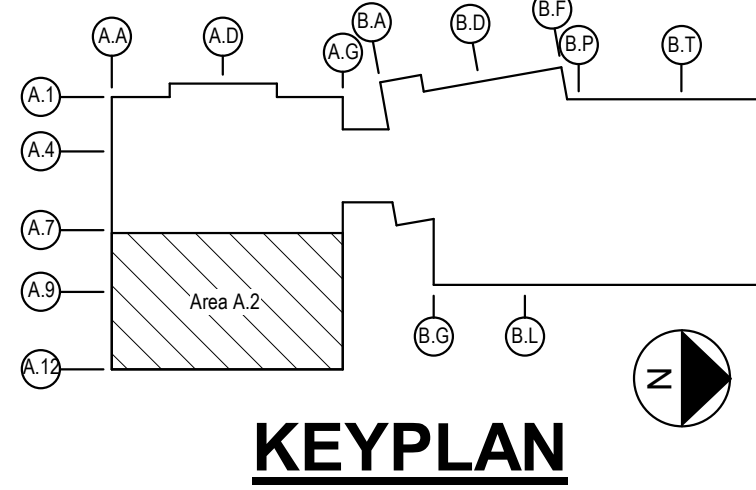
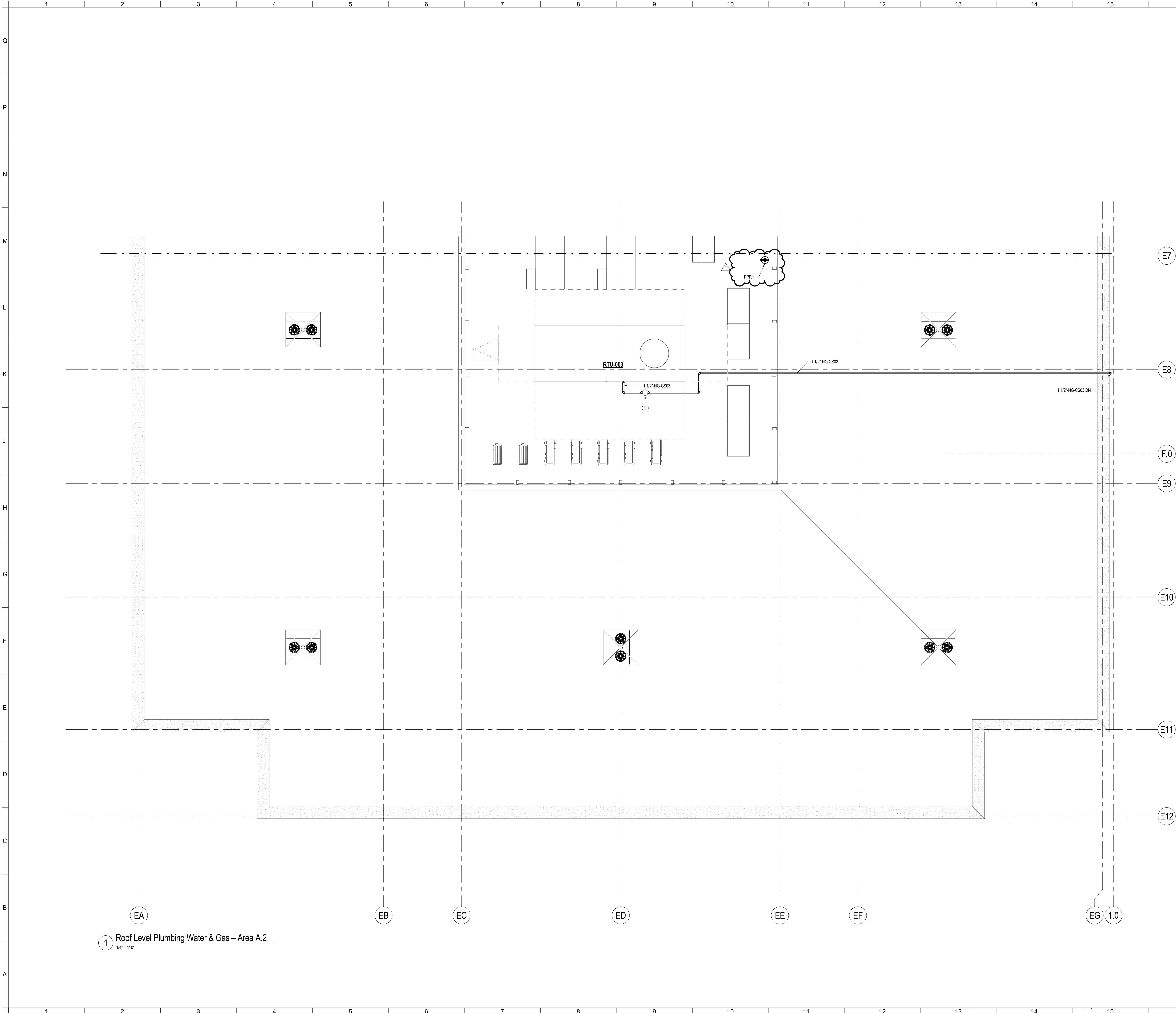
SINCLAIR Hille architects
Lincoln, NE 68508
T: 402.476.7331 F: 402.476.8341
700 Q St.

Main Level Plumbing Water & Gas – Area A.2

SHA PROJECT NO.: 16022

P201A.2





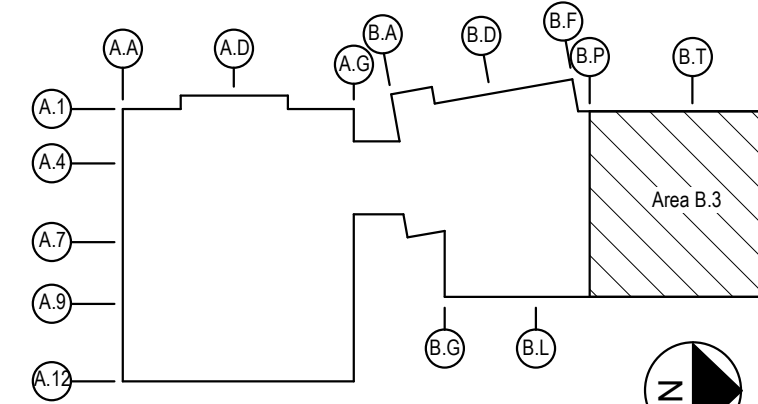
GENERAL NOTES

- WHERE USED, THE TERM "PROVIDE" SHALL MEAN "FURNISH AND INSTALL."
- ELEVATIONS NOTED ARE FROM 0'-0" ABOVE FINISHED FLOOR.
- DO NOT SCALE DRAWINGS.
- COORDINATE PLUMBING INSTALLATION WITH ALL OTHER TRADES PRIOR TO INSTALLATION. COORDINATE ALL SERVICES WITHIN WALLS WITH ELECTRICAL PANELS, UTILITY STATIONS, LOW WALL RETURNS, ETC. COORDINATE CONNECTION SIZES AND LOCATIONS WITH APPROVED SHOP DRAWINGS AND / OR PAID'S PRIOR TO INSTALLATION.
- VALVES SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION. VALVES INSTALLED IN INTERSTITIAL LEVELS SHALL BE ACCESSIBLE FROM EQUIPMENT PLATFORMS, ACCESS LEVELS, CONCRETE FLOORS, OR WALKABLE CEILING AREAS. PROVIDE AND LOCATE ACCESS PANELS IN NON ACCESSIBLE CEILINGS AND WALLS FOR PROPER MAINTENANCE ACCESS TO VALVES AND ACCESSORIES. COORDINATE LOCATIONS WITH OTHER TRADES. SEE ARCHITECTURAL SPECIFICATIONS FOR ACCESS PANEL REQUIREMENTS.
- FOR ALL PENETRATIONS, CONTRACTOR IS RESPONSIBLE FOR MAINTAINING INTEGRITY OF RATED ASSEMBLIES. PROVIDE U.L. FIRESTOP SYSTEMS WHERE REQUIRED. COORDINATE WITH ARCHITECT IF NEEDED.
- FIELD VERIFY CONDITIONS (IE-INS, INTERFERENCES, ETC.) PRIOR TO STARTING WORK. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES WITH PLANS.
- HANDLE MATERIAL DEBRIS IN AN EFFORT TO AVOID ANY DISRUPTIONS OF ONGOING BUILDING OPERATIONS. CLEAN PROJECT SITE DEBRIS AT THE END OF EACH WORK DAY.
- INSTALL ALL PLUMBING COMPONENTS AND ACCESSORY MATERIALS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
- SLOPE ALL PIPING PER PAIDS AND AS NOTED ON PLANS. SEE PIPING SPECIFICATIONS FOR MINIMUM SLOPE REQUIREMENTS.
- FOR PLUMBING SYMBOLS AND ABBREVIATIONS, RE: M0000.
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SHEET NOTES

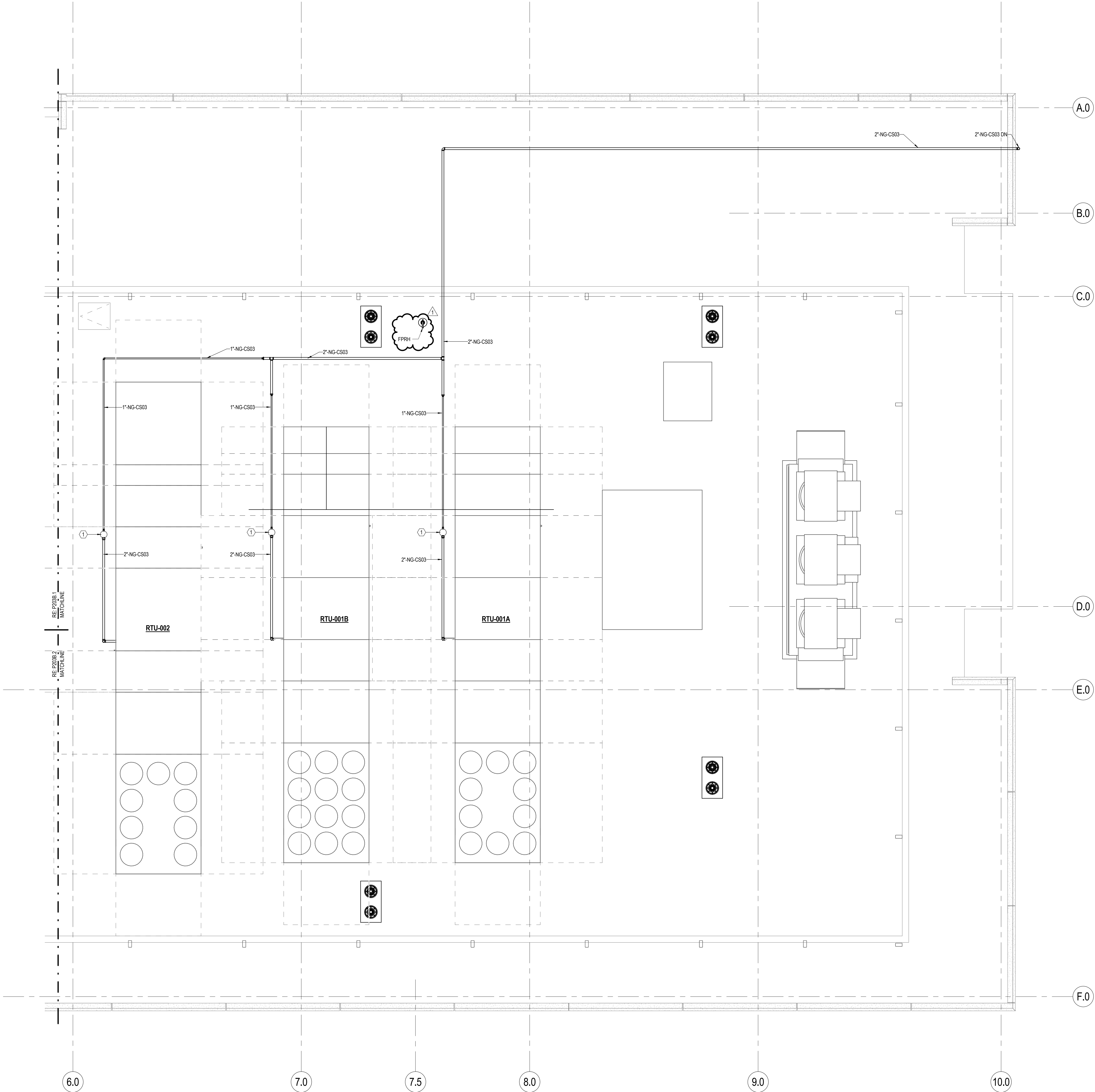
- PRV SET TO 7" W.C.

REVISION SCHEDULE:		
0	04/26/2018	Project Documents
1	05/02/2018	Submittal 1
DESIGN ARCHITECT:		
PROJECT ARCHITECT:	0	04/26/2018
DRAWN BY:	ADS	04/26/2018
DESIGN ENGINEER:	ADS	04/26/2018
DATE:	APRIL 30, 2018	
PROJECT CONSULTANTS		
CLARK, RICHARDSON AND BISHOP CONSULTING ENGINEERS, INC. CRB ARCHITECTS-ENGINEERS P.C. 1251 NW BRIARCLIFF PARKWAY SUITE 200 SAINT LOUIS, MO 64116 PHONE: 314-880-9800 FAX: 314-880-9888		
Concordia University		
STEM Building		
SINCLAIR HILLE architects Lincoln, NE 68508 700 Q St. T: 402.476.7331 F: 402.476.8341	Roof Level Plumbing Water & Gas – Area A.2	
SHA PROJECT NO.	16022	
P202A.2		
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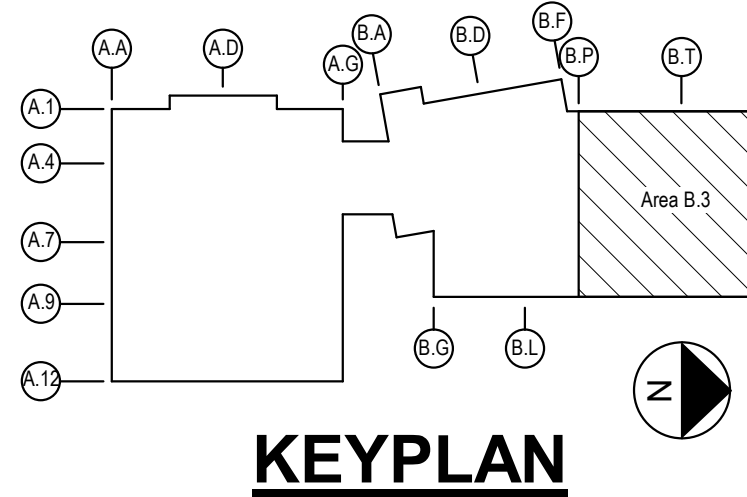


P202B.3

1 Upper Level Plumbing Water & Gas – Area B.3
1/4" = 1'-0"



1 Roof Level Plumbing Water & Gas – Area B.3
1/4" = 1'-0"



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SHEET NOTES

1. PRV SET TO 7" W.C.

REVISION SCHEDULE:

0	04/02/2018	Contract Documents
1	05/02/2018	Submittal #1

DESIGN ARCHITECT:

PROJECT ARCHITECT:

DRAWN BY:

DESIGN ENGINEER:

DATE:

APRIL 30, 2018



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Eng. Proj. No.: 17039

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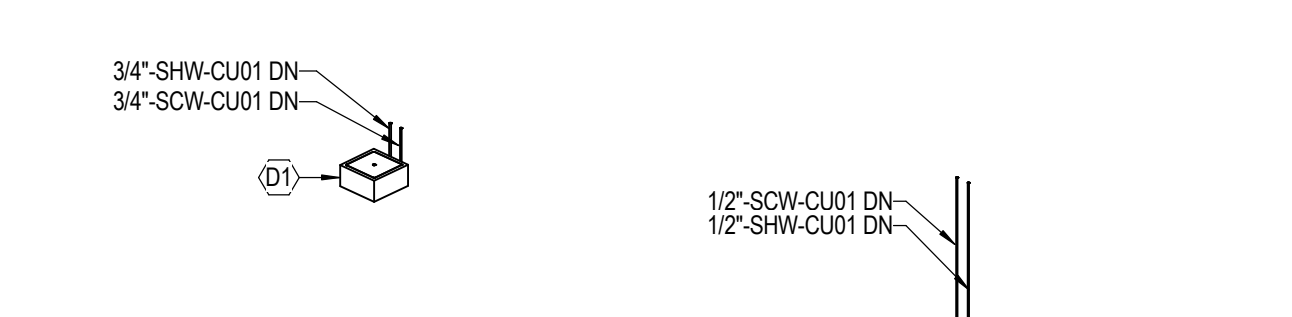
Roof Level Plumbing Water & Gas –
Area B.3

SHA PROJECT NO.

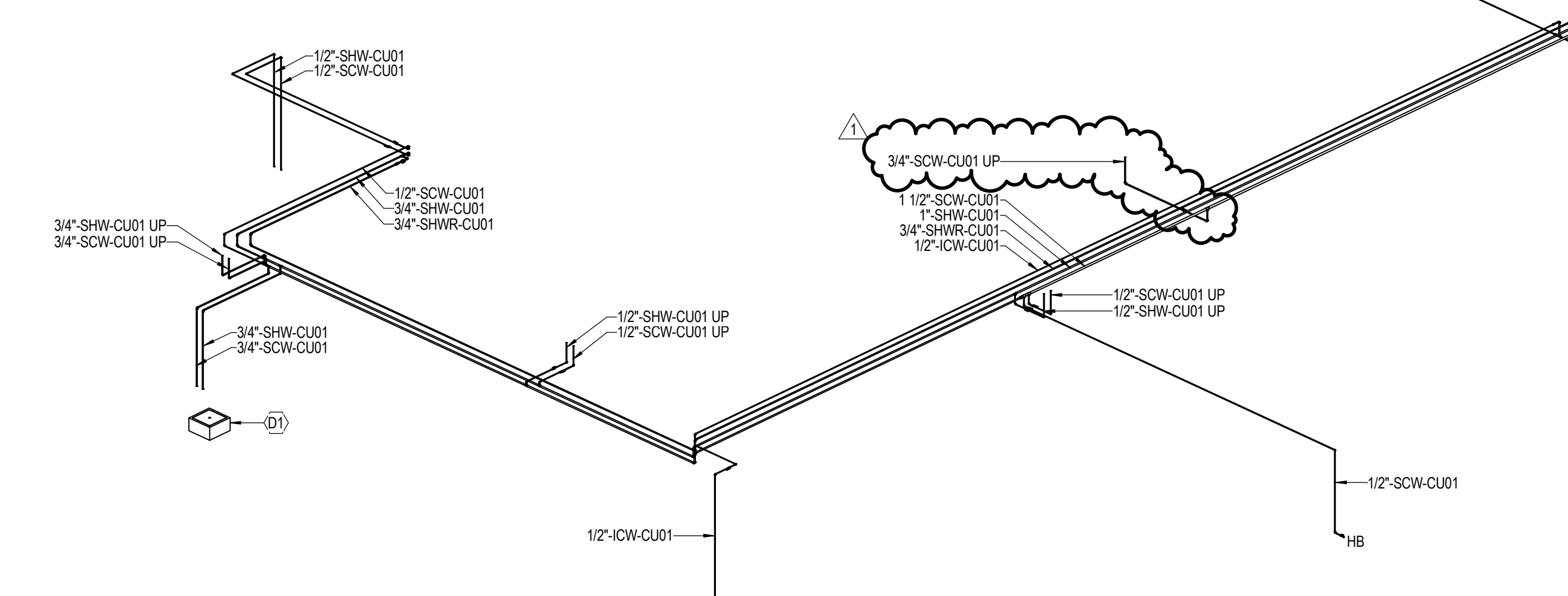
16022

P203B.3

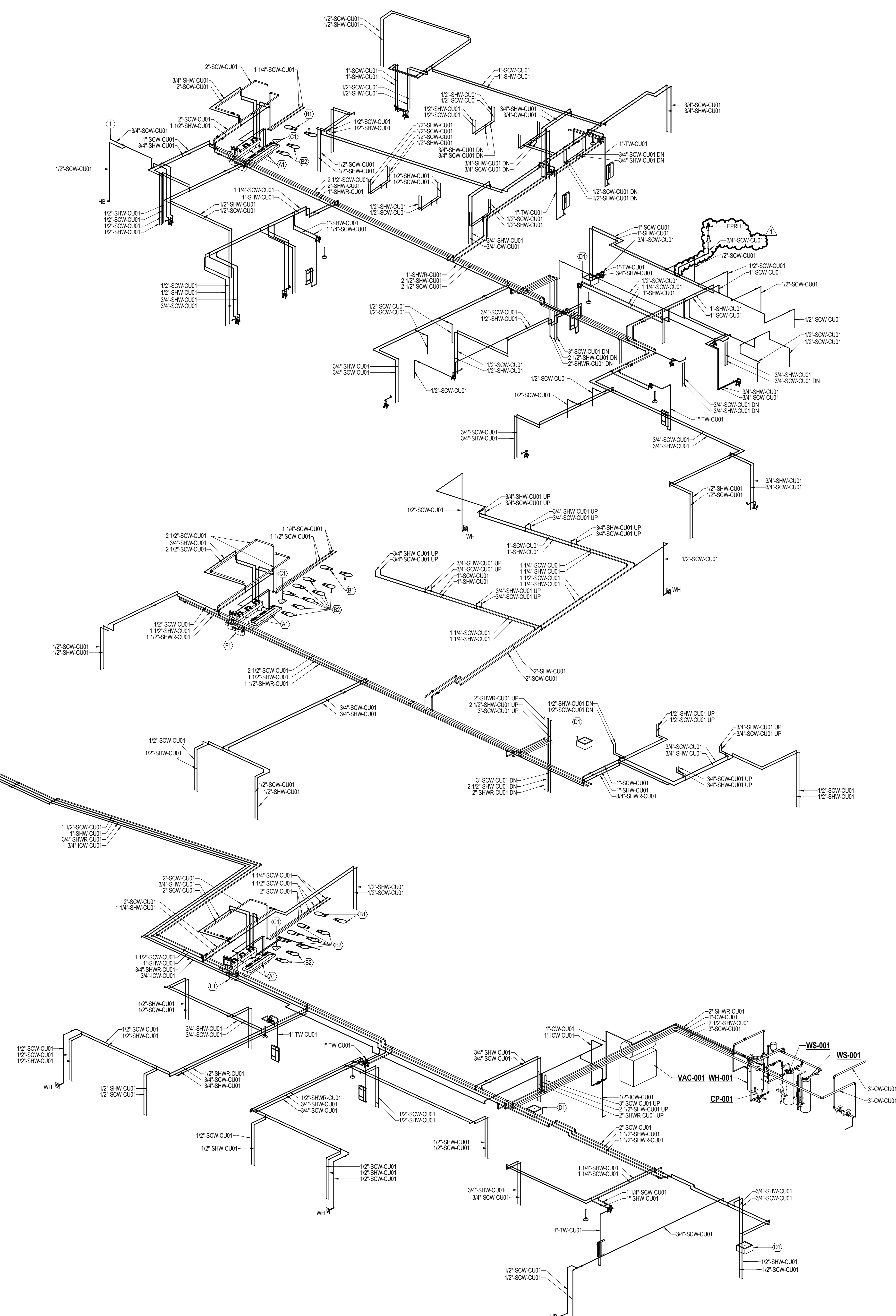
3 Upper Level Water Riser Diagram
NOT TO SCALE



2 Main Level Water Riser Diagram
NOT TO SCALE



1 Lower Level Water Riser Diagram
NOT TO SCALE



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SHEET NOTES

- 3/4" SOFT WATER LINE TO DRIP IRRIGATION SYSTEM. PROVIDED WITH INLINE BACKFLOW PREVENTER, CONTROL VALVE AND TIMER. COORDINATE WITH NEUUS FOR FINAL CONNECTION TO IRRIGATION SYSTEM.
- INDUSTRIAL COLD WATER SYSTEM TO HUMIDIFIER IN DATA 063. FIELD VERIFY EXACT LOCATION AND EQUIPMENT CONNECTIONS.

REVISIONS	
NO.	DATE
1	05/02/2018
PROJECT ARCHITECT: [Signature]	
DESIGN ARCHITECT: [Signature]	
DRAWN BY: [Signature]	
CHECKED BY: [Signature]	
DESIGNED BY: [Signature]	
DATE: APRIL 30, 2018	
PROJECT: [Signature]	
PROJECT CONSULTANTS	
CLARK, RICHARDSON AND BISHOP CONSULTING ENGINEERS, INC. CRB ARCHITECTS-ENGINEERS P.C. 1251 NW BRIMLEY PARKWAY SUITE 200 ANN ARBOR, MI 48106 PHONE: 313-880-8800 FAX: 313-880-8888	
SINCLAIR hille architects 700 Q St. Lincoln, NE 68508 T: 402.476.7331 F: 402.476.8341	
SHA PROJECT NO. 16022	
P501	

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PLUMBING EQUIPMENT SCHEDULE											
UNIT NO.	EQUIPMENT	MANUFACTURER & MODEL NO.	LOCATION	SERVICE	TYPE	CAPACITY (GAL)	ELECTRICAL			OPERATING WEIGHT (LBS)	REMARKS
							V/PH/HZ	HP	KW		
WH-001	TANK TYPE WATER HEATER	A.O. SMITH BTH-400(A)	MECHANICAL 013	DOMESTIC HOT HEATER	NATURAL GAS	119	120/1/60	1/4	VS*	855	STORAGE TYPE NATURAL GAS WATER HEATER WITH 399,900 BTU/HR INPUT. STORAGE RECOVERY TIME OF 460 GPH @ 100° F.
WS-001	WATER SOFTENER	CULLIGAN HI-FLO Xn-150-2	MECHANICAL 013	SOFTENED WATER	ELECTRIC	110 GAL	120/1/60	N/A	N/A	550	TWO-TANK SOFTENER SKID WITH BRINE TANK. NORMAL FLOW RATE OF 148 GPM WITH A PEAK FLOWRATE OF 216 GPM. SOFTENER CAPACITY IS 1,800,000 GRAINS.
WD-001	WATER DISTILLER	DURASTILL 4280	MECHANICAL 013	DISTILLED WATER	ELECTRIC	80 GAL	208/3/60	1/20	5	765	COMMERCIAL WATER DISTILLER. 42 GALLONS PER DAY WITH 80 GALLON STORAGE TANK. 304 SS DISTILLER CABINET.
VAC-001	VACUUM PUMP	POWEREX LCPDT0502	MECHANICAL 013	CENTRAL VACUUM SYSTEM	ELECTRIC	58 SCFM	460/3/60	5	VS*	1,900	DUPLEX LABORATORY CLAW VACUUM PACKAGE WITH HMI/PBMI
ET-001	EXPANSION TANK	AMTROL ST-12	MECHANICAL 013	DOMESTIC HOT WATER	-	4.4	N/A	N/A	N/A	9	MAXIMUM WORKING PRESSURE : 150 PSI. MAXIMUM TEMPERATURE 240° F COMMERCIAL. BUTYL DIAPHRAGM, FOR PERMANENT SEPARATION OF AIR AND WATER, WITH NO WATERLOGING.
ET-003	EXPANSION TANK	AMTROL AX-15(V)	MECHANICAL 013	DISTILLED WATER	-	8	N/A	N/A	N/A	45	MAXIMUM WORKING PRESSURE : 150 PSI. MAXIMUM TEMPERATURE 200° F COMMERCIAL. HEAVY DUTY BUTYL/EPDM DIAPHRAGM, FOR PERMANENT SEPARATION OF AIR AND WATER, WITH NO WATERLOGING.
CP-001	CIRCULATING PUMP	BELL & GOSSETT SERIES e-80 3x5.25	MECHANICAL 013	DOMESTIC HOT WATER	ELECTRIC	-	460/3/60	1	VS*	VS*	REFER TO 230540
CP-002	CIRCULATING PUMP	BELL & GOSSETT SERIES e-80 4x4x13.5	MECHANICAL 013	DISTILLED WATER	ELECTRIC	-	460/3/60	5	VS*	VS*	REFER TO 230540
SP-001	ELEVATOR SUMP PUMP	LIBERTY PUMP	ELEVATOR PIT	WASTE WATER	ELECTRIC	-	120/1/60	1/2	VS*	VS*	25 GPM, OIL-SENSING. REFER TO 230540.

PLUMBING FIXTURE & BRANCH SCHEDULE													
MARK	DESCRIPTION	MANUFACTURER	MODEL	DRAIN - WASTE - SOIL - VENT					COLD WATER		HOT WATER		NOTES
				TRAP	ARM	VERT.	HORIZ.	VENT	SUPPLY	BRANCH	SUPPLY	BRANCH	
A1	ADA SINK SYSTEM, WALL-MOUNT, INFRARED WASHBAR, INSULATE SUPPLY AND WASTE PIPING WITH PLUMBEXX TRAP GEAR, INSTALL WITH PROVIDED VALVE ASSEMBLY, DRYER AND SOAP DISPENSER INTEGRAL TO WASH BAR AT EACH STATION.	BRADLEY	#VERGE WASHBAR	1 1/2	1 1/2	1 1/2	2	1 1/2	3/8	1/2	3/8	1/2	SET OUTLET TEMPERATURE TO 105°F.
B1	WATER CLOSET, 1.6 GPF FLUSHOMETER TOILET SYSTEM WITH EVERCLEAN, WALL-MOUNTED ELONGATED FLUSHOMETER VALVE TOILET, VITREOUS CHINA, HIGH EFFICIENCY, LOW CONSUMPTION, HET (HIGH EFFICIENCY TOILET), SELF-CLEANING PISTON FLUSH VALVE, MECHANICAL OVERRIDE BUTTON, BATTERY OPERATED. #5901.100SS SEAT WITH OPEN FRONT AND SELF-SUSTAINING CHECK HINGE, HANDICAP.	AMERICAN STANDARD; AMERICAN STANDARD	#3351.660 AFWALL MILLENIUM #6065.161.002 SELECTRONIC	INT.	4	4	4	2	1	1 1/4	-	-	-
B2	WATER CLOSET, 1.6 GPF FLUSHOMETER TOILET SYSTEM WITH EVERCLEAN, WALL-MOUNTED ELONGATED FLUSHOMETER VALVE TOILET, VITREOUS CHINA, HIGH EFFICIENCY, LOW CONSUMPTION, HET (HIGH EFFICIENCY TOILET), SELF-CLEANING PISTON FLUSH VALVE, MECHANICAL OVERRIDE BUTTON, BATTERY OPERATED. #5901.100SS SEAT WITH OPEN FRONT AND SELF-SUSTAINING CHECK HINGE.	AMERICAN STANDARD; AMERICAN STANDARD	#3351.660 AFWALL MILLENIUM #6065.161.002 SELECTRONIC	INT.	4	4	4	2	1	1 1/4	-	-	-
C1	URINAL, 0.125 GPF EXPOSED TOP SPUD, WALL MOUNTED, VITREOUS CHINA, ULTRA HIGH EFFICIENCY, FLUSH VALVE, SELF-CLEANING PISTON, MECHANICAL OVERRIDE BUTTON, BATTERY OPERATED, HANDICAP.	AMERICAN STANDARD; AMERICAN STANDARD	#6590.025 WASHBROOK FLOWISE #6063.013 FLUSH VALVE	INT.	2	2	2	1 1/2	3/4	1	-	-	-
C2	URINAL, 0.125 GPF EXPOSED TOP SPUD, WALL MOUNTED, VITREOUS CHINA, ULTRA HIGH EFFICIENCY, FLUSH VALVE, SELF-CLEANING PISTON, MECHANICAL OVERRIDE BUTTON, BATTERY OPERATED.	AMERICAN STANDARD; AMERICAN STANDARD	#6590.025 WASHBROOK FLOWISE #6063.013.002 FLUSH VALVE	INT.	2	2	2	1 1/2	3/4	1	-	-	-
D1	24"x24"x12" SERVICE BASIN, TERRAZZO, STAINLESS STEEL CAPS ON CURBS, FAUCET WITH VACUUM BREAKER, WALL BRACE AND PAIL HOOK, MOP BRACKET AND FLAT STAINLESS STEEL STRAINER.	FIAT	#TSB 100-830AA	3	3	3	3	1 1/2	1/2	1/2	1/2	1/2	-
E1	STAINLESS STEEL SINK, SINGLE COMPARTMENT, COUNTER TOP, 18 GAUGE, 304 STAINLESS STEEL SINK WITH SOUND DAMPENING UNDERCOATING, DECK MOUNTED FAUCET WITH 9-1/4" SWING SPOUT, 1.5 GPM PRESSURE COMPENSATING AERATOR, AND WING HANDLES.	ELKAY; CHICAGO FAUCET	#LR2219 "LUSTERTONE" #201-AE3S-1004BCP	1 1/2	1 1/2	1 1/2	2	1 1/2	3/8	1/2	3/8	1/2	-
E2	STAINLESS STEEL SINK, DOUBLE COMPARTMENT, COUNTER TOP, 18 GAUGE, 304 STAINLESS STEEL SINK WITH SOUND DAMPENING UNDERCOATING, WALL MOUNTED FAUCET WITH 30" HOSE, 1.6 GPM PRESSURE COMPENSATING AERATOR, AND LEVER HANDLES.	ELKAY; ELKAY FAUCET	#DLR322121 #LK943C	1 1/2	1 1/2	2	2	1 1/2	3/8	1/2	3/8	1/2	-
E3	STAINLESS STEEL SINK, SINGLE COMPARTMENT, COUNTER TOP, WITH MANUAL STYLE FAUCET, WRIST BLADE HANDLES, 1.5 GPM AERATOR.	ELKAY; CHICAGO FAUCET	#LR40221980 "LUSTERTONE" #WB0-086AE3S-317AB	1 1/2	1 1/2	1 1/2	2	1 1/2	3/8	1/2	3/8	1/2	-
E4	WALL-HUNG 14 GAUGE, TYPE 304 STAINLESS STEEL, SINGLE 10.5" DEEP COMPARTMENT, REAR CENTER DRAIN, BACK MOUNT FAUCET WITH GOOSE NECK SPOUT.	ELKAY; CHICAGO FAUCET	#EWS2020W4C #H4S-GN2AE3ABCP	2	2	2	2	1 1/2	3/8	1/2	3/8	1/2	-
F1	TWO LEVEL BARRIER-FREE, 18 GAUGE STAINLESS STEEL WATER COOLER WITH BOTTLE FILLING STATION, FILTER SYSTEM, CHILLING CAPACITY OF 8.0 GALLONS PER HOUR OF 50°F DRINKING WATER, BASED UPON 80°F INLET WATER AND 90°F AMBIENT.	ELKAY	#LZ5TLRWRVSRK	1 1/4	1 1/4	1 1/4	2	1 1/4	3/8	1/2	-	-	-
FD-1	FLOOR DRAIN WITH SEDIMENT BUCKET AND NICKEL-BRONZE TOP (MECHANICAL AREAS)	JAY R. SMITH	#2630 SERIES	2.3,4	2.3,4	2.3,4	2.3,4	2.3,4	-	-	-	-	-
HB	HOSE BIBB, FROST-PROOF AUTOMATIC SELF-DRAINING WALL HYDRANT, BRASS VACUUM BREAKER.	WATTS	#FHB-2	-	-	-	-	-	1/2	1/2	-	-	-
WH	FREEZE PROOF WALL HYDRANT	ZURN	#Z1300	-	-	-	-	-	1/2	1/2	-	-	-
FFRH	FREEZE PROOF, AUTOMATIC DRAINING ROOF HYDRANT WITH DUAL CHECK BACKFLOW PREVENTER PROTECTION AND 3/4" FEMALE HOSE THREAD INLET	WOODFORD	#SRH-M5	-	-	-	-	-	3/4	-	-	-	REFER TO PLANS FOR BRANCH SIZES.
ORDRD	COMBINATION ROOF DRAIN WITH OVERFLOW, CAST IRON BODY WITH CAST IRON DOME.	ZURN	#ZC163	-	-	-	-	-	-	-	-	-	-
RD	ROOF DRAIN, CAST IRON BODY WITH CAST IRON DOME.	ZURN	#ZC100	-	-	-	-	-	-	-	-	-	-

REVISION SCHEDULE:

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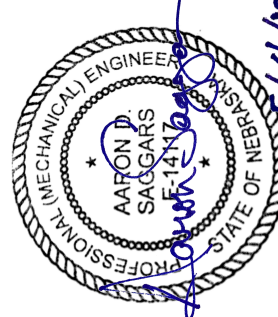
PROJECT ARCHITECT:

DRAWN BY:

DESIGNED BY:

ADDS

DATE:



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CONSULTANTS

1201 O Street, Suite 310

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SALESBORO, MD 21088

Eng. Proj. No.: 170399

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Concordia University

STEM Building

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Plumbing Schedules

SHA PROJECT NO.

16022

P700

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