

AGRICULTURE ENGINEERING BUILDING



RMS 164/166 FERMENTATION LAB RENOVATION



FOR THE CURATORS OF THE UNIVERSITY OF MISSOURI

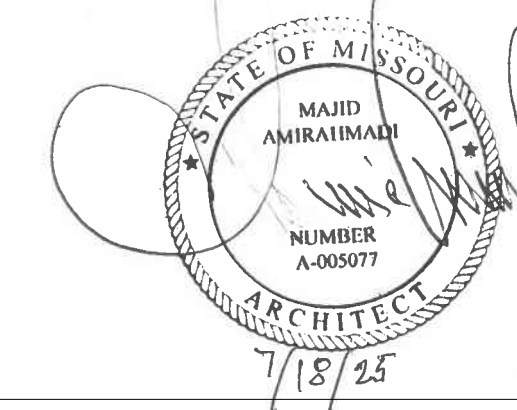
ISSUED FOR BID

07/18/2025

CP250051

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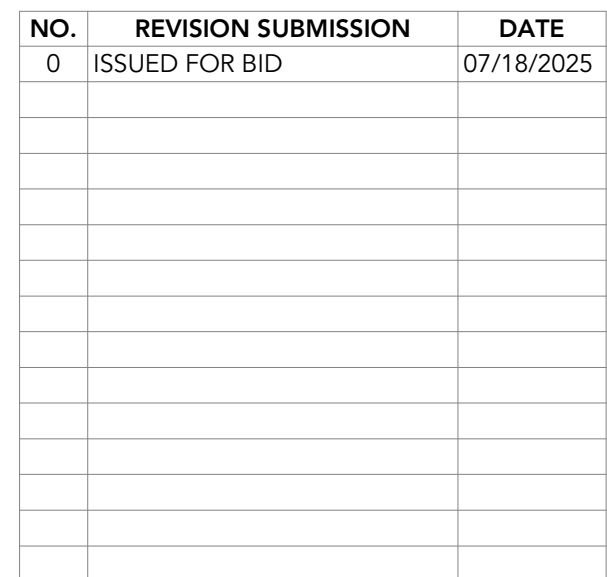


MAJID AMIRAHMADI, AIA
INTERNATIONAL ARCHITECTS ATELIER

CODE SUMMARY | **B1**

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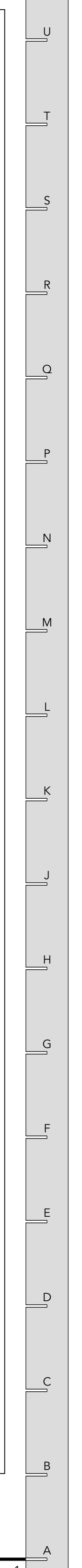
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PROJ. NO.:	CP250051
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DRAWN BY:	BJ
CHECKED BY:	ST
APPROVED BY:	MA

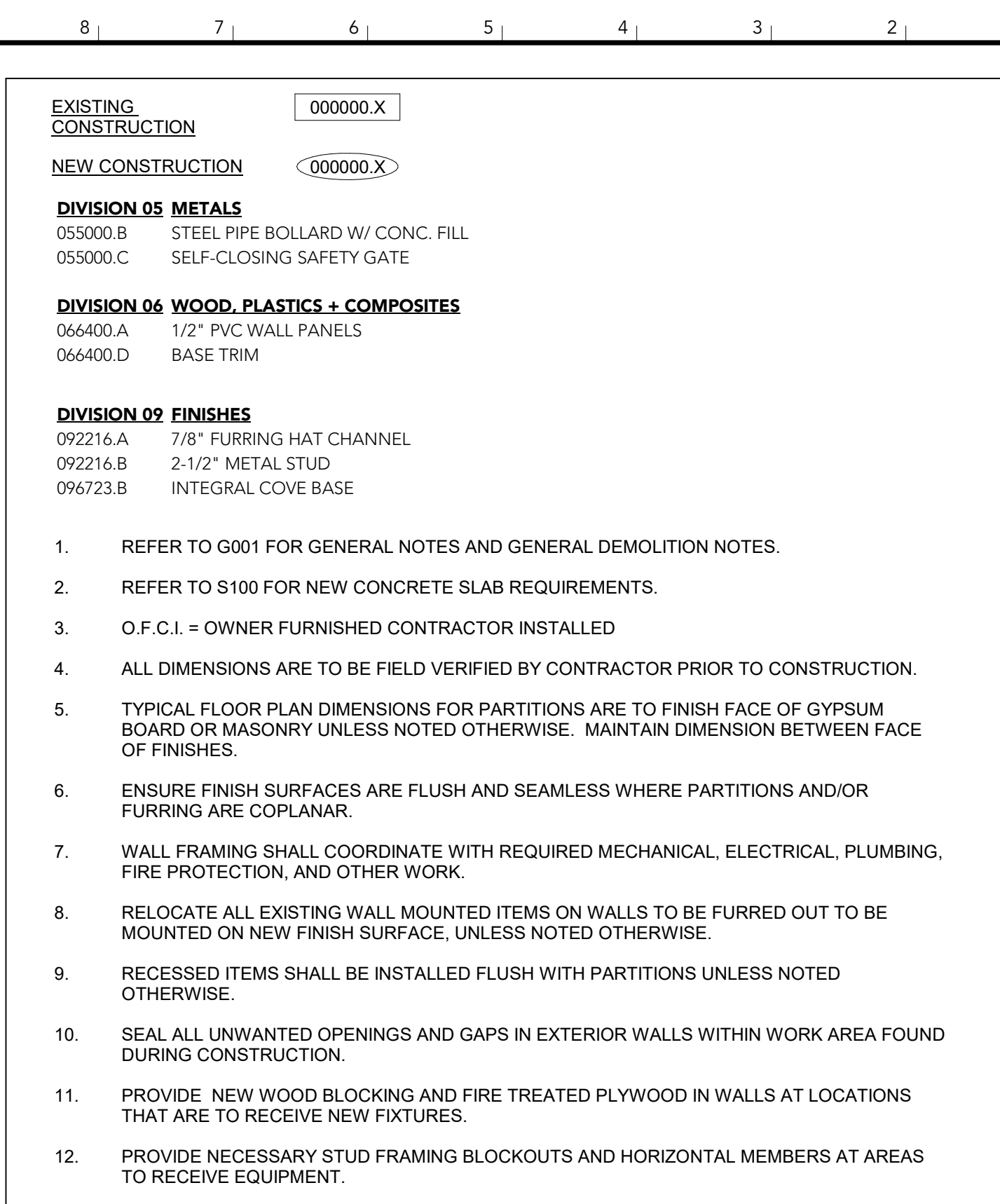


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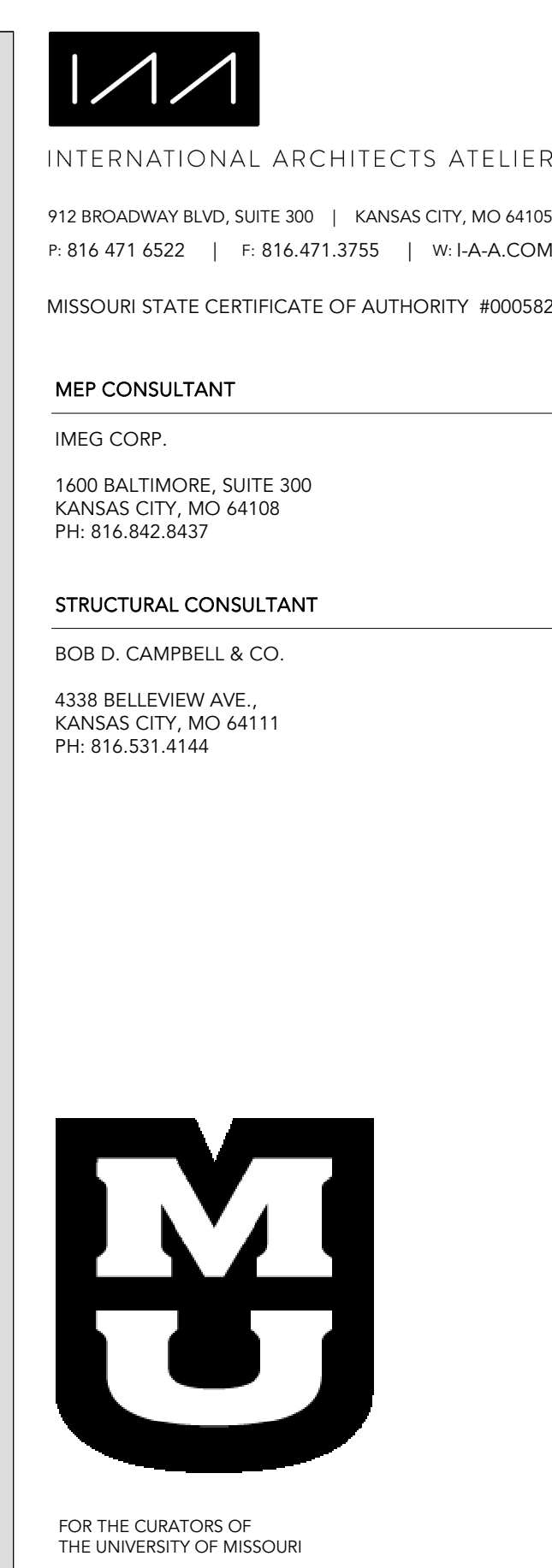


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NOTES | V1



AGRICULTURE
ENGINEERING
BUILDING - RMS
164/166
FERMENTATION
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1406 ROLLINS ST
COLUMBIA, MO 65201

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APPROVED BY:	MA

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[illegible]

FLOOR PLANS

A100

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<u>DIVISION 09 FINISHES</u>	
092216.B	2-1/2" METAL STUD
096723.A	EPOXY FLOORING SYSTEM
096723.B	INTEGRAL COVE BASE

DIVISION 10 SPECIALTIES

DIVISION 11 EQUIPMENT

DIVISION 12 FURNISHINGS

DIVISION 14 CONVEYING EQUIPMENT

DIVISION 22 PLUMBING

DIVISION 23 HVAC

DIVISION 26 ELECTRICAL

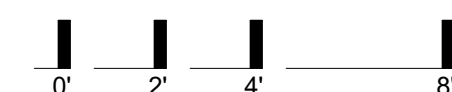
DIVISION 31 EARTHWORK

DIVISION 32 EXTERIOR IMPROVEMENTS

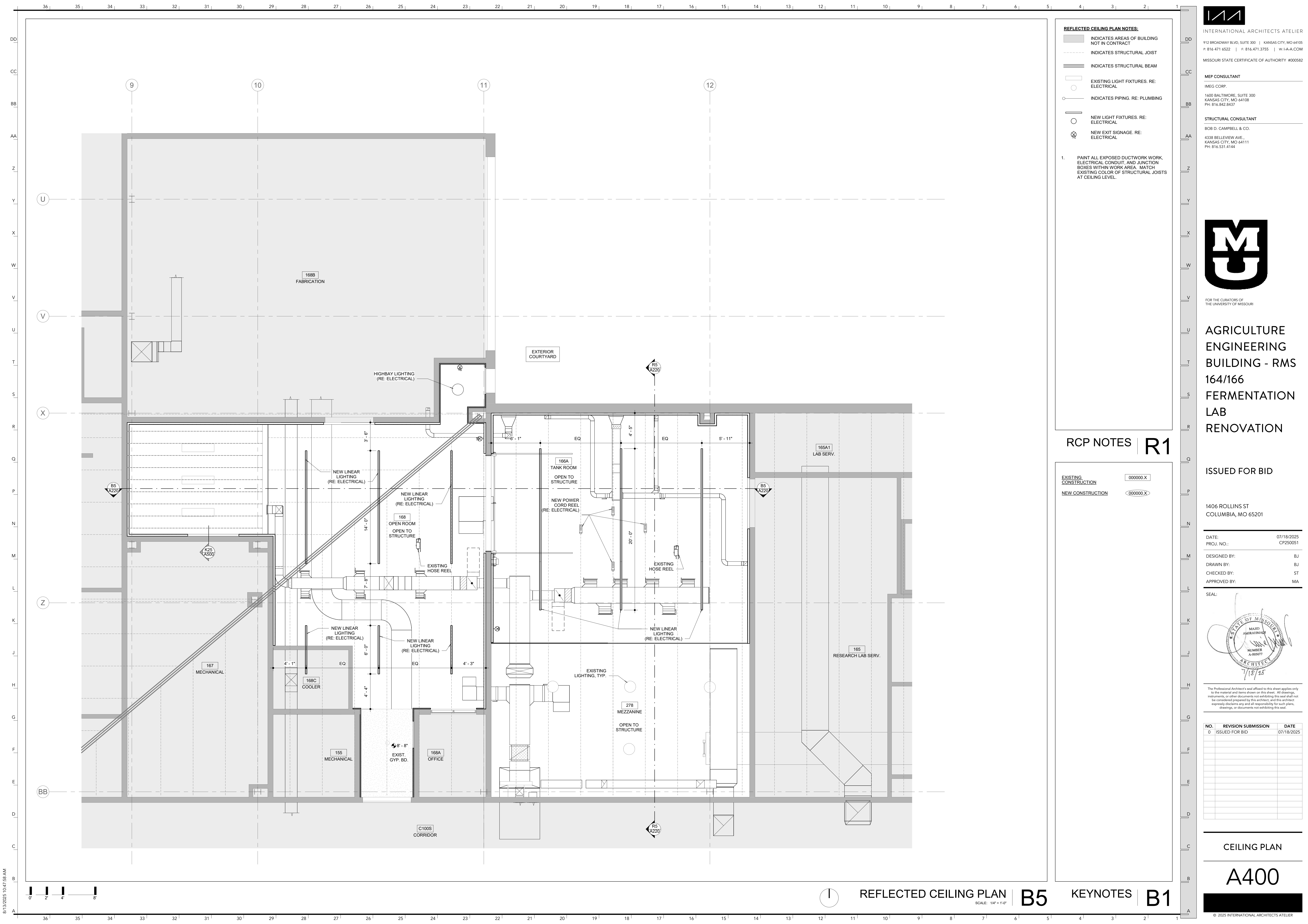
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[illegible]

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- REFLECTED CEILING PLAN NOTES:**
- INDICATES AREAS OF BUILDING NOT IN CONTRACT
 - INDICATES STRUCTURAL JOIST
 - INDICATES STRUCTURAL BEAM
 - EXISTING LIGHT FIXTURES, RE: ELECTRICAL
 - INDICATES PIPING, RE: PLUMBING
 - NEW LIGHT FIXTURES, RE: ELECTRICAL
 - NEW EXIT SIGNAGE, RE: ELECTRICAL
1. PAINT ALL EXPOSED DUCTWORK WORK, ELECTRICAL CONDUIT, AND JUNCTION BOXES WITHIN WORK AREA. MATCH EXISTING COLOR OF STRUCTURAL JOISTS AT CEILING LEVEL.

RCP NOTES | R1

EXISTING CONSTRUCTION	000000.X
NEW CONSTRUCTION	000000.X

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CEILING PLAN

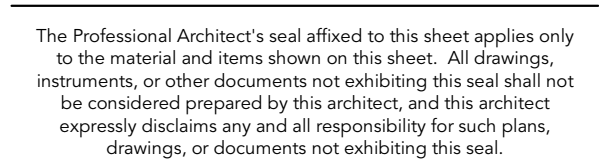
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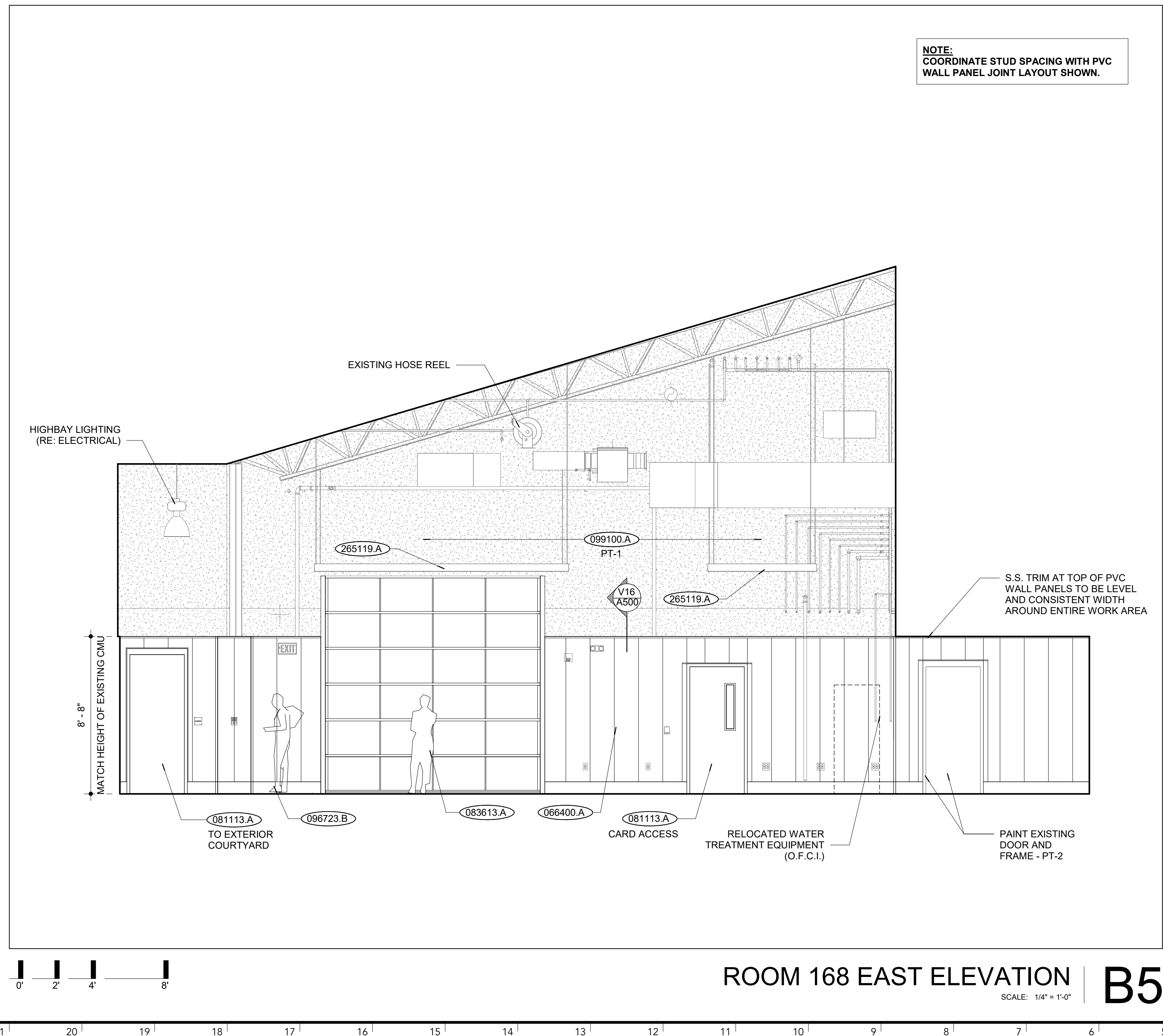
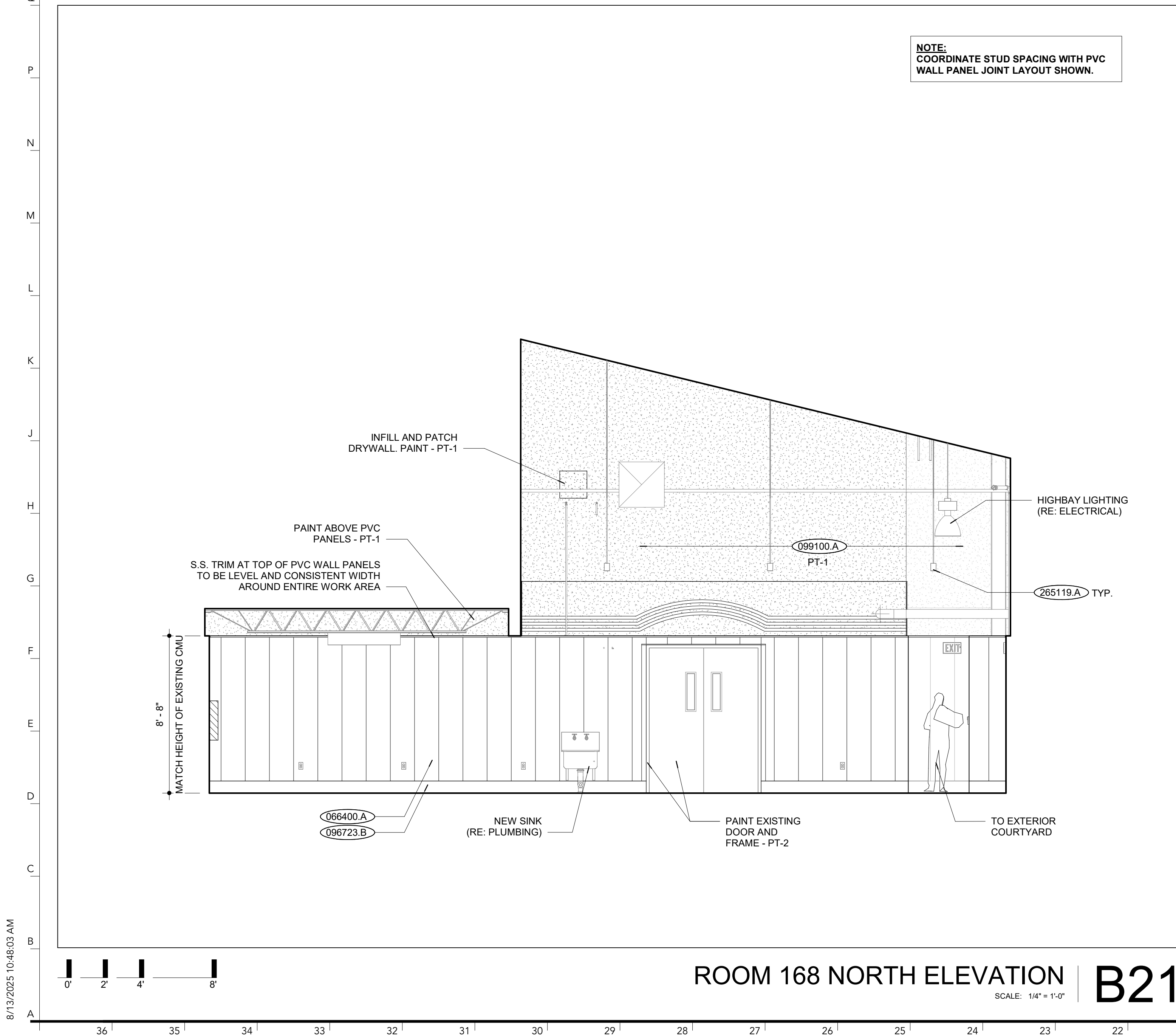
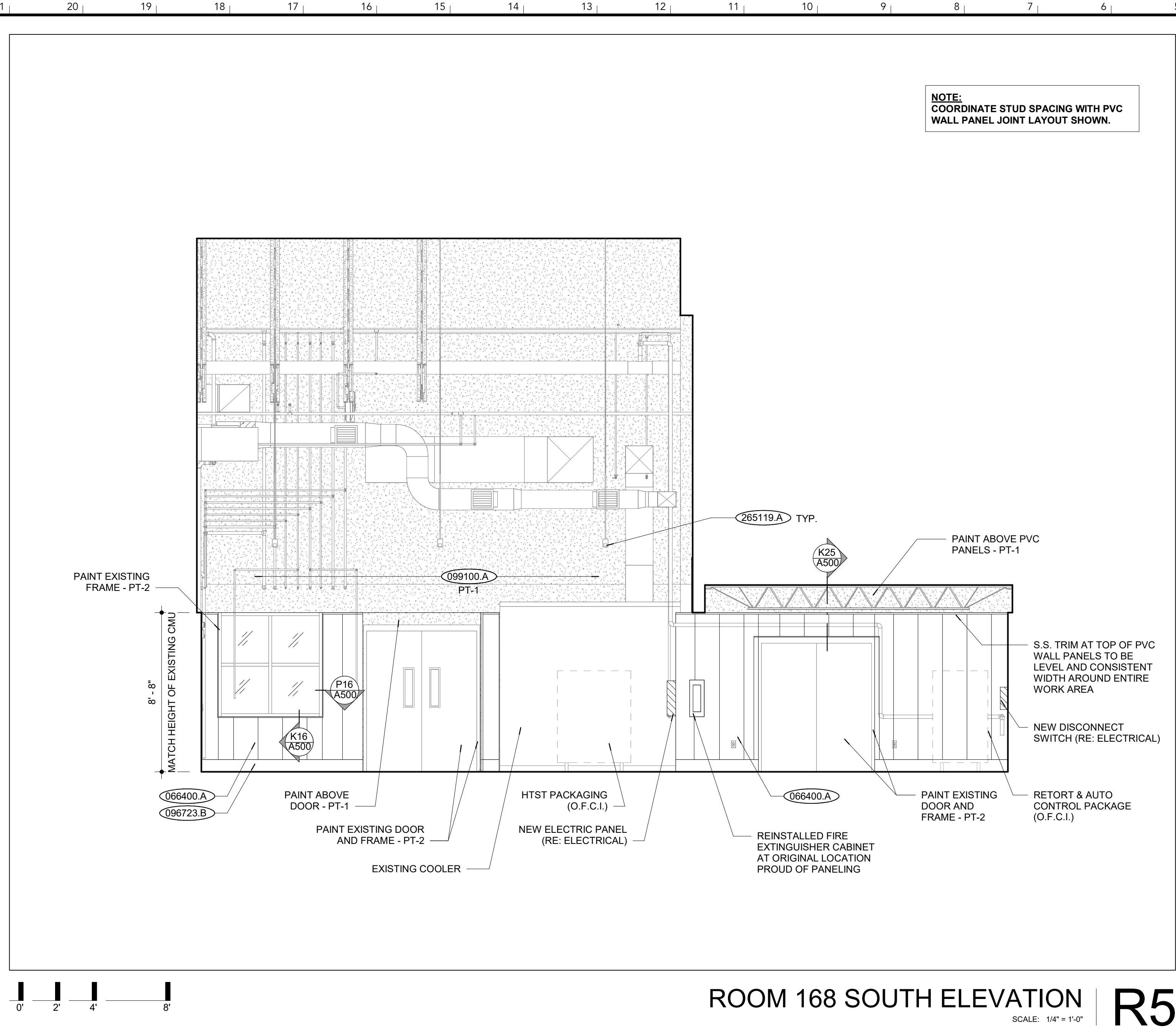
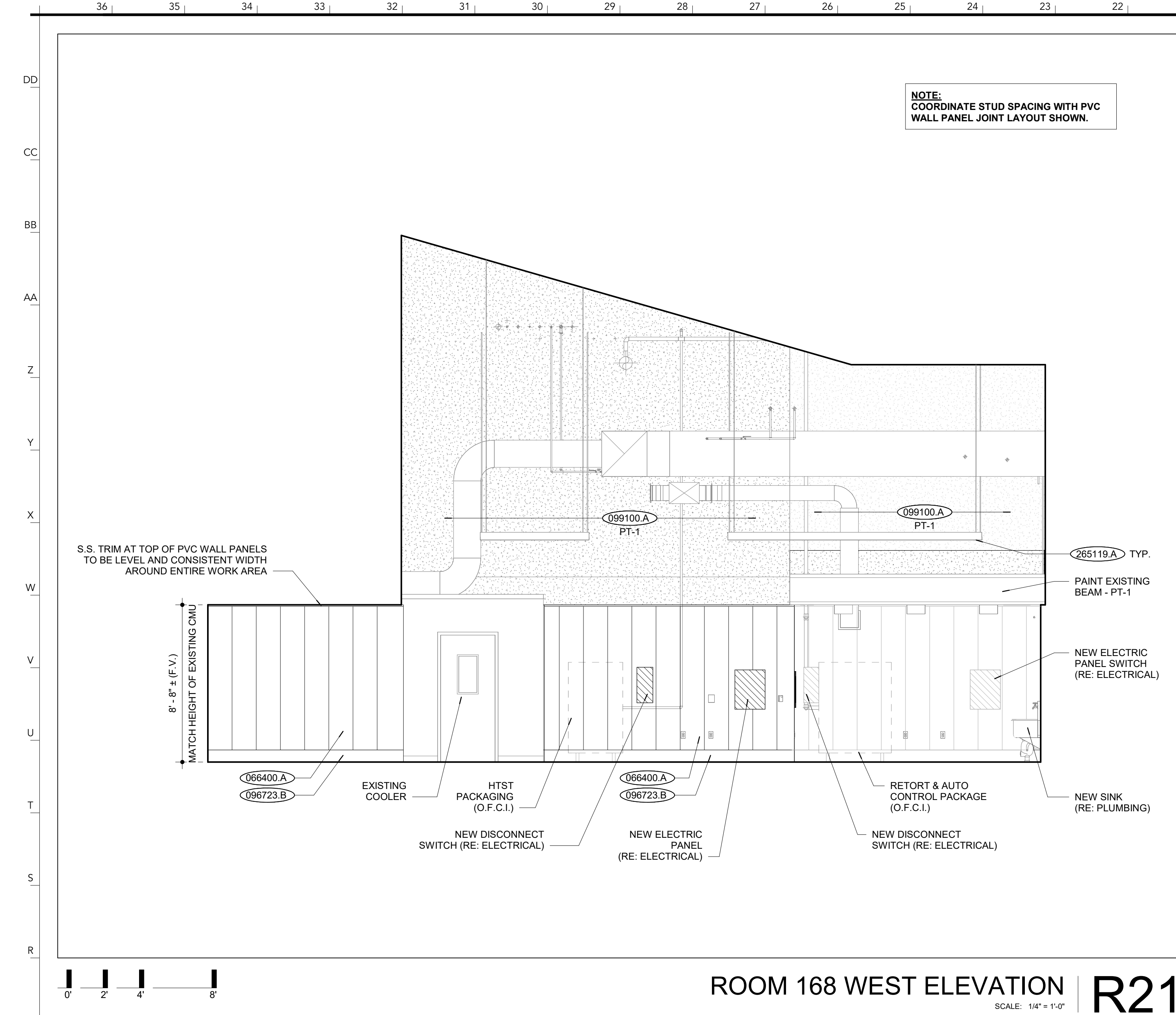
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KEYNOTES | B1



- FINISH NOTES:**
- ALL WALLS, EXISTING AND NEW, IN THE CONTRACT AREA SHALL BE PAINTED PT-1 IN EGGSHELL FINISH UNLESS NOTED OTHERWISE. ALL EXISTING WALLS SHALL BE PREPARED FOR PAINT BY FILLING HOLES, REMOVING ADHESIVE, AND PROVIDING A CLEAN SURFACE.
 - ALL EXISTING AND NEW DOORS AND FRAMES THROUGHOUT THE WORK AREA SHALL BE PAINTED PT-2.
 - PAINT ALL EXPOSED DUCTWORK WORK, ELECTRICAL CONDUIT, AND JUNCTION BOXES WITHIN WORK AREA. MATCH EXISTING COLOR OF STRUCTURAL JOISTS AT CEILING LEVEL.
- BASIS OF DESIGN FINISHES:**
PAINT (RE: 099100)
PT-1: BENJAMIN MOORE; STEAM AF-15
PT-2: BENJAMIN MOORE; KENDALL CHARCOAL HC-166
PT-3: TO BE SELECTED BY ARCHITECT

FINISH NOTES | Y5

- EXISTING CONSTRUCTION** 000000.X
NEW CONSTRUCTION 000000.X
- DIVISION 03 CONCRETE**
- DIVISION 04 MASONRY**
- DIVISION 05 METALS**
- DIVISION 06 WOOD, PLASTICS + COMPOSITES**
066400.A 1/2" PVC WALL PANELS
- DIVISION 07 THERMAL + MOISTURE PROTECTION**
- DIVISION 08 OPENINGS**
081113.A HOLLOW METAL DOOR
083613.A OVERHEAD SECTIONAL DOOR
- DIVISION 09 FINISHES**
096723.B INTEGRAL COVE BASE
099100.A INTERIOR PAINT
- DIVISION 10 SPECIALTIES**
- DIVISION 11 EQUIPMENT**
- DIVISION 12 FURNISHINGS**
- DIVISION 14 CONVEYING EQUIPMENT**
- DIVISION 22 PLUMBING**
- DIVISION 23 HVAC**
- DIVISION 26 ELECTRICAL**
265119.A INTERIOR LINEAR LED LIGHT FIXTURE; RE: ELECTRICAL
- DIVISION 31 EARTHWORK**
- DIVISION 32 EXTERIOR IMPROVEMENTS**



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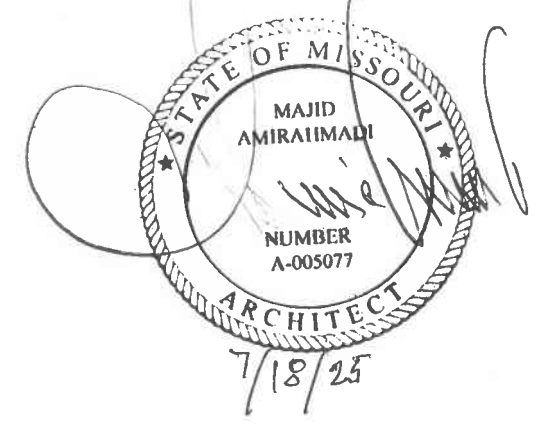
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APPROVED BY: MA

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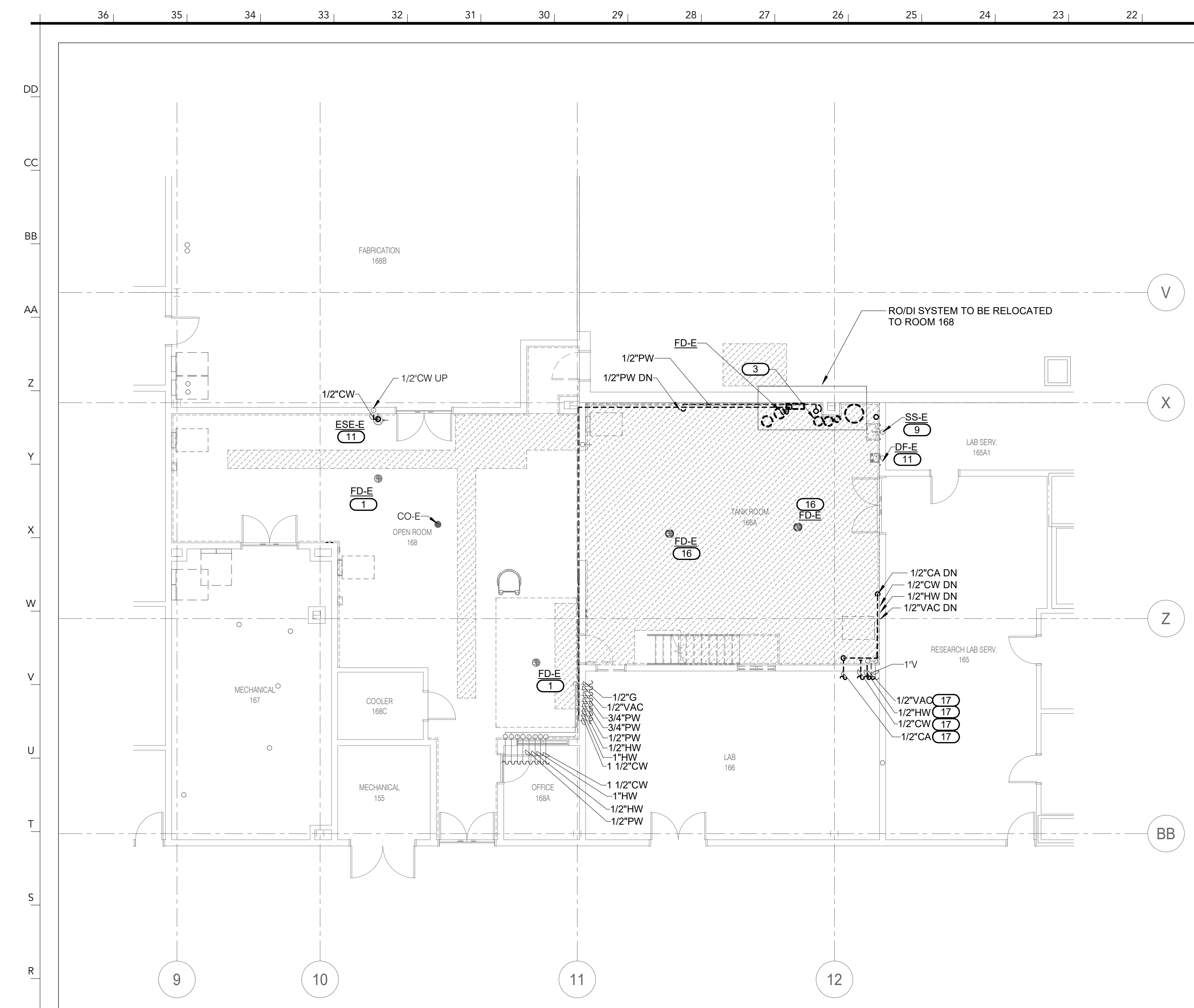
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INTERIOR ELEVATIONS

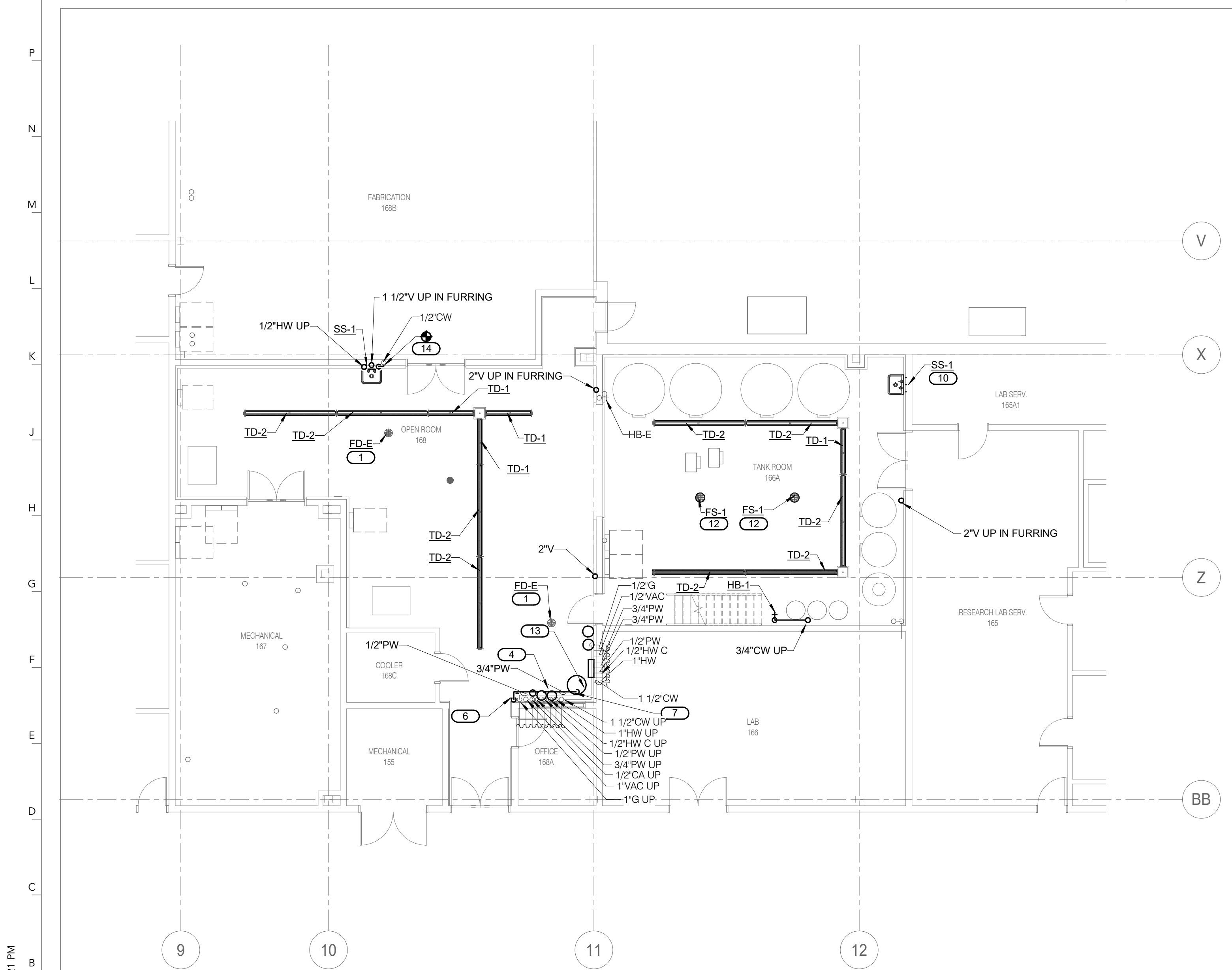
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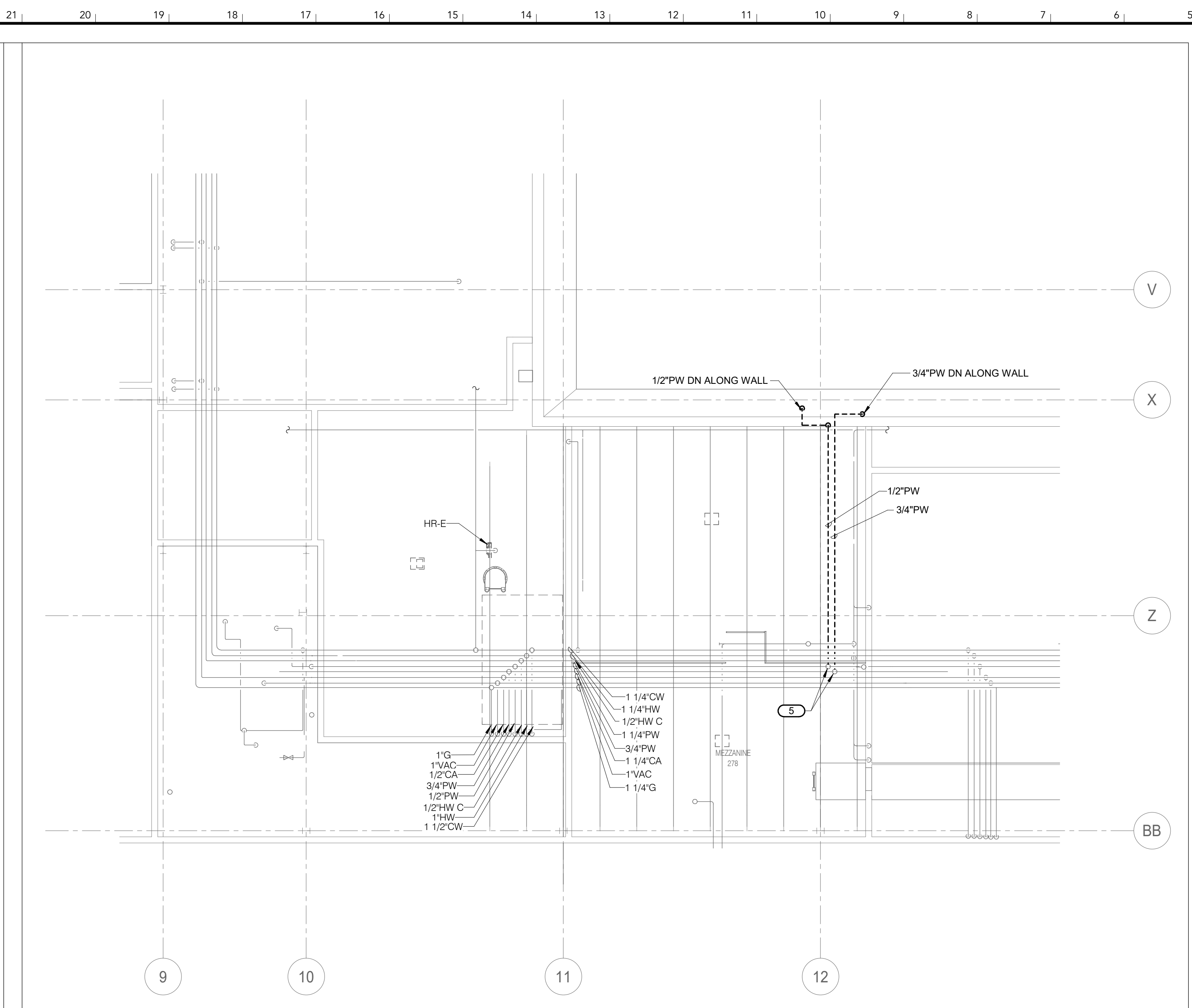




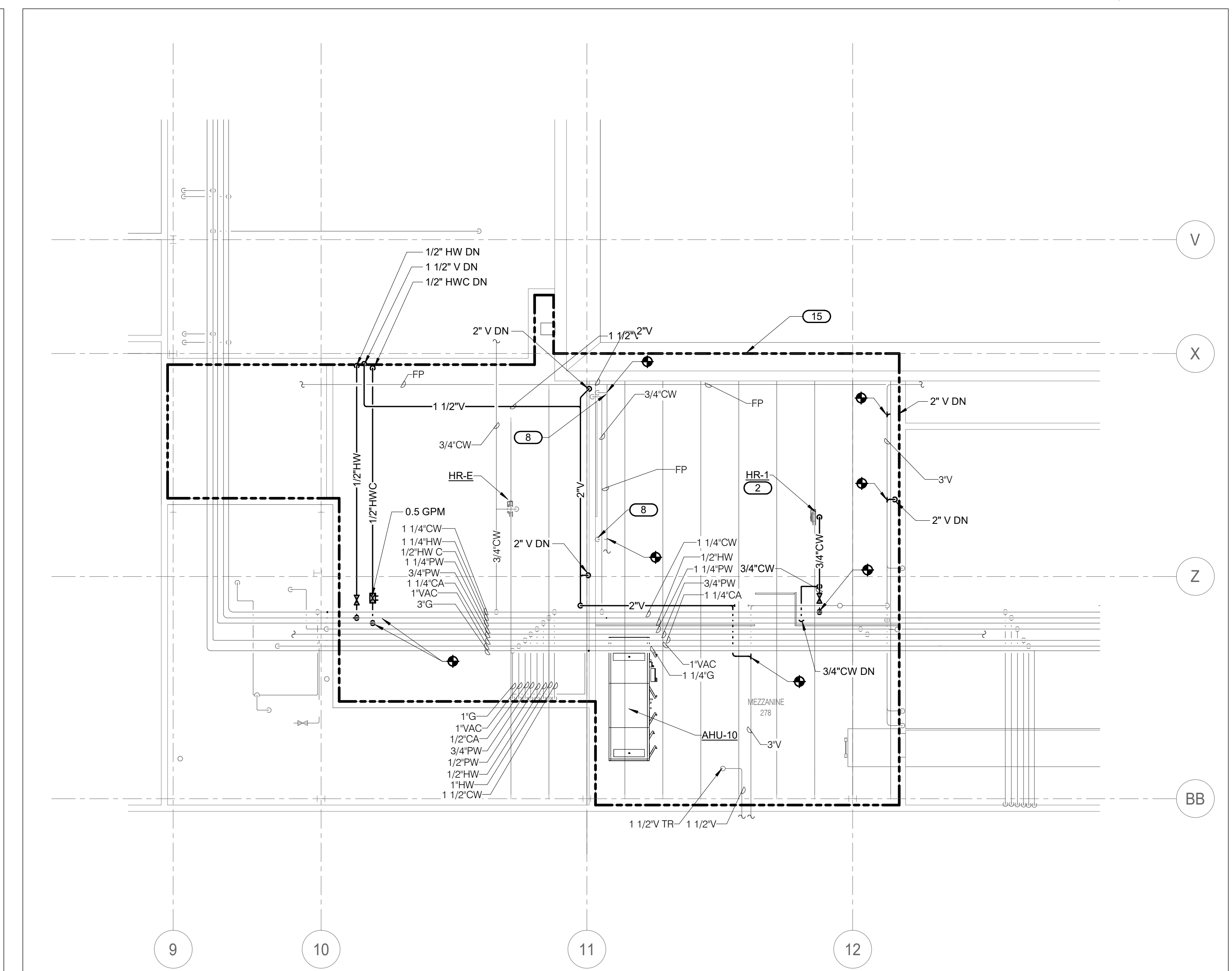
LEVEL 01 DEMOLITION PLAN - PLUMBING | R21
SCALE: 1/8" = 1'-0"



LEVEL 01 PLAN - PLUMBING | B21
SCALE: 1/8" = 1'-0"



LEVEL 02 DEMOLITION PLAN - PLUMBING | R5
SCALE: 1/8" = 1'-0"



LEVEL 02 PLAN - PLUMBING | B5
SCALE: 1/8" = 1'-0"

SHEET NOTES:

- SEE SHEET M000 FOR GENERAL NOTES AND SYMBOLS LIST.
- SYSTEM SHUTDOWNS SHALL BE MINIMIZED AND SHALL BE COORDINATED WITH OWNER A MINIMUM OF 2 WEEKS BEFORE PLANNED SHUTDOWNS.
- ALL WASTE, VENT & WATER PIPING SHOWN DASHED & DARK TO BE REMOVED. DEMOLISHED PIPING TO BE REMOVED BACK TO MAIN OR BRANCH MAIN. CAP PIPING TO REMAIN.

KEYNOTES:

- EXISTING FLOOR DRAIN GRATE TO BE REPLACED WITH 3/16 STAINLESS STEEL FULL GRATE WITH 1/2" SQUARE OPENINGS.
- WATER HOSE REEL TO BE ATTACHED TO STEEL STRUCTURE AT APPROX. 20' AFF. COORDINATE LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
- EXISTING CULLIGAN G1 SERIES REVERSE OSMOSIS SYSTEM, DUAL DI TANKS, VIQUA UV, HE SOFTENER, MANUAL FILTRATION SYSTEM, STORAGE WATER TANK AND ALL ASSOCIATED COMPONENTS TO BE REMOVED FOR RELOCATION, DISCONNECT AND REMOVE ALL CONNECTED PIPING, ASSOCIATED HANGERS, AND ACCESSORIES NOT REQUIRED TO REMAIN.
- REINSTALL EXISTING CULLIGAN G1 SERIES REVERSE OSMOSIS SYSTEM, DUAL DI TANKS, VIQUA UV, HE SOFTENER, MANUAL FILTRATION SYSTEM, AND STORAGE WATER TANK PER CULLIGAN RECOMMENDATIONS. REGIONAL PHONE NO.: 573-874-6147. ACCOUNT NO.: 742763.
- CAP PURE WATER LINE AFTER REMOVAL OF CONNECTED R/O/DI EQUIPMENT AND ASSOCIATED PIPING.
- PURE WATER CONNECTION POINT FOR CULLIGAN FILTER UNIT.
- PURE WATER CONNECTION POINT FOR CULLIGAN STORAGE WATER TANK.
- INSTALL SPRINKLER HEADS WITHIN 12" OF UNDERSIDE OF GARAGE DOOR TO ENSURE FULL FIRE PROTECTION COVERAGE WHILE DOOR IS IN THE "OPEN" POSITION. INSTALLATION SHALL COMPLY WITH NFPA 13.
- DISCONNECT AND REMOVE EXISTING SINK AND ASSOCIATED PIPING NO LONGER REQUIRED TO REMAIN. PREPARE EXISTING PIPING FOR CONNECTION TO NEW SINK.
- INSTALL NEW SINK AND CONNECT TO EXISTING WATER AND SANITARY LINES. PATCH AND REPAIR ANY DAMAGE TO WALL.
- FIXTURE TO BE REMOVED. REMOVE ANY ASSOCIATED PIPING, HANGERS, OR OTHER ACCESSORIES NOT REQUIRED TO REMAIN. CAP PIPING TO REMAIN. REPAIR AND PATCH ANY WALL PENETRATIONS TO MATCH SURROUNDING FINISH.
- CONNECT NEW FLOOR SINK TO EXISTING UNDERLOOR SANITARY PIPING.
- REINSTALL CULLIGAN R/O/DI SYSTEM EQUIPMENT ON 4" HOUSEKEEPING PAD.
- INSTALL NEW 1/2" CW PIPING TO CONNECT EXISTING CW PIPING TO NEW SINK. INSTALL PIPING WITHIN NEW FURRED OUT WALL.
- PROVIDE REVISIONS TO FIRE SPRINKLER LAYOUT AS NECESSARY FOR NEW ARCHITECTURAL AND MECHANICAL EQUIPMENT. PIPE AND DUCTWORK CHANGES. ENSURE FULL COVERAGE IN ACCORDANCE WITH NFPA 13 AND LOCAL CODE REQUIREMENTS.
- REMOVE FLOOR DRAIN, GRATE, AND PIPING NOT REQUIRED TO REMAIN.
- REMOVE EXISTING PIPING UP TO THE POINT OF CONNECTION TO MAINS. CAP CONNECTION POINT.

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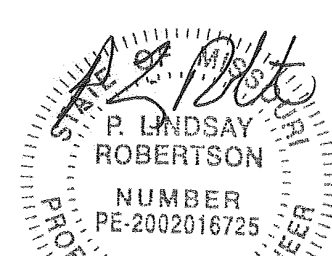
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DRAWN BY: BDN
CHECKED BY: SGB
APPROVED BY: SGB

SEAL:



P. Lindsay Robertson - #PE
2002016725

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LEVEL 01 & 02 PLANS -
PLUMBING

P101

NOTES | **B1**

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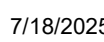
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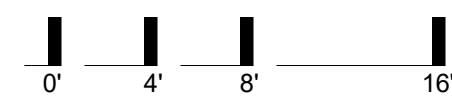
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UNDERFLOOR PLAN - PLUMBING

P200

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UNDERFLOOR PLAN - PLUMBING

SCALE: 1/8" = 1'-0"

R5

NOTES

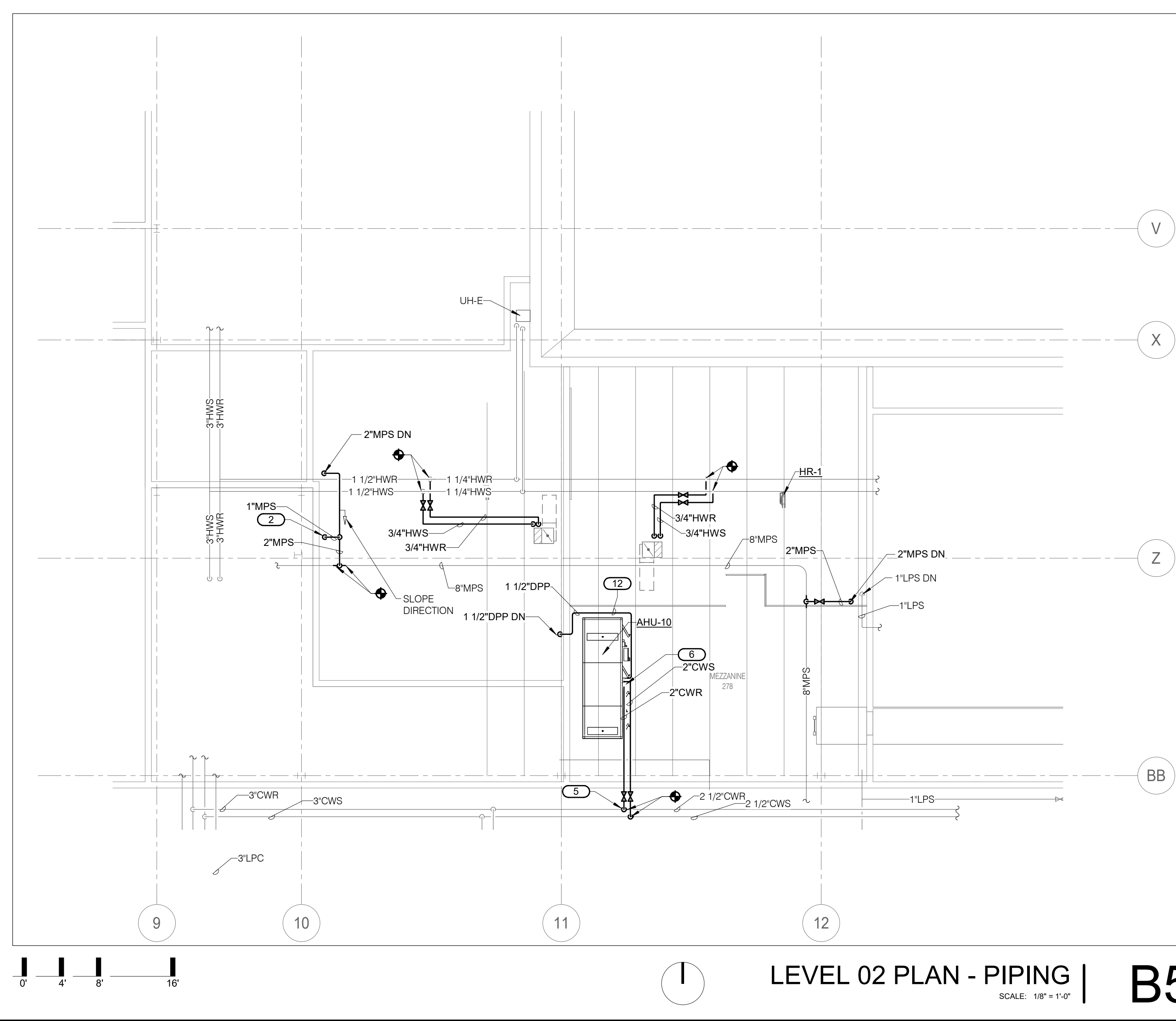
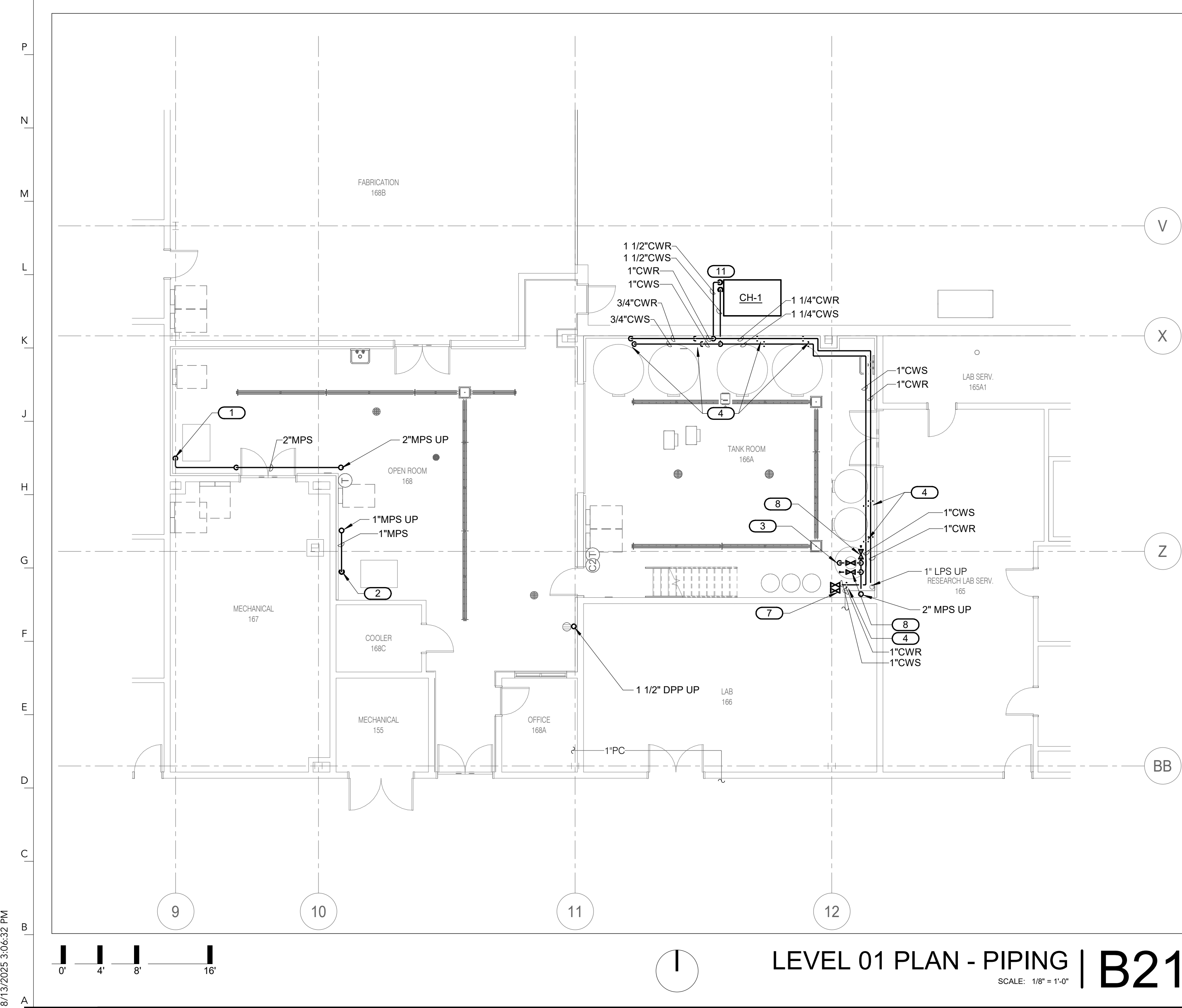
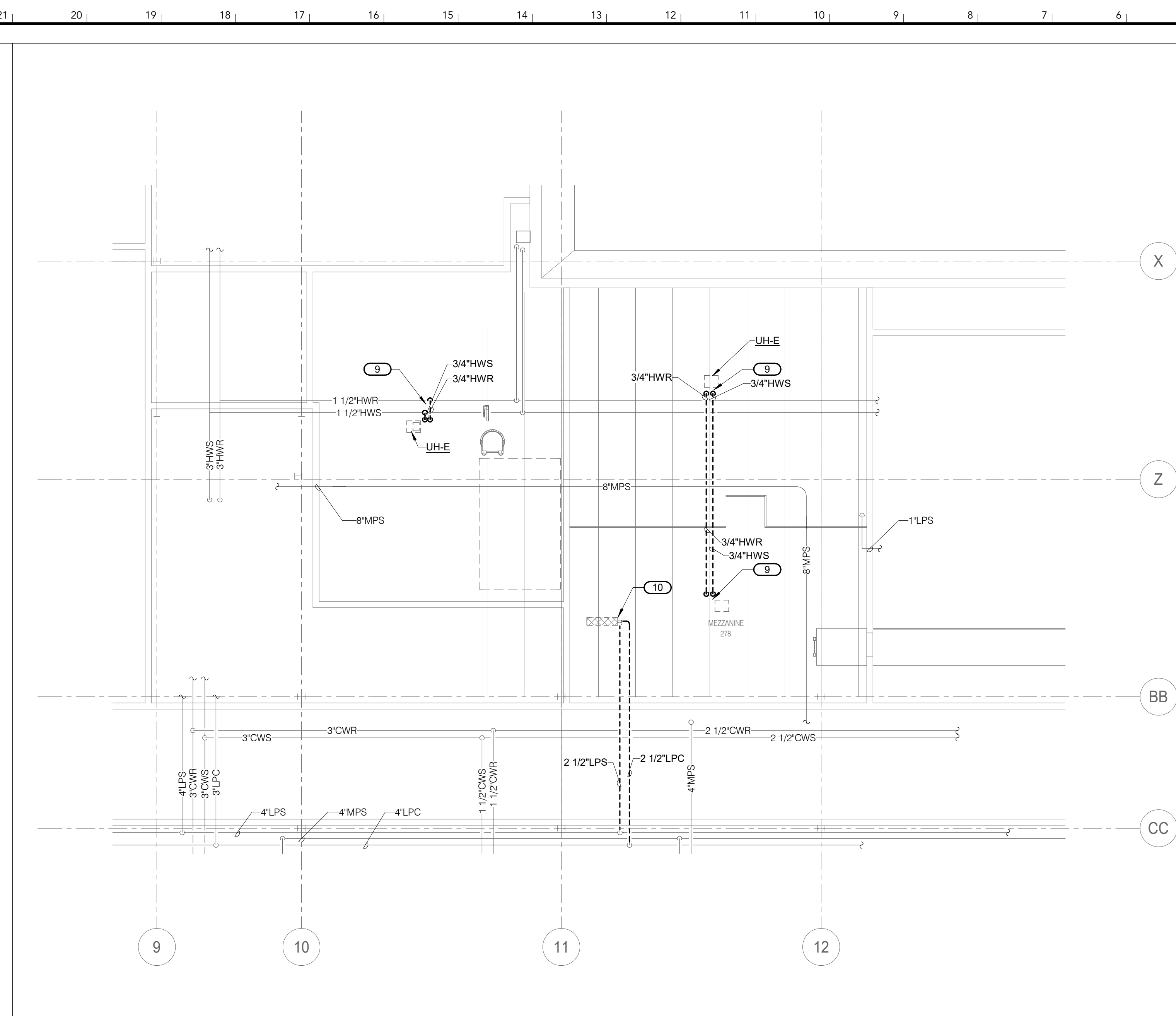
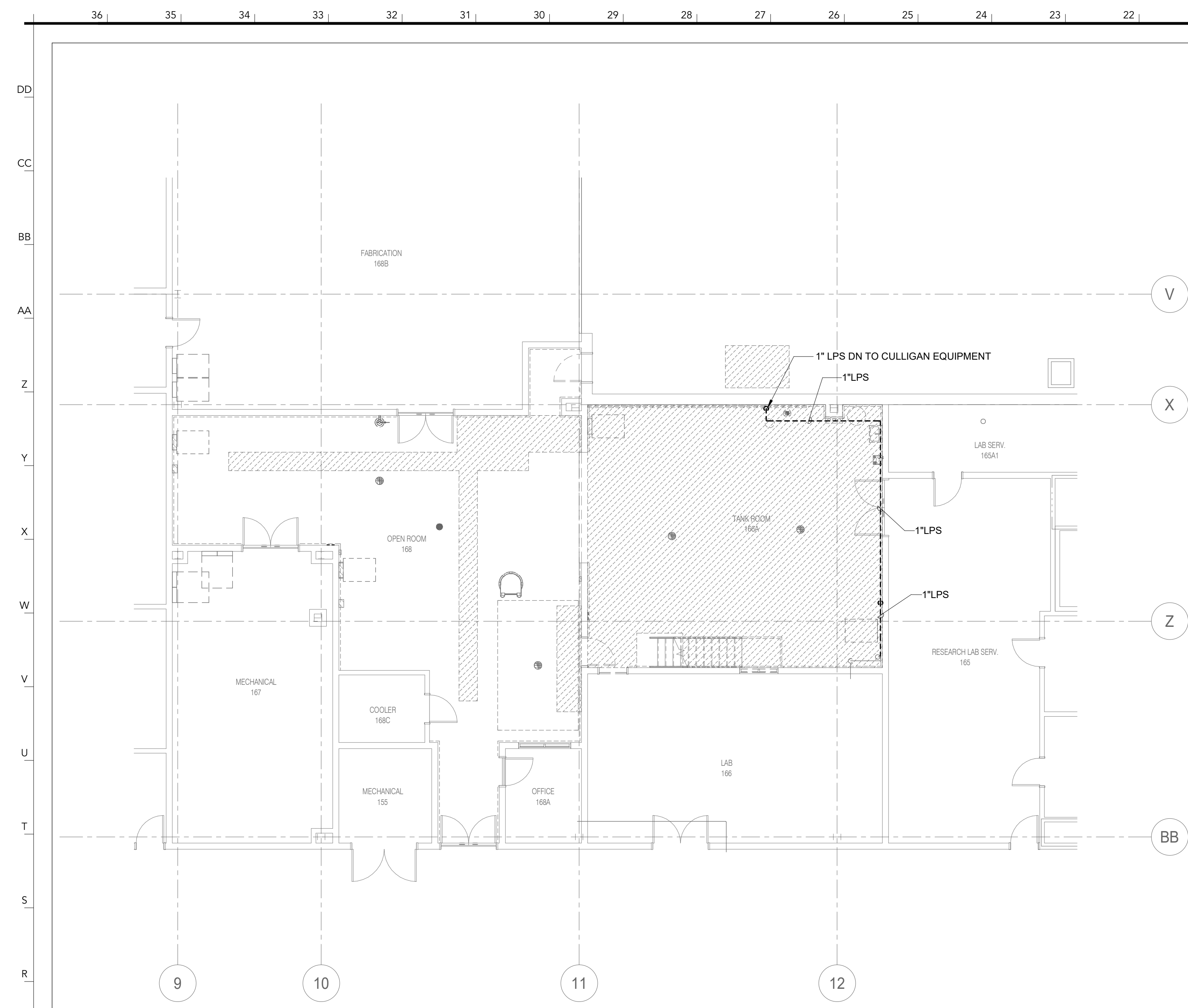
B1

36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

PIPE SYSTEM	INSULATION TYPE	INSULATION THICKNESS PER NOMINAL PIPE OR TUBE SIZE					NOTES
		< 1"	1" TO < 1.5"	1.5" TO < 4"	4" TO < 8"	≥ 8"	
22 PLUMBING - WASTE							
SAN - SANITARY DRAINAGE	B (Elasto)	0.75	0.75	0.75	0.75	0.75	
UV - VENT	B (Elasto)	0.75	0.75	0.75	0.75	0.75	
22 PLUMBING - WATER							APPLY INSULATION ONLY WITHIN 10' OF EXTERIOR PENETRATION
CW - COLD WATER - POTABLE	B (Elasto)	0.75	0.75	0.75	0.75	0.75	
HW - HOT WATER - POTABLE	B (Elasto)	0.75	0.75	0.75	0.75	0.75	
HWIC - HOT WATER CIRCULATING - POTABLE	B (Elasto)	0.75	0.75	0.75	0.75	0.75	
PW - PURE WATER	B (Elasto)	0.75	0.75	0.75	0.75	0.75	

SCALE: NO SCALE

SCALE: NO SCALE



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KEYNOTES	#
27	MPS DOWN TO SERVE HOTTEST EQUIPMENT. MECHANICAL CONTRACTOR TO PROVIDE DELIVERY AT 30 PSI, 1100 LBH/R. PROVIDE WITH ISOLATION VALVES WITHIN 48" EXACT HEIGHT AS DIRECTED BY TENDANT.
28	1" MPS DOWN TO SERVE HTST PROCESSING AND ASEPTIC EQUIPMENT. DELIVERY AT 30 PSI, 35 LBH/R. PROVIDE WITH ISOLATION VALVES WITHIN 48" EXACT HEIGHT AS DIRECTED BY TENDANT.
31	1" MPS DROP TO SERVE STILL.
34	3/4" CWS & CWR PIPING DOWN WITH ISOLATION VALVES WITHIN 48" AFF AND THROUGH CONNECTION TO TENDANT. COORDINATE EXACT TERMINATION HEIGHT WITH REQUIREMENTS OF OWNER PROVIDED EQUIPMENT.
35	CONNECT CWS & CWR TO EXISTING MAINS IN CORRIDOR.
36	CONNECT CWS & CWR TO NEW AHU.
37	MECHANICAL CONTRACTOR TO PROVIDE ISOLATION VALVES FOR CWS & CWR FOR FUTURE CONNECTION TO TENDANT.
38	MECHANICAL CONTRACTOR TO PROVIDE ISOLATION VALVES AND CAP 1" MPS PIPING THROUGH CONNECTION.
39	DISCONNECT AND REMOVE UNIT HEATER AND ASSOCIATED CONTROLS, EXISTING HEATING AND COOLING COILS, AND ASSOCIATED ACCESSORIES, CAP PIPING AT MAINS.
40	DISCONNECT AND REMOVE EXISTING STEAM AND CONDENSATE PIPING, CAP PIPING AT STEAM TRAPS, AND ASSOCIATED LFC AND LPS PIPING NOT REQUIRED TO REMAIN, CAP PIPING AT MAINS.
41	NEW CHILLER TO BE PROVIDED BY OWNER AND INSTALLED BY GENERAL CONTRACTOR.
42	REMOVE DUCT FLOOR DRAIN IN OPEN ROOM. RETURN DRAIN TO DRAIN.



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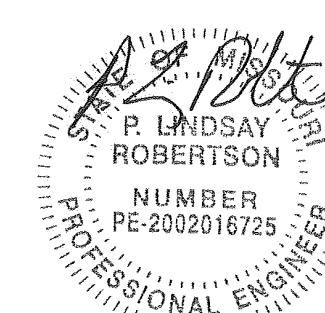
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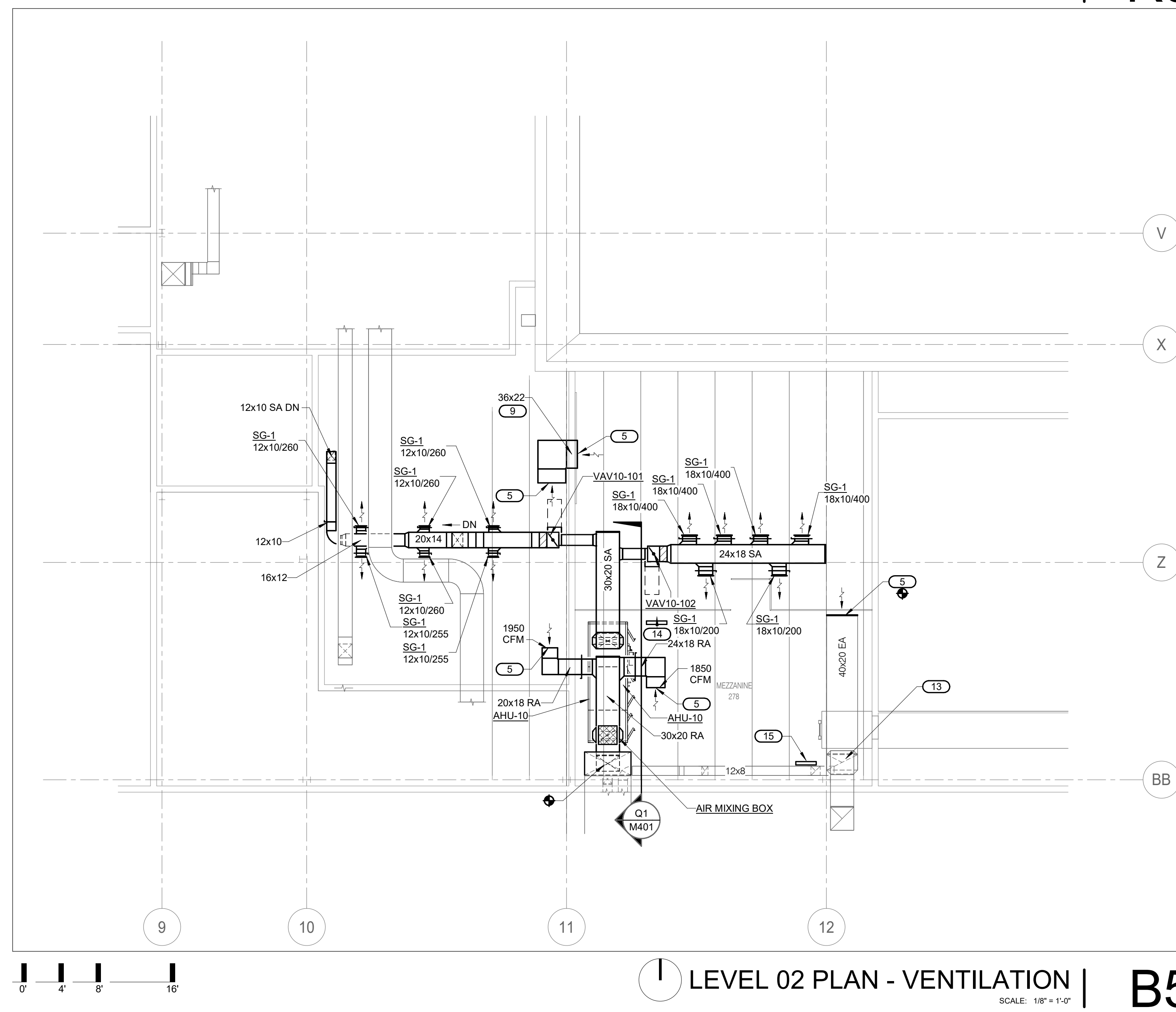
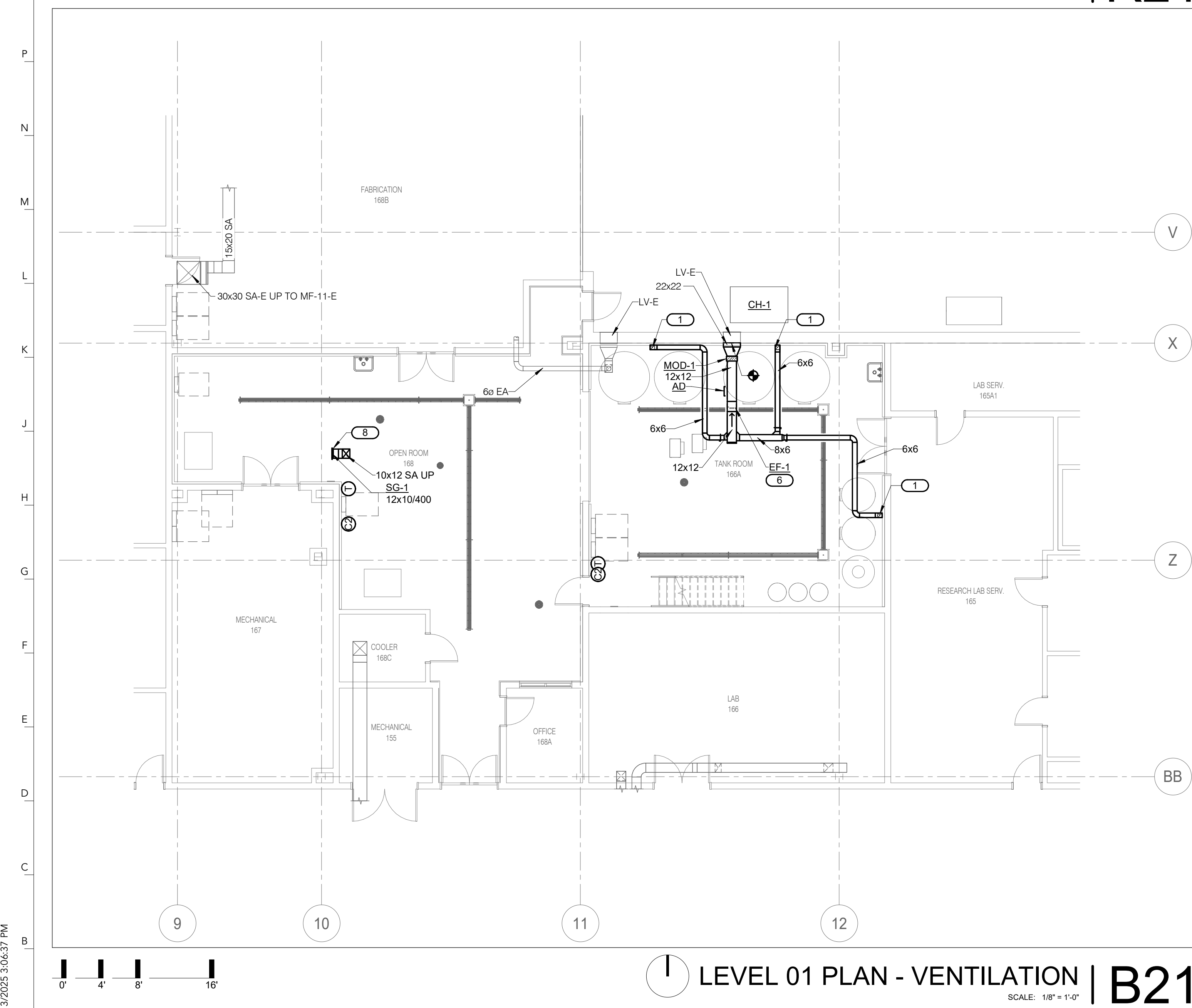
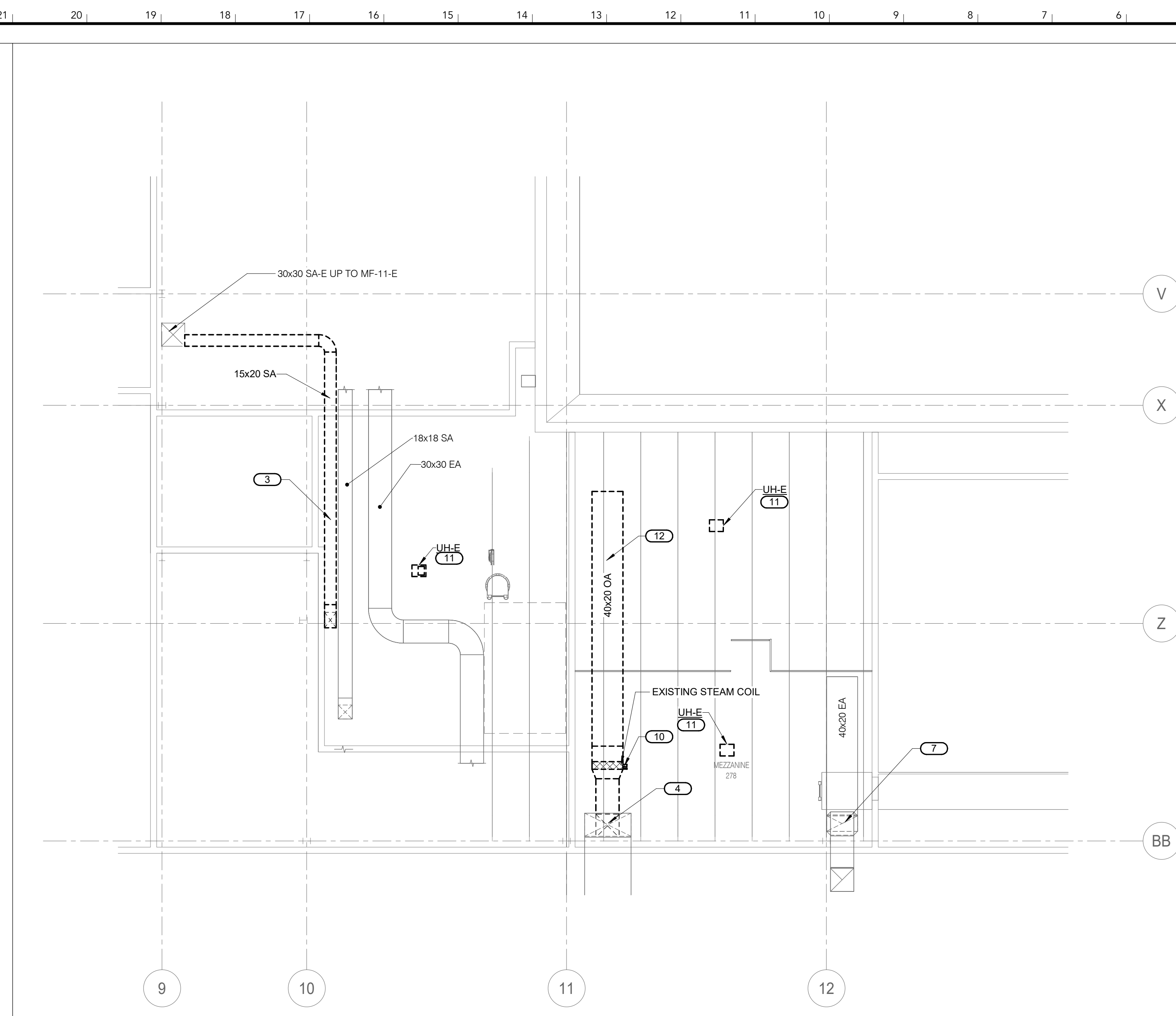
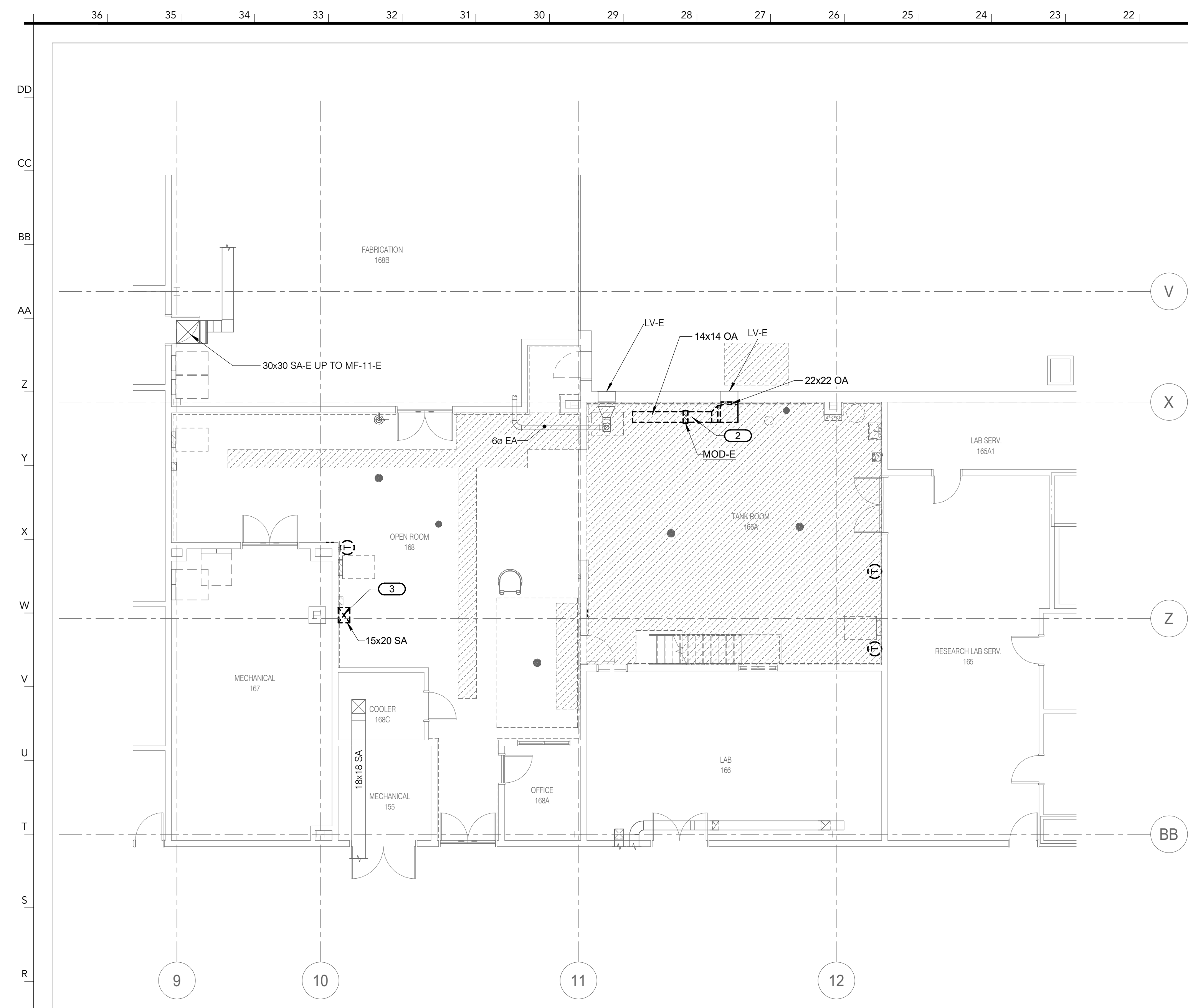
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[illegible]

LEVEL 01 & 02 PLANS -
PIPING

M101

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SHEET NOTES:

1. SEE SHEET M000 FOR GENERAL NOTES AND SYMBOLS LIST.
2. SYSTEM SHUTDOWNS SHALL BE MINIMIZED AND WILL BE COORDINATED WITH OWNER A MINIMUM OF 2 WEEKS BEFORE PLANNED SHUTDOWNS.
3. DISCONNECT ALL EXISTING DUCTWORK SHOWN DARK AND DASHED. DUCTWORK SHOWN LIGHTLY IS TO REMAIN IN PLACE.

KEYNOTES: #

1. 6x6 EXHAUST RISER DOWN TO EG-16x16 EXH. GRILLES W/BOTTOMS AT 12' EG. 50 CFM GPM
2. REMOVE EXISTING SUPPLY DUCTWORK, MOTORIZED DAMPER, HANGERS, AND ACCESSORIES UP TO EXISTING SUPPLY DUCTWORK SUPPLY AIR LOUVER
3. REMOVE EXISTING SUPPLY DUCTWORK AND ALL ASSOCIATED HANGERS AND ACCESSORIES UP TO EXISTING SUPPLY DUCTWORK CONNECTION TO EXHAUST FAN
4. PERMANENTLY AIR TIGHT PER SMACNA CLASS 4, COORDINATE WITH GENERAL CONTRACTOR FOR DUCTWORK
5. DISCONNECT AND REMOVE EXISTING MUA-13, ASSOCIATED CONTROLS, DUCTWORK AND ACCESSORIES NOT REQUIRED TO REMAIN
6. PROVIDE 1/2"X1/4" GI WIRE MESH SET IN FRAME ON EXHAUST FAN
7. EXHAUST FAN WITH MOTORIZED DAMPER INSTALLED AT DISCHARGE WITH MIN 12"X12" DISCHARGE DUCT, SUSPENDED FROM EXISTING STRUCTURAL STEEL AT SAME ELEVATION AS EXISTING WALL LOUVER WITH ALL THREADS TO REMAIN. INSULATE DUCTWORK WITH FLEXIBLE CONNECTIONS ON INLET AND OUTLET OF FAN
8. DISCONNECT AND REMOVE EXISTING EXHAUST FAN STARTER/DISCONNECT SWITCH FOR REPLACEMENT WITH VFD
9. PROVIDE 1/2"X1/4" GI WIRE MESH AT BOTTOM OF LOUVER STRUCTURE
10. PROVIDE TRANSFER PATH, MOUNT DUCTWORK TO PROVIDE MINIMUM OF 1' FOOT CLEARANCE BETWEEN BOTTOM OF DUCT AND EXHAUST FAN DISCHARGE
11. DISCONNECT AND REMOVE EXISTING STEAM PREHEAT COIL AND ASSOCIATED CONTROLS, DAMPERS, AND ACCESSORIES NOT REQUIRED TO REMAIN, CAP PIPING AT MANS
12. DISCONNECT AND REMOVE UNIT HEATER AND ASSOCIATED CONTROLS, EXISTING HEATING PIPING, ASSOCIATED COMPONENTS AND ACCESSORIES, CAP PIPING
13. REMOVE EXISTING OUTSIDE AIR DUCTWORK AND ACCESSORIES NOT REQUIRED TO REMAIN
14. PROVIDE AND INSTALL NEW VFD FOR EXISTING EXHAUST FAN, EXHAUST FAN CAPACITANCE RATED FOR 208 V, 34 HP AND INCLUDE SIPS FREQUENCY FEEDBACK AND SHIELDED CABLE. PROVIDE WIRING AND CONDUIT PER COMMISSIONING PER SPEC REQUIREMENTS
15. ASC PANEL FOR AHU-10. SEE DETAIL A16 ON SHEET 10 FOR MORE INFORMATION
16. VSD PANEL FOR EXISTING EXHAUST FAN. SEE DETAIL A17 ON SHEET M501 FOR MORE INFORMATION



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PROJ. NO.: CP250051

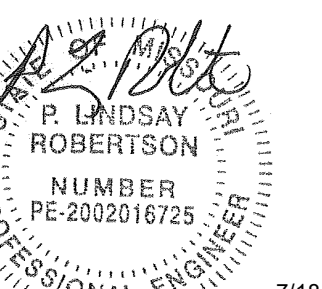
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DRAWN BY: BDN

CHECKED BY: SGB

APPROVED BY: _____ SGB

SEAL:



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LEVEL 01 & 02 PLANS - VENTILATION

M102

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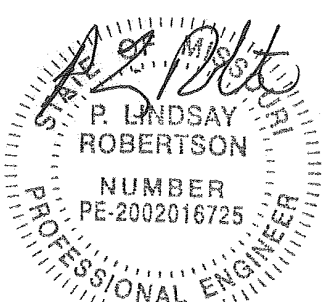
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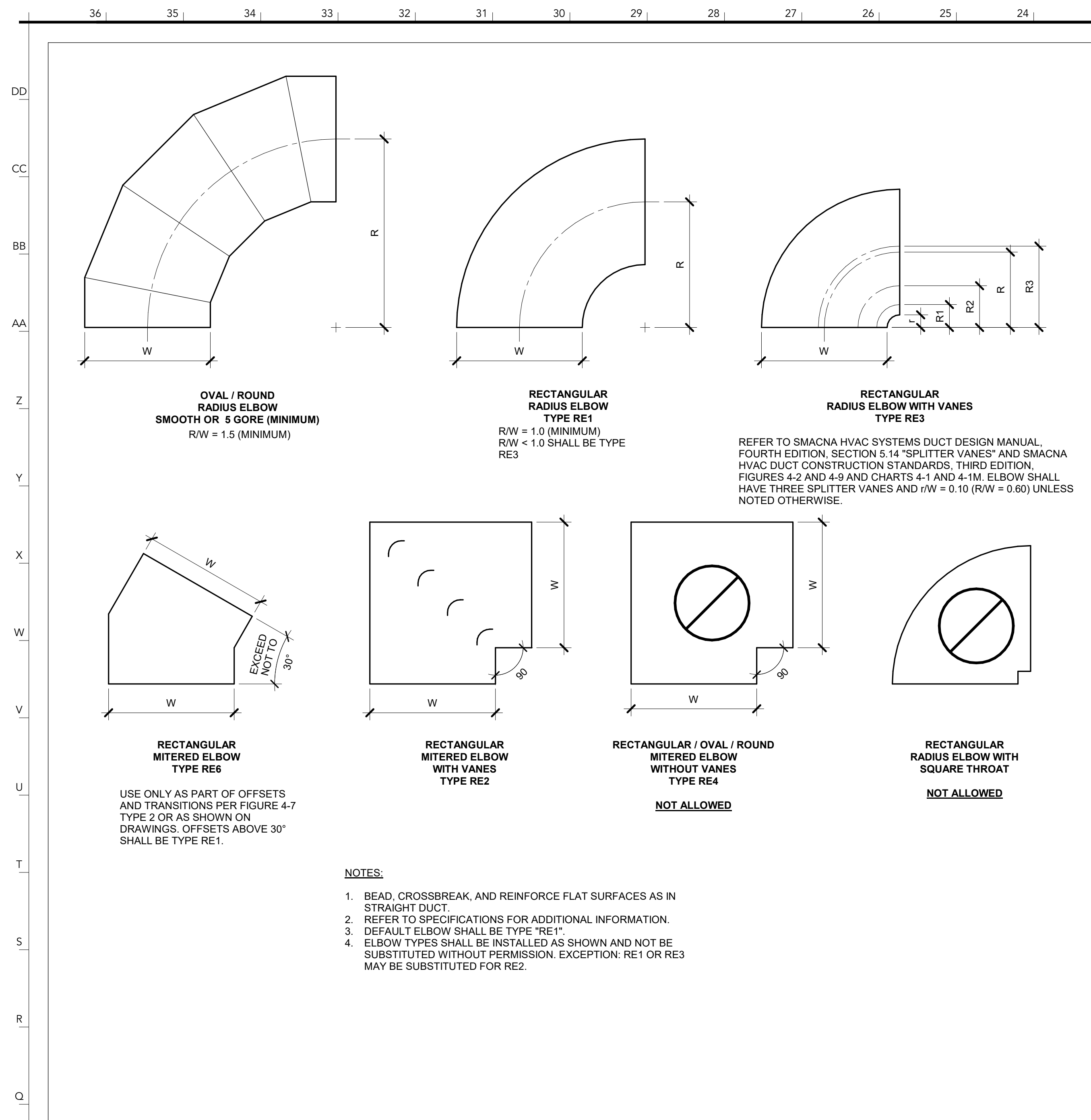
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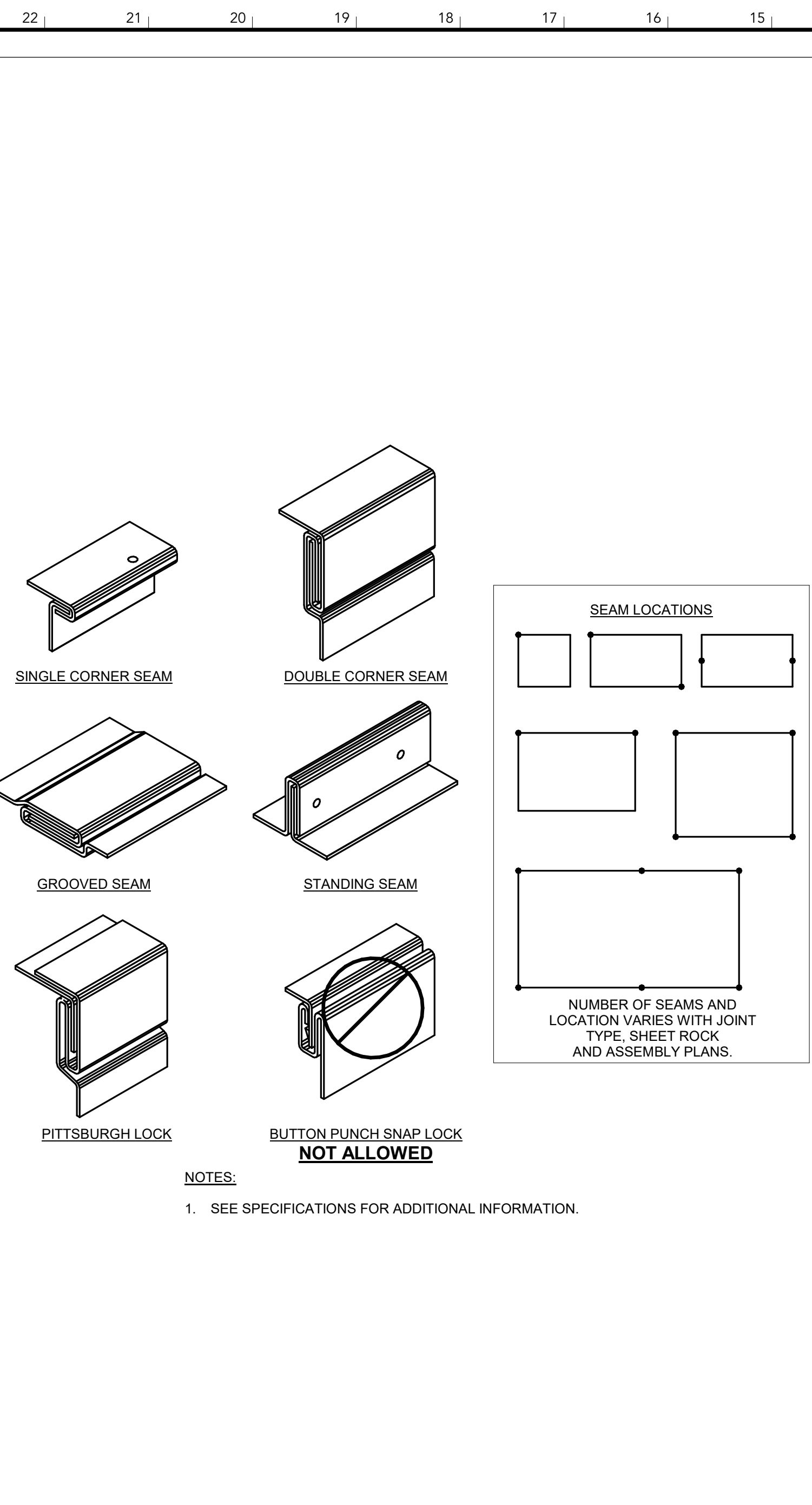
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HVAC DETAILS

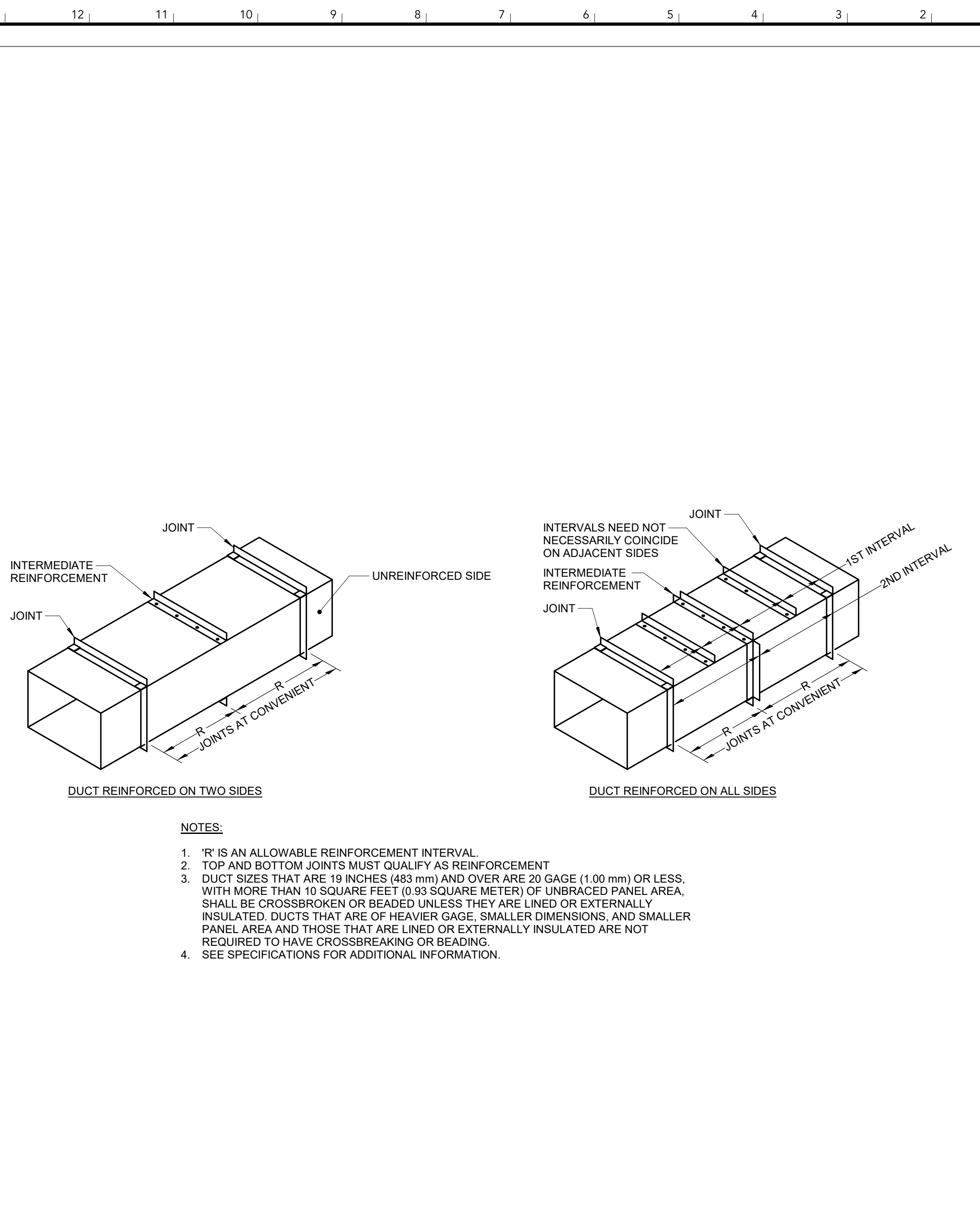
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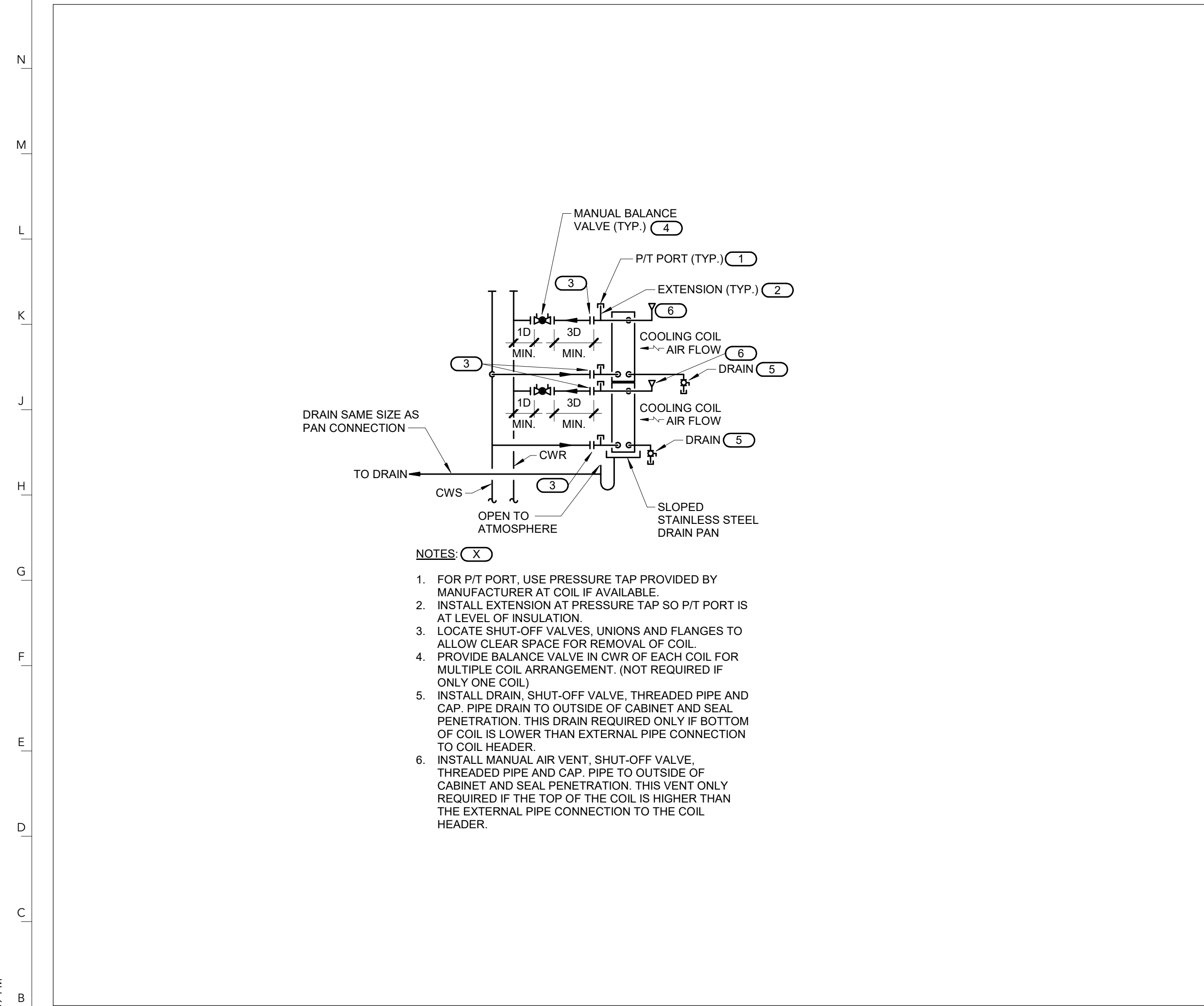
DUCT - ELBOW CONSTRUCTION | P23
SCALE: NO SCALE



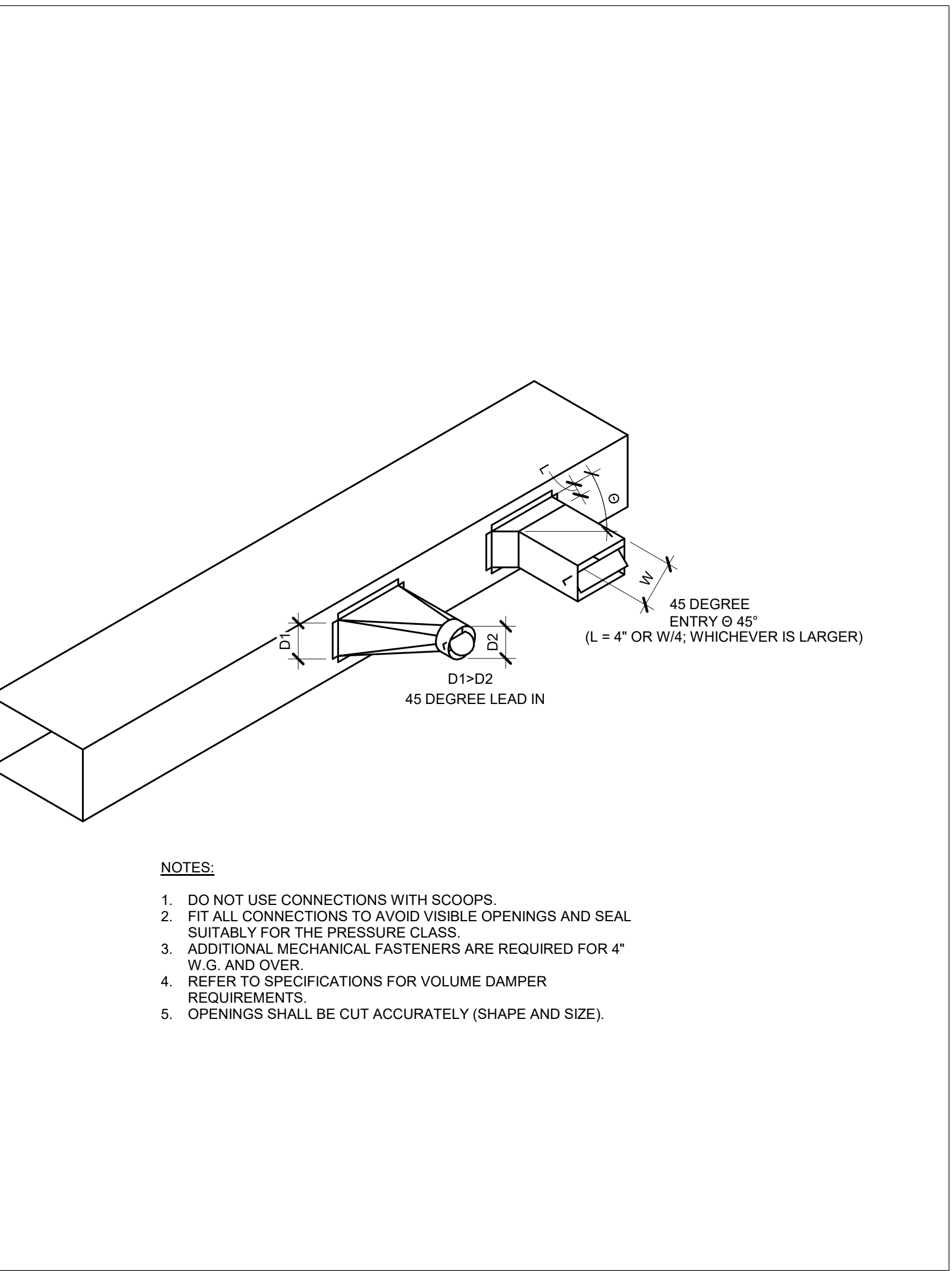
DUCT - LONGITUDINAL SEAMS | P14



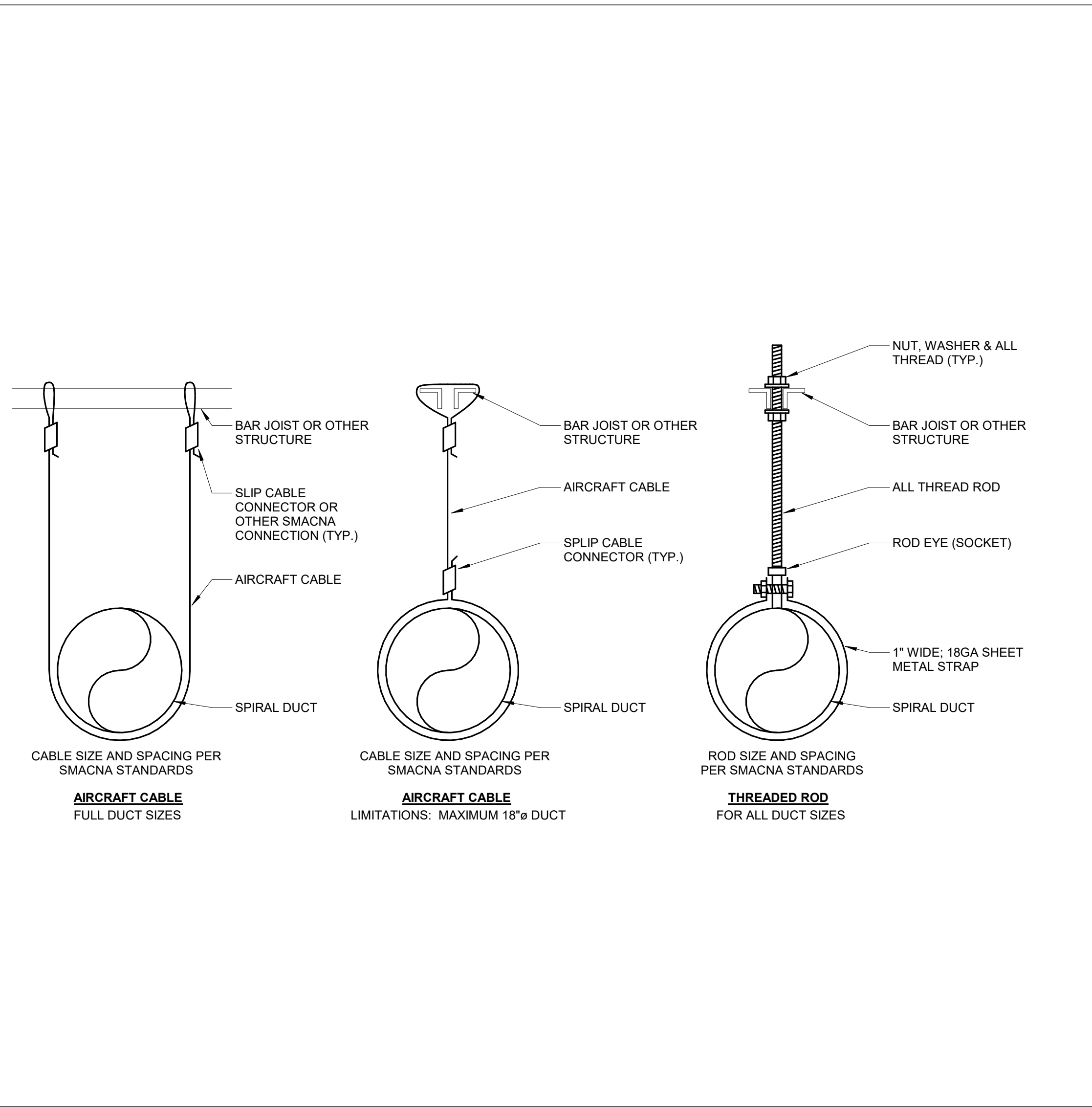
DUCT - TRANSVERSE REINFORCEMENT | P1



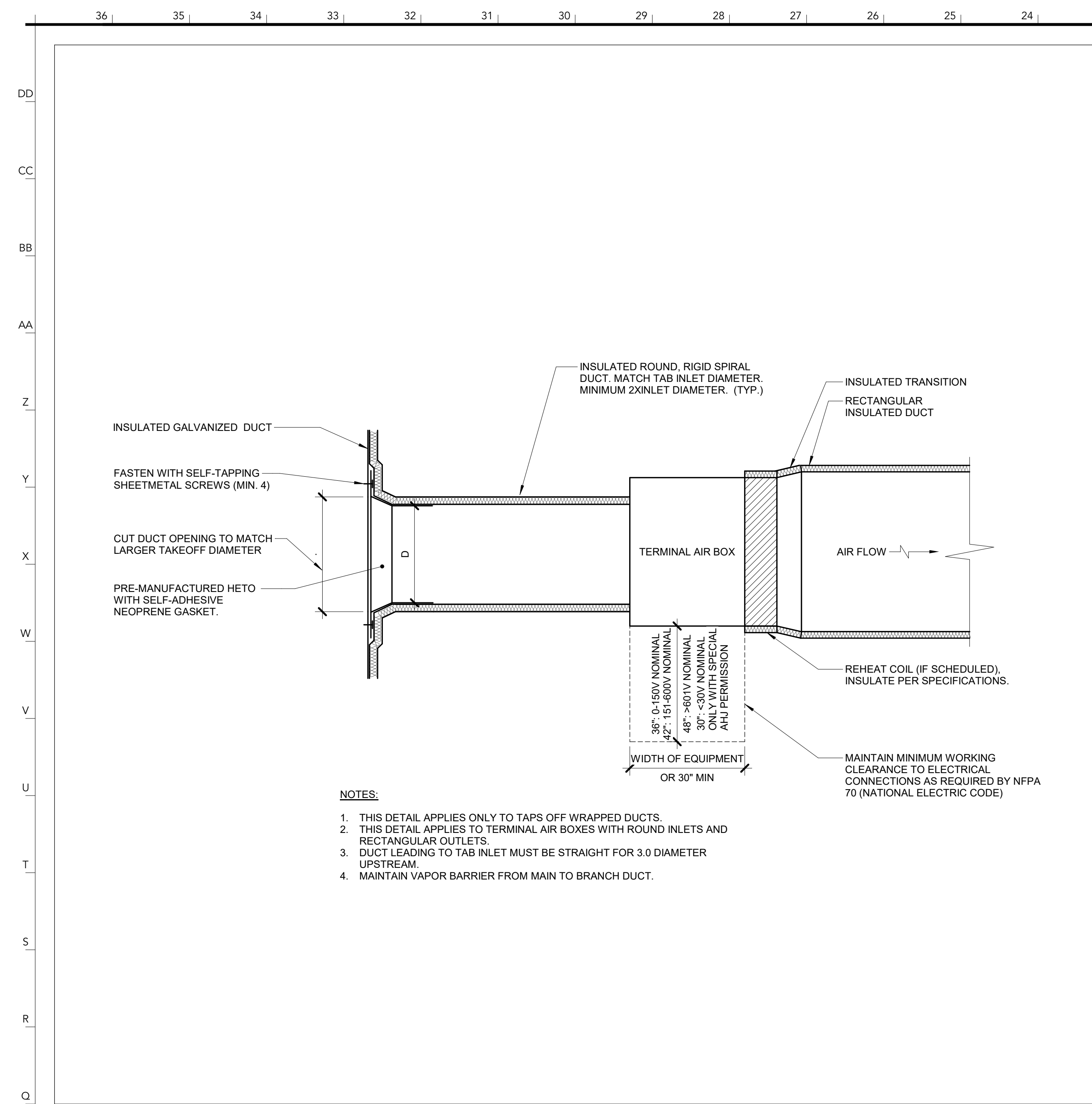
AHU CHILLED WATER COIL PIPING | B23
SCALE: NO SCALE



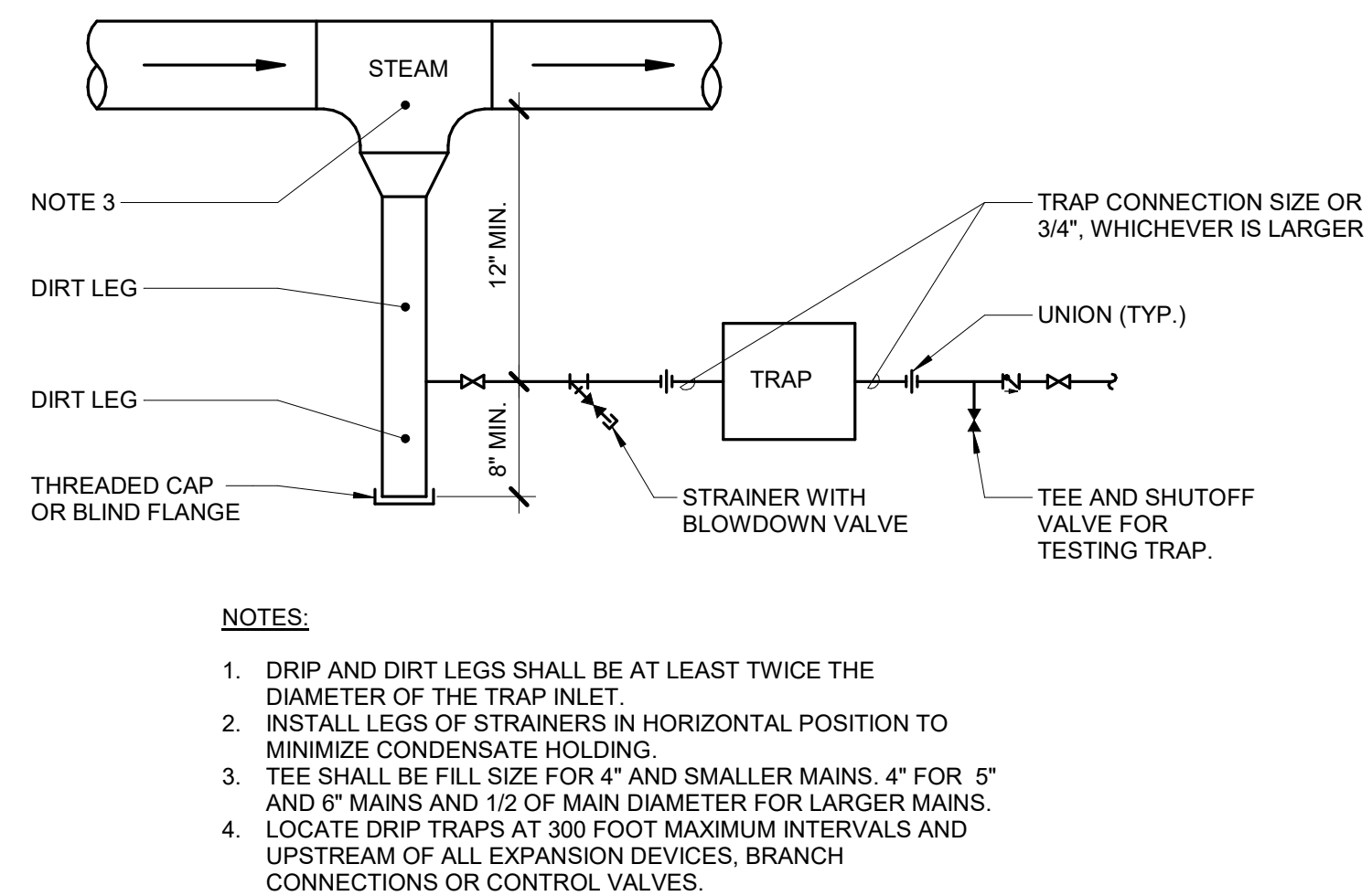
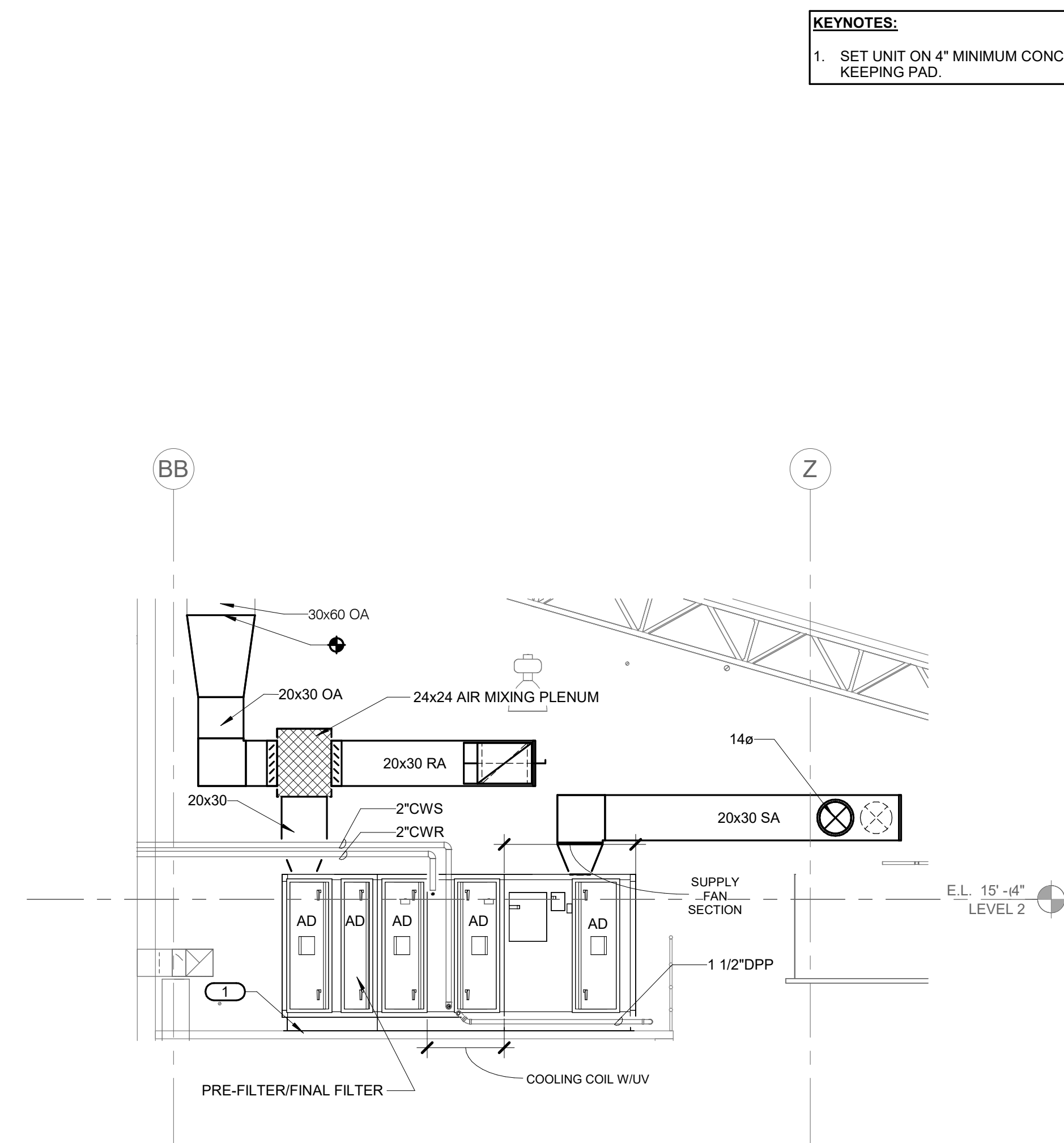
DUCT - BRANCH CONNECTIONS | B14
SCALE: NO SCALE



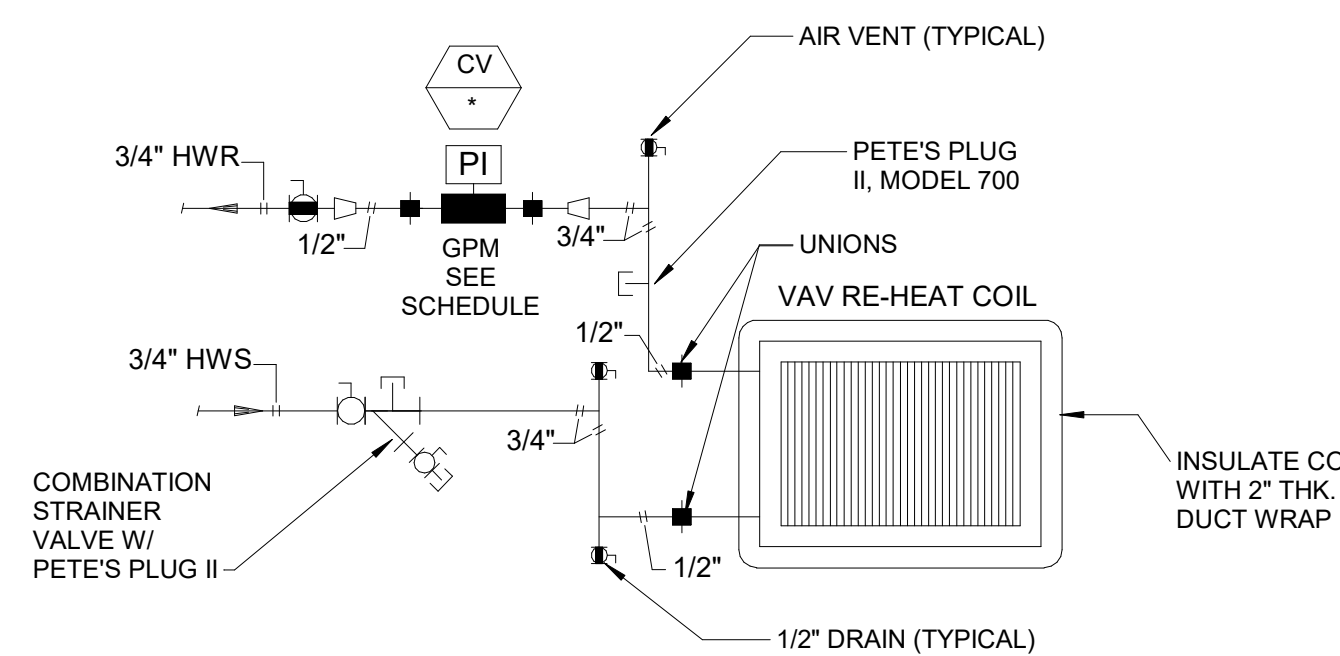
DUCT - HANGERS EXPOSED SPACES | B1



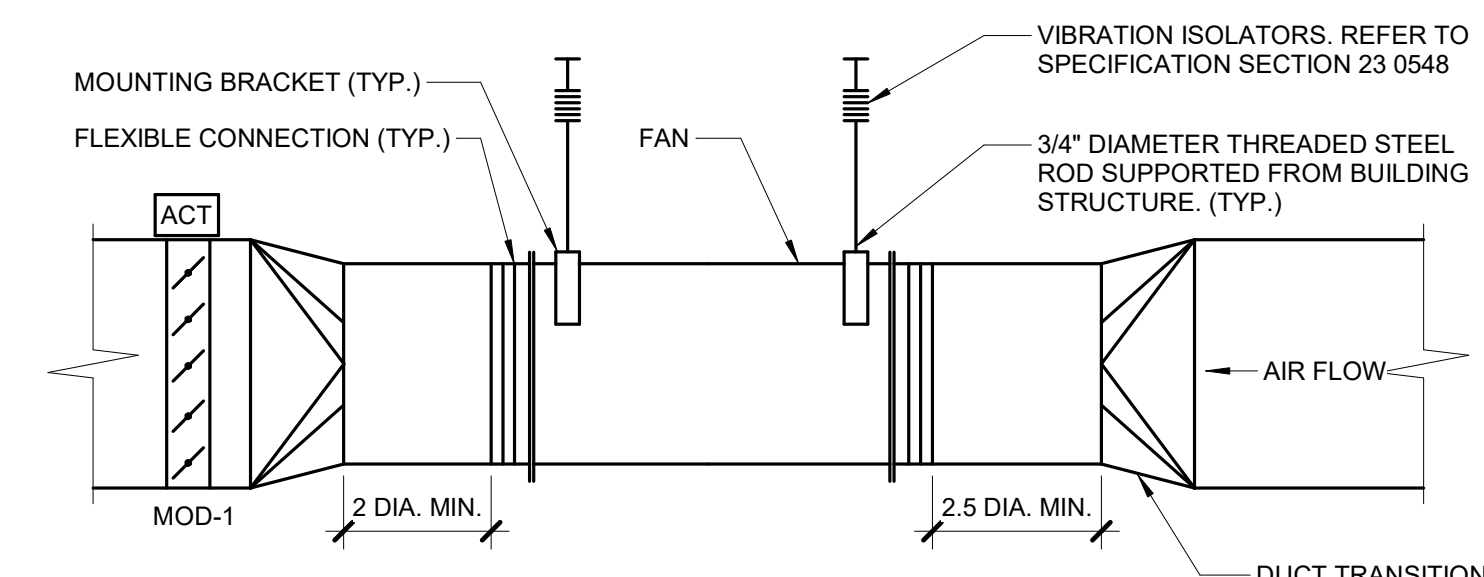
TERMINAL AIR BOX - SINGLE DUCT - WRAPPED W/O FLEX | Q23
SCALE: NO SCALE

STEAM TRAP | Q14
SCALE: NO SCALE

AHU-10 SECTION | Q1



VAV REHEAT COIL PIPING | B14
SCALE: NO SCALE



FAN - IN-LINE EXHAUST | B1



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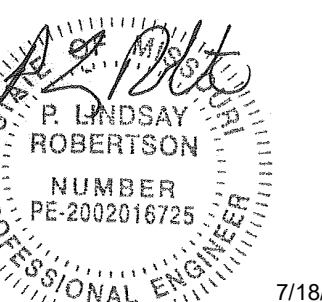
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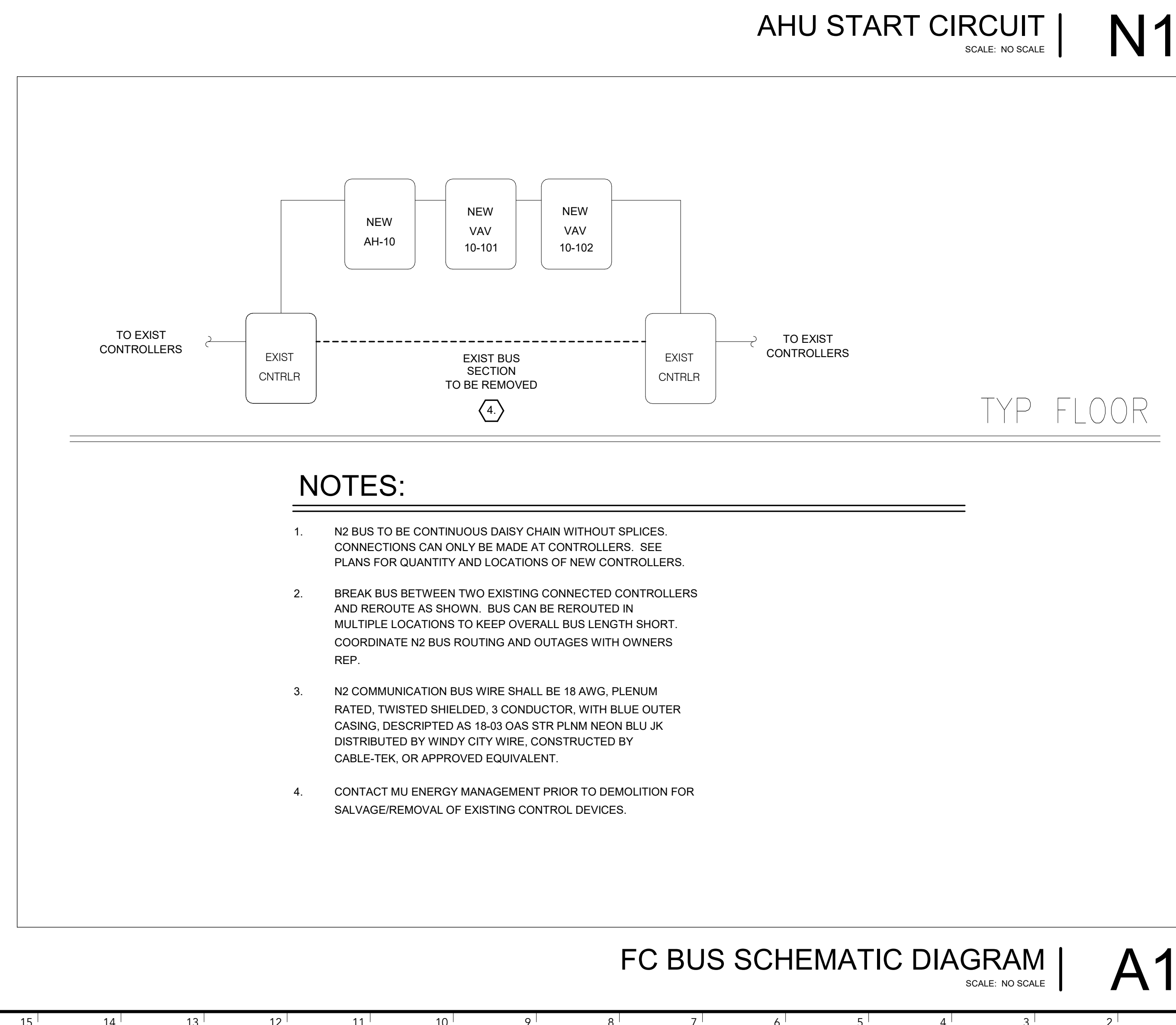
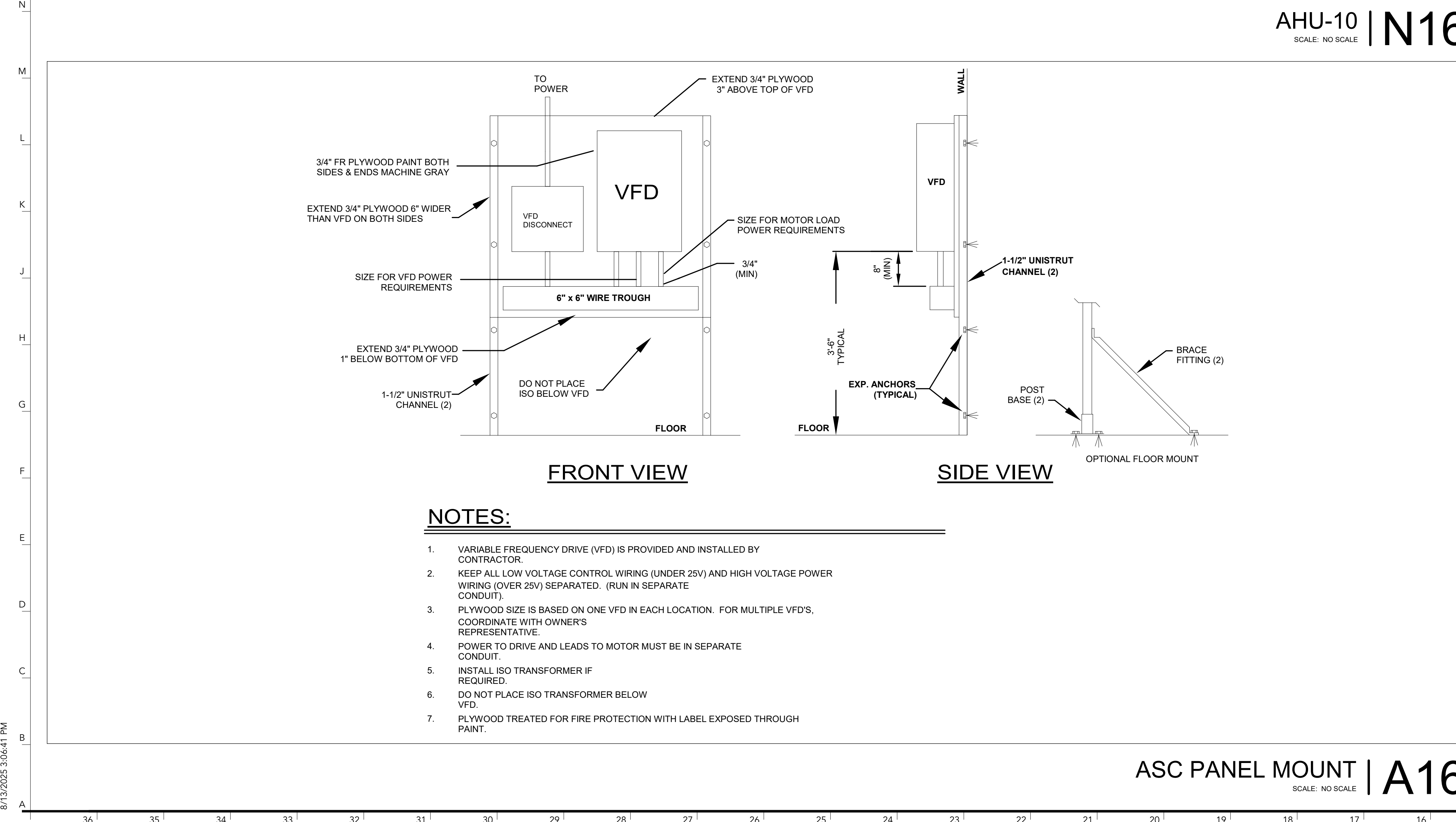
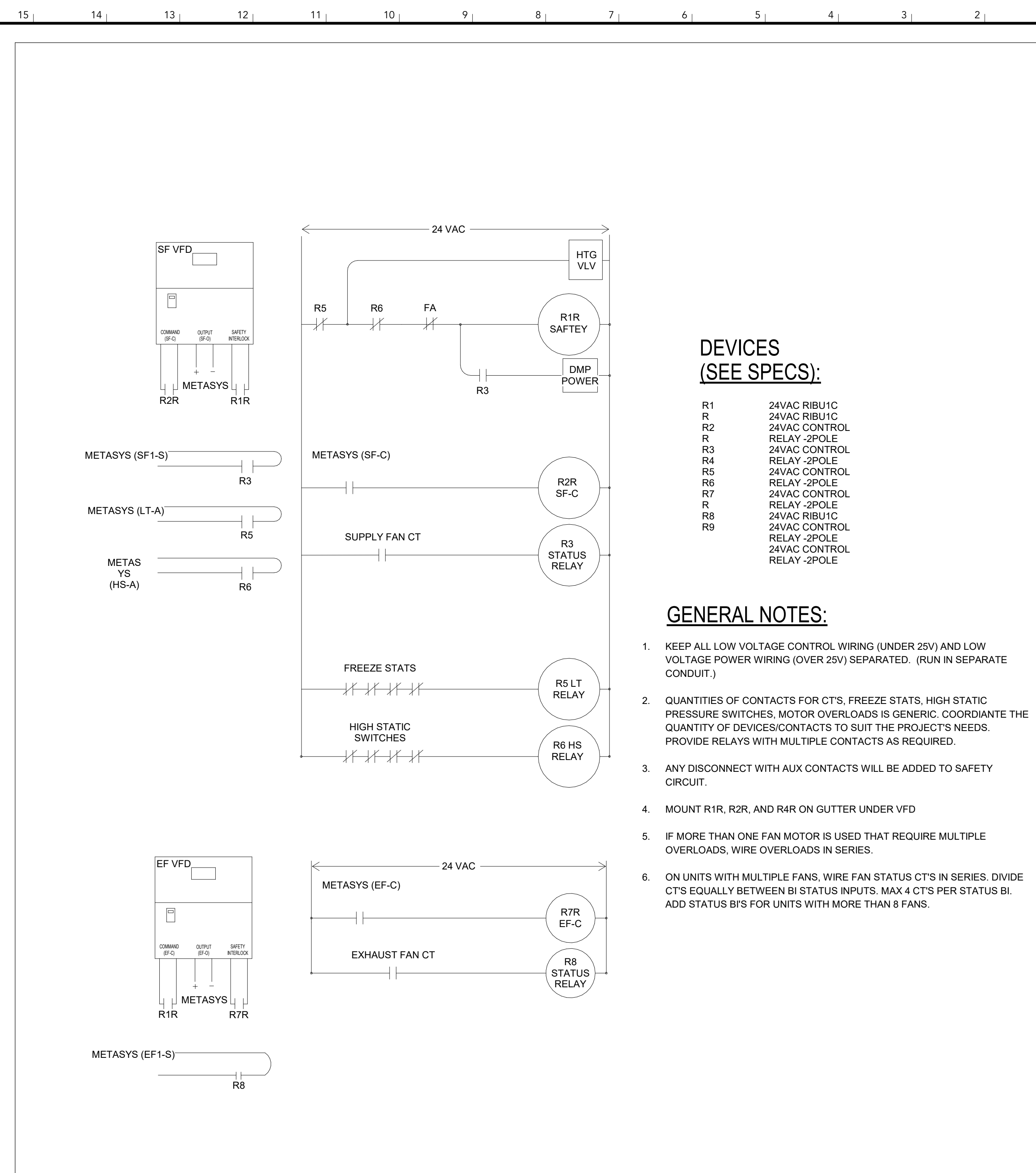
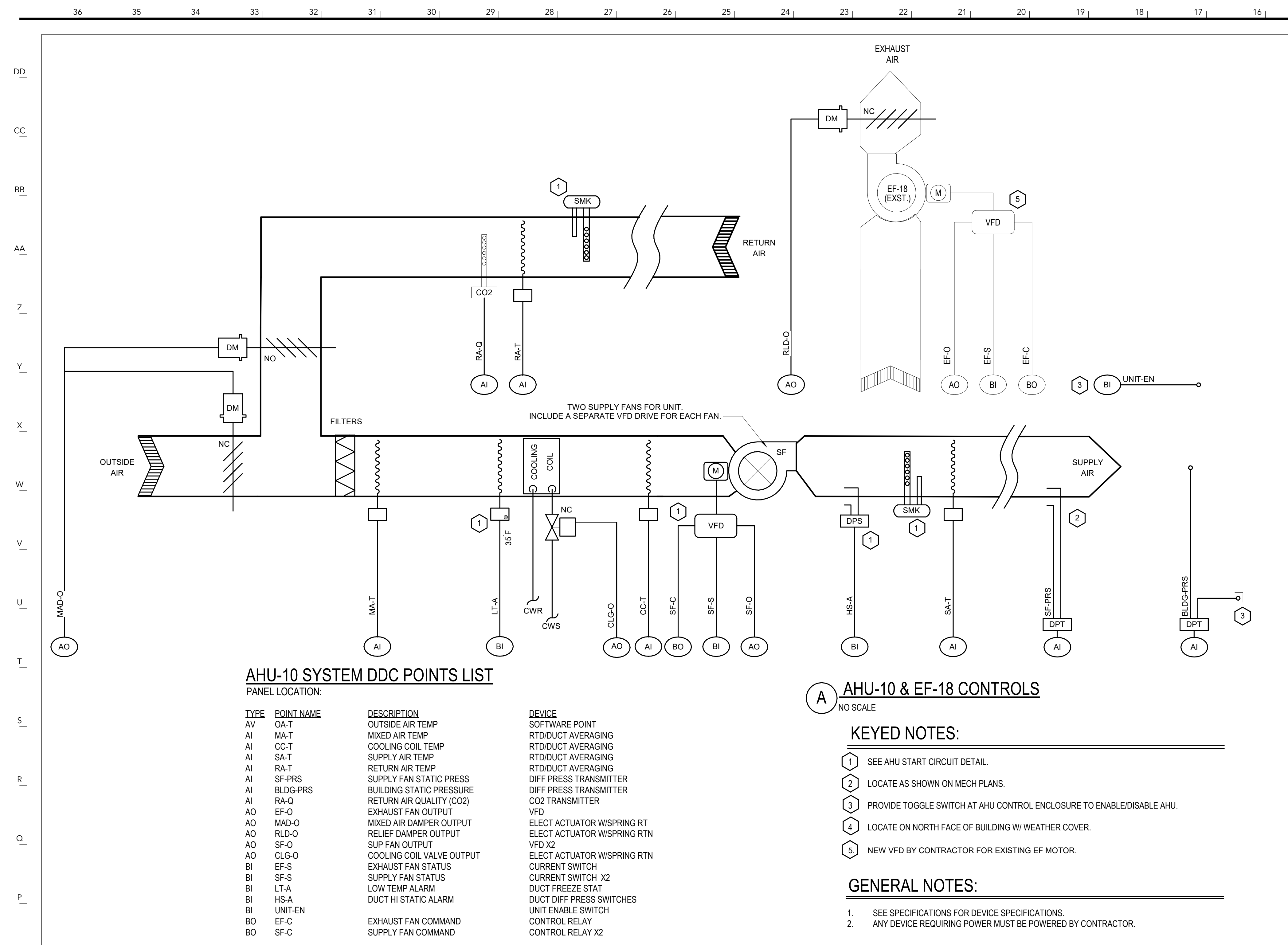
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HVAC DETAILS

M401

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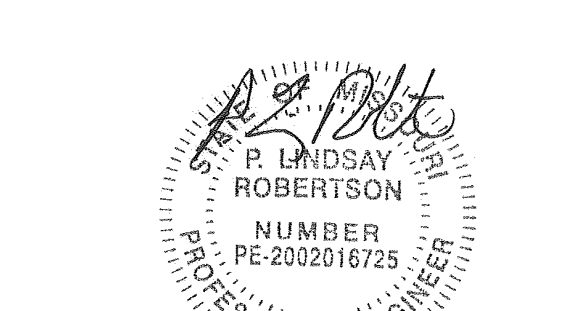
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NO.	REVISION SUBMISSION	DATE
0	ISSUED FOR BID	07/18/2023

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TAG NAME	SUPPLY FAN (NOTE 1)					MINIMUM OUTSIDE AIR CFM	ELECTRICAL					- NO. OF AUXILIARY CONNECTIONS	COOLING COIL					FILTER				MAX. DIMENSIONS			WEIGHT		VIBRATION ISOLATION		MANUFACTURER	MODEL								
	NO. OF FANS	CFW TOTAL	EXT. S.P.	HPM (NOTE D)	HP EACH (NOTE E)		NO. OF POWER CONNECTIONS	VOLTAGE	PHASES	MCA	MOP		DISCONNECT(S)	CONTROLLER STARTER(S)	COIL DB F	COIL WB F	COIL TB F	COIL LB F	FWT F	LWT F	CFW	OTL MBH	MAX. A.P.D. IN W.C.	W.P.D. FEET HEAD	PRE-FILTER	FINAL-FILTER	LENGTH	WIDTH			HEIGHT	OPERATING	TYPE	REFL				
AHU-10	12	4500	0.8	2831	1	4.5	600	460	3	9.5	15	MFR	MC	EC	78.8	66.1	51.3	51.3	45	60	25.4	191	0.7	4.3	MERV 8	312	0.15	MERV 13	312	0.65	176	51	63	3393	M3	1,000	YORK	XTI-63x51

TAG NAME	MAX. ALLOWABLE SOUND POWER AT 53 Hz IN DB	MAX. ALLOWABLE SOUND POWER AT 125 Hz IN DB	MAX. ALLOWABLE SOUND POWER AT 250 Hz IN DB	MAX. ALLOWABLE SOUND POWER AT 500 Hz IN DB	MAX. ALLOWABLE SOUND POWER AT 1000 Hz IN DB	MAX. ALLOWABLE SOUND POWER AT 2000 Hz IN DB	MAX. ALLOWABLE SOUND POWER AT 4000 Hz IN DB	MAX. ALLOWABLE SOUND POWER AT 8000 Hz IN DB	NOTES
AHU-10	76	80	89	85	83	79	77	77	1.2

TAG NAME	FACE SIZE (IN.) (NOTE 2)	TYPE	BORDER (NOTE 1)	MATERIAL	FINISH	VOLUME DAMPER REQUIRED	MANUFACTURER	MODEL	NOTES
EG-1	INLET +2	35 DEGREE DEFLECTION	1 1/4"	ALUMINUM	WHITE	NO	TITUS	350FL	BLADES PARALLEL WITH LONG DIMENSION UNLESS NOTED OTHERWISE
SG-1	INLET +2	DOUBLE DEFLECTION	1 1/4"	STEEL	WHITE	NO	TITUS	300RS	SHORT BLADES FRONT, LONG BLADES REAR

		CFM		HEATING COIL (NOTES 5, 6)					MIN. INLET SIZE (IN.) DIA.	CONTROL TYPE (NOTE 3)	SENSOR TYPE (NOTE 4)	MANUFACTURER	MODEL (NOTES 1, 2)	NOTES
TAG NAME	AREA SERVED	COOLING MAX.	COOLING MIN.	MIN. CFM	MIN. EAT °F	LAT °F	EW ¹ °F	MAX. GPM						
VA10-107	OPEN ROOF	1950	675	95	95.0	1.3	1.3	1.3	1.3	N17		TITUS		NOTES 1, 2
VA10-102	TANK ROOM 166A		1000	1000	60.0	95.0	14.0	1.9	14"			TITUS	DES ²	NOTES 1, 2

										ELECTRICAL (NOTE 1)					VIBRATION ISOLATION							
TAG NAME	AREA SERVED	CFM	E.S.P. IN. W.C.	TYPE	WHEEL DIA. INCHES	FAN RPM (NOTE F)	DRIVE TYPE	MAX. AMCA SONES	BACKDRAFT DAMPER TYPE	MHP (NOTE E)	VOLTAGE	PHASES	DISCONNECT		CONTROLLER/ STARTER		WEIGHT	TYPE	DEFL.	MANUFACTURER	MODEL	
													BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	TYPE (NOTE C)						
EF-1	TANKS	150	0.33	INLINE	10	1607	DIRECT	4.9	MOTORIZED	0.0667	115	1	MFR	NF	MFR	EC	5	34	H2	0.50"	GREENHECK	SQ-70

TAG NAME	UNIT SERVED	SIZE		CFM		BLADE CONFIGURATION	BLADE ORIENTATION	INSULATED	ACTUATOR TYPE (NOTE 1)	ACTUATOR STYLE	POWER FAILURE POSITION	POSITIVE POSITION FEEDBACK REQUIRED	NOTES
		WIDTH	HEIGHT	MAX.	MIN.								
MOD-1	EF-1	12	12	150	0	PARALLEL	HORIZONTAL	No	ELECTRIC	NON-SPRING RETURN	NORMALLY OPEN	No	1

PIPE SYSTEM	INSULATION TYPE	INSULATION THICKNESS PER NOMINAL PIPE OR TUBE SIZE					NOTES
		< 1"	1" TO < 1.5"	1.5" TO < 4"	4" TO < 8"	≥ 8"	
23 PIPING - COOLING							
CWR - CHILLED WATER RETURN	B (Elasto)	1"	1"	1"	1"	1"	
CWS - CHILLED WATER SUPPLY	B (Elasto)	1"	1"	1"	1"	1"	
DRP - DRAIN - PIPING	B (Elasto)	1"	1"	1"	1"	1"	
23 PIPING - HEATING							
HWR - HEATING WATER RETURN	A (GlsFbr)	1.5"	1.5"	2"	2"	2"	
HWS - HEATING WATER SUPPLY	A (GlsFbr)	1.5"	1.5"	2"	2"	2"	
23 PIPING - STEAM							
LPS - LOW PRESSURE STEAM (0 to 15 psig)	A (GlsFbr)	2.5"	2.5"	2.5"	3"	3"	
MPS - MEDIUM PRESSURE STEAM (>15 to 125 psig)	A (GlsFbr)	3"	4"	4.5"	4.5"	4.5"	

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND
INSTALLED BY:
MFR = MANUFACTURER
EC = ELECTRICAL CONTRACTOR
MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY
ELECTRICAL CONTRACTOR
MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY
ELECTRICAL CONTRACTOR
TC = TEMPERATURE CONTROL CONTRACTOR

B. DISCONNECT TYPE:
CB = CIRCUIT BREAKER
F = FUSED
NF = NON-FUSED
PLUG = PLUG AND CORD

C. CONTROLLER STARTER TYPE:
FV = FULL VOLTAGE
WYE = WYE-DELTA
SS = SOLID STATE (SOFT START)
MS = MANUAL STARTER
VFD = VARIABLE FREQUENCY DRIVE
VFDB = VARIABLE FREQUENCY DRIVE WITH BYPASS
WD = WYE - DELTA
EC = ELECTRONICALLY COMMUTATED MOTOR

D. FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE. W
SCHEDULED VALUE. IF THE SUBSTITUTION IS FOR BIA FAN
FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER.

E. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR R
PLATE RATING.

F. MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

G. CURB TYPE:
MFR = STANDARD CURB BY MANUFACTURER
GC = BY GENERAL CONTRACTOR
SAC = SOUND ATTENUATOR CURB

8/13/2025 3:04:45 PM

NAME

LEVEL NAME

10'-0"

HEIGHT ABOVE PROJECT 0'-0"

1

KEYNOTE: INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED SPECIFIC TO THE SHEET AND/OR DETAIL

INDICATES DIRECTION OF TRUE NORTH

PLAN OR DETAIL NUMBER

PLAN OR DETAIL NAME

VIEW NAME

1/8" = 1'-0"

PLAN OR DETAIL SCALE

SIM

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS

DETAIL REFERRED TO BY SECTION CUT

1

SIM

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS

DETAIL REFERRED TO BY SECTION CUT

1

M101

SHEET DETAIL IS LOCATED ON

T101

SHEET DETAIL IS LOCATED ON

LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)

EXISTING TO BE REMOVED (SHORT DASHED PATTERN)

NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)

EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)

EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE

TAG-E TAGS WITH DASH "E" INDICATES THE REFERENCED OBJECT IS EXISTING

TAG-1 UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
S.C.	SECURITY CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
V.C.	VENTILATION CONTRACTOR

CONDUIT INSTALLATION SCHEDULE

THE FOLLOWING SCHEDULE SHALL BE ADHERED TO UNLESS THEY CONSTITUTE A VIOLATION OF APPLICABLE CODES OR ARE NOTED OTHERWISE ON THE DRAWINGS. THE INSTALLATION OF RMC CONDUIT WILL BE PERMITTED IN PLACE OF ALL CONDUIT SPECIFIED IN THIS SCHEDULE. REFER TO CONDUIT AND BOXES SPECIFICATION 26 05 33 FOR ADDITIONAL INFORMATION.

INSTALLATION TYPE	RMC	IMC	EMT	PVC	PVC CONCRETE ENCASED	RTRC	PVC COATED RMC	HDPE	ASR
FEEDERS: SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS, MOTOR CONTROL CENTERS, ETC.		X	X						
BRANCH CIRCUITS: LIGHTING, RECEPTACLES, CONTROLS, ETC.		X	X						
MECHANICAL EQUIPMENT FEEDERS: PUMPS, CHILLERS, AIR HANDLING UNITS, ETC.		X	X						
FLOOR MOUNTED EQUIPMENT FEEDERS: PUMPS, ETC. (INCLUDE NO MORE THAN 6 FEET OF LFMC TO PUMP)		X	X						
CONTROLS (LIGHTING, POWER, BUILDING AUTOMATION, ETC.)		X	X						
WET AND DAMP LOCATIONS: (CONDUIT, BOXES, FITTINGS, INSTALLED AND EQUIPPED TO PREVENT WATER ENTRY)	X					X			
INTERIOR LOCATIONS WITH FINISHED CEILING AND WALLS: CONCEALED IN WALLS AND ABOVE FINISHED CEILINGS			X						
INTERIOR LOCATIONS WITHOUT FINISHED CEILINGS: CONCEALED IN WALL, EXPOSED ABOVE CEILINGS		X	X						
EXISTING INTERIOR LOCATIONS WITH FINISHED CEILINGS AND WALLS: CONCEALED IN WALLS AND ABOVE FINISHED CEILING UNLESS OTHERWISE NOTED			X						X
UNDERFLOOR	X			X					

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	GB	26 05 26	GROUND BUS
	ECONN	26 05 33	ELECTRICAL CONNECTION
	JB	26 05 33	JUNCTION BOX
	WM-#	26 05 35	MULTI OUTLET SYSTEM
	EPO	26 09 16	EMERGENCY STOP / POWER OFF (N.C. AND N.O. CONTACT)
	ES	26 32 13	EMERGENCY STOP, N.C. CONTACT
	ES	26 09 16	EMERGENCY STOP, N.O. CONTACT
	PANEL-###	26 24 16	PANELBOARD - SURFACE MOUNT
	MD-#	26 28 16	MANUAL DISCONNECT. REFER TO DISC/STA SCHEDULE.
	FCS-#	26 28 16	FUSED COMBINATION STARTER REFER TO DISC/STA SCHEDULE
	TR-#/DTR-#	26 22 00	TRANSFORMER. REFER TO TRANSFORMER SCHEDULE
	DS-#/FDS-#/DSS-#	26 28 16	DISCONNECT SWITCH FUSED DISCONNECT SWITCH INTERLOCKED RECEPTACLE DISCONNECT. REFER TO DISC/STA SCHEDULE
	PB	26 29 23	LOW VOLTAGE PUSHBUTTON MOTOR OPERATOR

ELECTRICAL EQUIPMENT TAGS

TAG:	DESCRIPTION:	RELATED SPECIFICATION
CR-#	CORD REEL	26 27 26
DP-#	DISTRIBUTION PANEL	26 24 16
DTR-#	TRANSFORMER - DISTRIBUTION TYPE REFER TO TRANSFORMER SCHEDULE	26 12 19 26 12 13 26 12 16 26 12 21
MCC-#	MOTOR CONTROL CENTER, REFER TO MOTOR CONTROL SCHEDULE	26 14 19
MD-#	MANUAL SWITCH, REFER TO DISCONNECT AND STARTER SCHEDULE	26 24 19
R-#	RELAY	26 09 39
SPD-#	SURGE PROTECTION DEVICE	26 43 00
UD-#	UNDERFLOOR DUCT - TRENCH DUCT - CELLULAR FLOOR DUCT	26 05 38
VFD-#	VARIABLE FREQUENCY DRIVE - REFER TO VFD SCHEDULE	26 29 23
WD-#	WALL DUCT	26 05 38

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	REC-DUP	26 27 26	DUPLEX RECEPTACLE, 125V
	REC-DUP-GFI	26 27 26	DUPLEX GFI RECEPTACLE, 125V
	REC-DUP-WP	26 27 26	DUPLEX GFI WEATHERPROOF RECEPTACLE 125V
	REC-SIM-520R	26 27 26	SIMPLEX RECEPTACLE, 125V
	REC-SIM-530R	26 27 26	RECEPTACLE, 125V
	REC-SIM-550R	26 27 26	RECEPTACLE 125V, 50A, 125V
	REC-SIM-620R	26 27 26	RECEPTACLE, 6-20R, 250V
	REC-SIM-630R	26 27 26	RECEPTACLE, 6-30R, 250V
	REC-SIM-650R	26 27 26	RECEPTACLE, 6-50R, 250V
	REC-SIM-720R	26 27 26	RECEPTACLE, 7-20R, 277V
	REC-SIM-730R	26 27 26	RECEPTACLE, 7-30R, 277V
	REC-SIM-750R	26 27 26	RECEPTACLE, 7-50R, 277V
	REC-SIM-1420R	26 27 26	RECEPTACLE, 14-20R, 125/250V
	REC-SIM-1430R	26 27 26	RECEPTACLE, 14-30R, 125/250V
	REC-SIM-1450R	26 27 26	RECEPTACLE, 14-50R, 125/250V
	REC-SIM-1460R	26 27 26	RECEPTACLE, 14-60R, 125/250V
	REC-SIM-1520R	26 27 26	RECEPTACLE, 15-20R, 250V, 3PH
	REC-SIM-1530R	26 27 26	RECEPTACLE, 15-30R, 250V, 3PH
	REC-SIM-1550R	26 27 26	RECEPTACLE, 15-50R, 250V, 3PH
	REC-SIM-1560R	26 27 26	RECEPTACLE, 15-60R, 250V, 3PH
	REC-SIM-LS20R	26 27 26	RECEPTACLE, LOCKING TYPE, L5-20R, 125V
	REC-SIM-LS30R	26 27 26	RECEPTACLE, LOCKING TYPE, L5-30R, 125V
	REC-SIM-LS620R	26 27 26	RECEPTACLE, LOCKING TYPE, L6-20R, 250V
	REC-SIM-LS630R	26 27 26	RECEPTACLE, LOCKING TYPE, L6-30R, 250V
	REC-SIM-LS720R	26 27 26	RECEPTACLE, LOCKING L7-20R, 277V
	REC-SIM-LS730R	26 27 26	RECEPTACLE, LOCKING L7-30R, 277V
	REC-SIM-L1420R	26 27 26	RECEPTACLE, LOCKING L14-20R, 125/250V
	REC-SIM-L1430R	26 27 26	RECEPTACLE, LOCKING L14-30R, 125/250V
	REC-SIM-L1520R	26 27 26	RECEPTACLE, LOCKING L15-20R, 250V, 3PH
	REC-SIM-L1530R	26 27 26	RECEPTACLE, LOCKING L15-30R, 250V, 3PH
	REC-SIM-L1620R	26 27 26	RECEPTACLE, L16-20R, 480V, 3PH
	REC-SIM-L1630R	26 27 26	RECEPTACLE, L16-30R, 480V, 3PH
	REC-SIM-L2120R	26 27 26	RECEPTACLE, LOCKING L21-20R, 120/208V, 3PH
	REC-SIM-L2130R	26 27 26	RECEPTACLE, LOCKING L21-30R, 120/208V, 3PH
	REC-QUAD	26 27 26	QUAD RECEPTACLE, 125V
	REC-QUAD-GFI	26 27 26	QUAD GFI RECEPTACLE, 125V
	REC-QUAD-USB	26 27 26	QUAD RECEPTACLE, USB 125V
	REC-QUAD-WP	26 27 26	QUAD GFI WEATHERPROOF RECEPTACLE, 125V

ELECTRICAL ABBREVIATION KEY

ABBR:	DESCRIPTION:
ABV	ABOVE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ASR	ARCHITECTURAL SURFACE RACEWAY
BC	BELOW COUNTER
C	CONDUIT (BRANCH CIRCUIT OR FEEDER CONTEXT)
CO	CONDUIT AND BOX ROUGH-IN ONLY (ROUGH-IN ONLY)
EG	EQUIPMENT GROUND
EGC	EQUIPMENT GROUNDING CONDUCTOR
EOL	END OF LINE
EPO	EMERGENCY POWER OFF
GFR	GROUND FAULT REMOTE
HOA	HAND/OFF/AUTO
ITR	IT RACK MOUNTED RECEPTACLE
NC	NORMALLY CLOSED
NEMA-B	NEMA RATING
NIC	NOT IN CONTRACTED SCOPE
NO	NORMALLY OPEN
ROOF	EQUIPMENT LOCATED ON ROOF ABOVE
SM	SURFACE MOUNTED
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED

EQUIPMENT ABBREVIATION KEY

ABBR:	DESCRIPTION:
AD	AUTOMATIC DOOR OPERATOR WITH SENSOR
DB	DOOR BELL
DOOR	DOOR OPERATOR, ELECTRIC
EWCC	ELECTRIC WATER COOLER CONDENSER
FAN	CEILING FAN
FDO	FIRE DOOR OPERATOR
FFE	OWNER FURNISHED FIXTURES, FURNITURE, AND EQUIPMENT
FURN	OWNER FURNITURE
OHD	OVERHEAD DOOR
PFR	PLUMB FIXTURE RECEPT FOR LV VALVE POWER
PP	PUSH PAD AUTOMATIC DOOR OPERATOR (REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATION)
PW	POWER WASHING SPECIAL RECEPTACLE

RECEPTACLE SUBSCRIPT KEY:

DEVICE KEY:

DEVICE # = MOUNTING (IF APPLICABLE)
1 = CIRCUIT NUMBER

*IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: A / 1

ELECTRICAL MOUNTING SUBSCRIPT KEY:

A MOUNT AT +6" TO CENTERLINE ABOVE COUNTER OR BACKSPLASH
C MOUNT AT CEILING (DEVICE OR ROUGH-IN CONTEXT)
H MOUNT ORIENTED HORIZONTALLY
L MOUNT IN CASEWORK
M MOUNT IN MODULAR FURNITURE
O WIRING DEVICE, OCCUPANCY CONTROLLED
R MOUNT IN SURFACE RACEWAY
S SURFACE MOUNTED
W WEATHERPROOF WIRING DEVICE, NEMA 3R WHILE-IN-USE COVER, WR LISTED
WG WIRE GUARD
WP WEATHERPROOF

SHADED DEVICE INDICATES DEVICE IS CONNECTED TO AN EMERGENCY CIRCUIT.

DEVICE #

RECEPTACLE SUBSCRIPT KEY:

THE DESIGN DOCUMENTS DESCRIBE THE OPERATIONAL PERFORMANCE REQUIREMENTS OF THE LIGHTING CONTROL SYSTEM. THE PROJECT MAY REQUIRE ONE OR MORE LIGHTING CONTROL STRATEGIES FOR THE PROJECT. REFER TO THE ELECTRICAL SYMBOL KEY, SPECIFICATION SECTION 26 05 33 LIGHTING CONTROL SYSTEMS, AND THE DRAWINGS TO DETERMINE THE DESIGN APPLICATION FOR EACH SPACE. THE POTENTIAL STRATEGIES ARE AS FOLLOWS:

- STANDALONE LIGHTING CONTROL DEVICES: INDEPENDENT (STANDALONE) DEVICES TRADITIONALLY OPERATING AT LINE OR LOW VOLTAGE. FIELD CONFIGURABLE WITH OTHER STANDALONE DEVICES TO PROVIDE AN OVERALL LIGHTING CONTROL SYSTEM.
- ROOM BASED LIGHTING CONTROLS: INTEGRATED SYSTEM COMPRISED OF SWITCH STATIONS, SENSORS, ROOM CONTROLLERS, CONTROL PANELS, AND ACCESSORIES, OPERATING AT LINE AND/OR LOW VOLTAGE, CONFIGURED AS AN INTEGRATED OVERALL INTELLIGENT LIGHTING CONTROL SYSTEM. LIGHTING CONTROL ZONES AND POWER CIRCUITS COMMONLY ALIGN.
- NETWORK BASED LIGHTING CONTROLS: INTEGRATED SYSTEM COMPRISED OF SWITCH STATIONS, SENSORS, ROOM CONTROLS, CONTROL PANELS, DIMMER RACKS, AND ACCESSORIES, OPERATING AT LINE AND/OR LOW VOLTAGE, CONFIGURED AS AN INTEGRATED OVERALL INTELLIGENT LIGHTING CONTROL SYSTEM FOR ADVANCED ARCHITECTURALLY BASED LIGHTING CONTROL SYSTEMS. LIGHTING CONTROL ZONES COMMONLY ASSOCIATED WITH ONE OR MORE BRANCH POWER CIRCUITS WITHIN THE SAME CONTROL ZONE.

LIGHTING CONTROL SYSTEM DESIGNATION: THE FOLLOWING KEY MAY BE USED AS AN EXAMPLE TO DETERMINE THE DESIGNATED LIGHTING CONTROL SYSTEM FOR EACH SPACE. REFER TO ELECTRICAL COVERSHEET FOR ELECTRICAL SYMBOLS LIST AND DEVICE SPECIFICATION TAG. REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

- STANDALONE LIGHTING CONTROL DEVICES: CONTROL STATION COMMONLY DEFINED BY AN ALPHA CHARACTER WITH SUBSCRIPTS.
 - EXAMPLE SYMBOL "S": SPECIFICATION TAG "SW-1P". DESCRIPTION "SWITCH-SINGLE POLE SWITCH".
 - EXAMPLE CONTROL DESIGNATION: a, b, c (WHEN REQUIRED TO CLARIFY DESIGN INTENT).
 - SINGLE POLE LIGHT SWITCH "SA" CONTROLS LUMINAIRES WITH THE SUBSCRIPT "a" WITHIN THE SAME SPACE.
 - REFER TO THE LIGHT CONTROL SEQUENCE OF OPERATION TAG (L-#/#) FOR A COMPLETE DESCRIPTION OF THE LIGHTING CONTROL REQUIREMENTS.

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
			LINEAR LUMINAIRES
			INDUSTRIAL LUMINAIRE
			WALL/CEILING EMERGENCY EXIT SIGN
			EMERGENCY UNIT

VIEW KEY

NAME

LEVEL NAME

10'-0"

HEIGHT ABOVE PROJECT 0'-0"

1

KEYNOTE: INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED SPECIFIC TO THE SHEET AND/OR DETAIL

INDICATES DIRECTION OF TRUE NORTH

PLAN OR DETAIL NUMBER

PLAN OR DETAIL NAME

VIEW NAME

1/8" = 1'-0"

PLAN OR DETAIL SCALE

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS

DETAIL REFERRED TO BY SECTION CUT

1

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS

DETAIL REFERRED TO BY SECTION CUT

1

M101

SHEET DETAIL IS LOCATED ON

T101

SHEET DETAIL IS LOCATED ON

LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)

EXISTING TO BE REMOVED (SHORT DASHED PATTERN)

NEW UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)

EXISTING TO BE REMOVED BY OTHERS (SHORT DASHED PATTERN)

EXISTING UNDERFLOOR OR UNDERGROUND (LONG DASHED PATTERN)

HALFTONING DOES NOT MODIFY SCOPE

TAG-E TAGS WITH DASH "E" INDICATES THE REFERENCED OBJECT IS EXISTING

TAG-1 UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
S.C.	SECURITY CONTRACTOR
T.C.	TECHNOLOGY CONTRACTOR
T.C.C.	TEMPERATURE CONTROLS CONTRACTOR
V.C.	VENTILATION CONTRACTOR

CONDUIT INSTALLATION SCHEDULE

THE FOLLOWING SCHEDULE SHALL BE ADHERED TO UNLESS THEY CONSTITUTE A VIOLATION OF APPLICABLE CODES OR ARE NOTED OTHERWISE ON THE DRAWINGS. THE INSTALLATION OF RMC CONDUIT WILL BE PERMITTED IN PLACE OF ALL CONDUIT SPECIFIED IN THIS SCHEDULE. REFER TO CONDUIT AND BOXES SPECIFICATION 26 05 33 FOR ADDITIONAL INFORMATION.

INSTALLATION TYPE	RMC	IMC	EMT	PVC	PVC CONCRETE ENCASED	RTRC	PVC COATED RMC	HDPE	ASR
FEEDERS: SWITCHBOARDS, DISTRIBUTION PANELS, PANELBOARDS, MOTOR CONTROL CENTERS, ETC.		X	X						
BRANCH CIRCUITS: LIGHTING, RECEPTACLES, CONTROLS, ETC.		X	X						
MECHANICAL EQUIPMENT FEEDERS: PUMPS, CHILLERS, AIR HANDLING UNITS, ETC.		X	X						
FLOOR MOUNTED EQUIPMENT FEEDERS: PUMPS, ETC. (INCLUDE NO MORE THAN 6 FEET OF LFMC TO PUMP)		X	X						
CONTROLS (LIGHTING, POWER, BUILDING AUTOMATION, ETC.)		X	X						
WET AND DAMP LOCATIONS: (CONDUIT, BOXES, FITTINGS, INSTALLED AND EQUIPPED TO PREVENT WATER ENTRY)	X					X			
INTERIOR LOCATIONS WITH FINISHED CEILING AND WALLS: CONCEALED IN WALLS AND ABOVE FINISHED CEILINGS			X						
INTERIOR LOCATIONS WITHOUT FINISHED CEILINGS: CONCEALED IN WALL, EXPOSED ABOVE CEILINGS		X	X						
EXISTING INTERIOR LOCATIONS WITH FINISHED CEILINGS AND WALLS: CONCEALED IN WALLS AND ABOVE FINISHED CEILING UNLESS OTHERWISE NOTED			X						X
UNDERFLOOR	X			X					

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	FA-130	28 31 00	FIRE ALARM MANUAL PULL STATION
	FA-200	28 31 00	FIRE ALARM VISUAL ALARM DEVICE, CEILING OR WALL MOUNT
		28 13 00	CARD READER

LUMINAIRE CIRCUIT AND CONTROL KEY

F1 = FIXTURE TAG
1 = CIRCUIT NUMBER
a = SWITCH DESIGNATION

*IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: F1 / 1 / a / NL

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	SW-1P	26 09 33	SWITCH
	SW-2P		SUBSCRIPTS: BLANK = SINGLE POLE
	SW-3W		2 = TWO POLE
	SW-4W		3 = THREE WAY
	SW-1P-WP		4 = FOUR WAY
			W = WEATHERPROOF

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
			LINEAR LUMINAIRES
			INDUSTRIAL LUMINAIRE
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BRANCH CIRCUITS: LIGHTING, RECEPTACLES, CONTROLS, ETC.		X	X						
MECHANICAL EQUIPMENT FEEDERS: PUMPS, CHILLERS, AIR HANDLING UNITS, ETC.		X	X						
FLOOR MOUNTED EQUIPMENT FEEDERS: PUMPS, ETC. (INCLUDE NO MORE THAN 6 FEET OF LFMC TO PUMP)		X	X						
CONTROLS (LIGHTING, POWER, BUILDING AUTOMATION, ETC.)		X	X						
WET AND DAMP LOCATIONS: (CONDUIT, BOXES, FITTINGS, INSTALLED AND EQUIPPED TO PREVENT WATER ENTRY)	X					X			
INTERIOR LOCATIONS WITH FINISHED CEILING AND WALLS: CONCEALED IN WALLS AND ABOVE FINISHED CEILINGS			X						
INTERIOR LOCATIONS WITHOUT FINISHED CEILINGS: CONCEALED IN WALL, EXPOSED ABOVE CEILINGS		X	X						
EXISTING INTERIOR LOCATIONS WITH FINISHED CEILINGS AND WALLS: CONCEALED IN WALLS AND ABOVE FINISHED CEILING UNLESS OTHERWISE NOTED			X						X
UNDERFLOOR	X			X					

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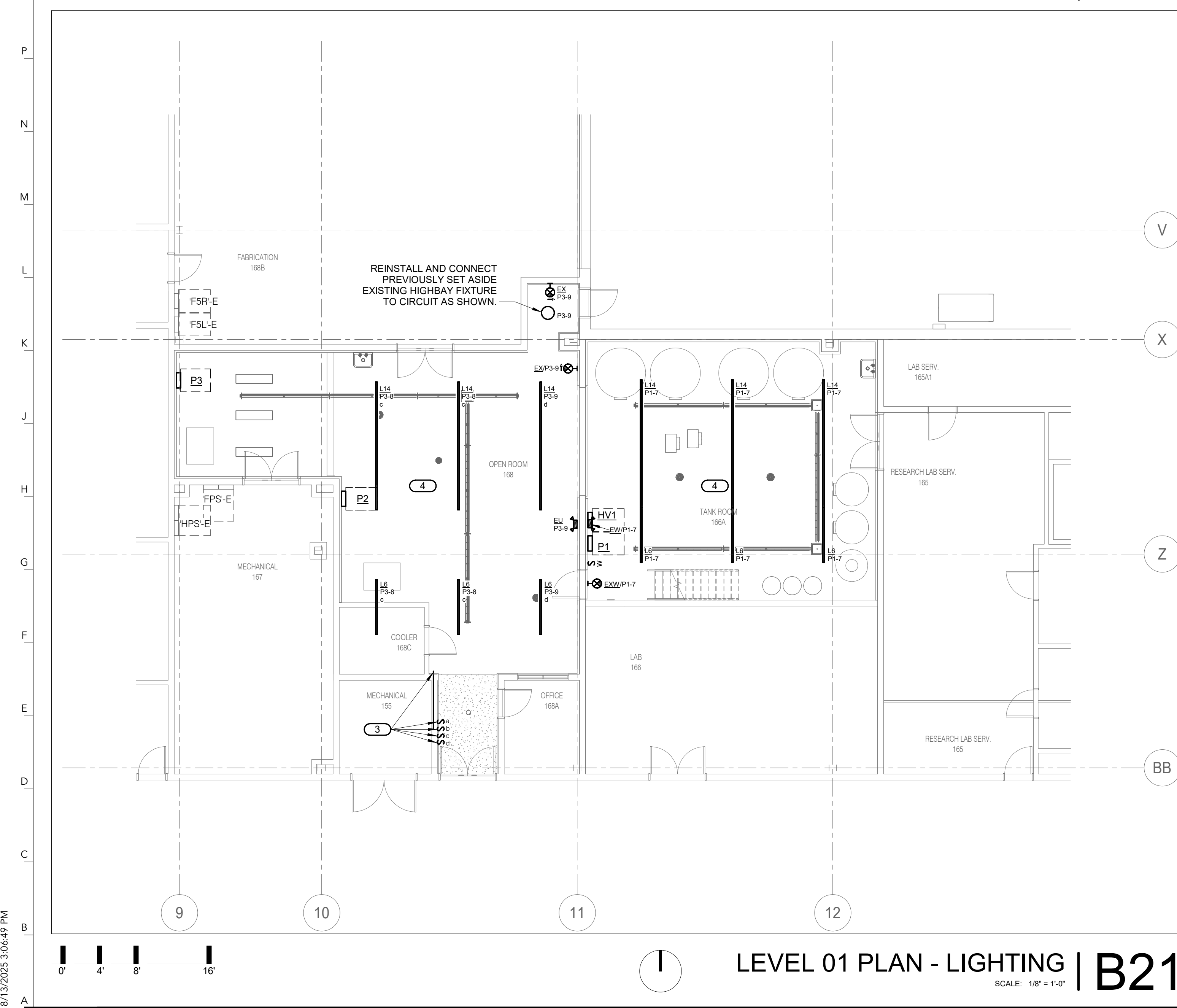
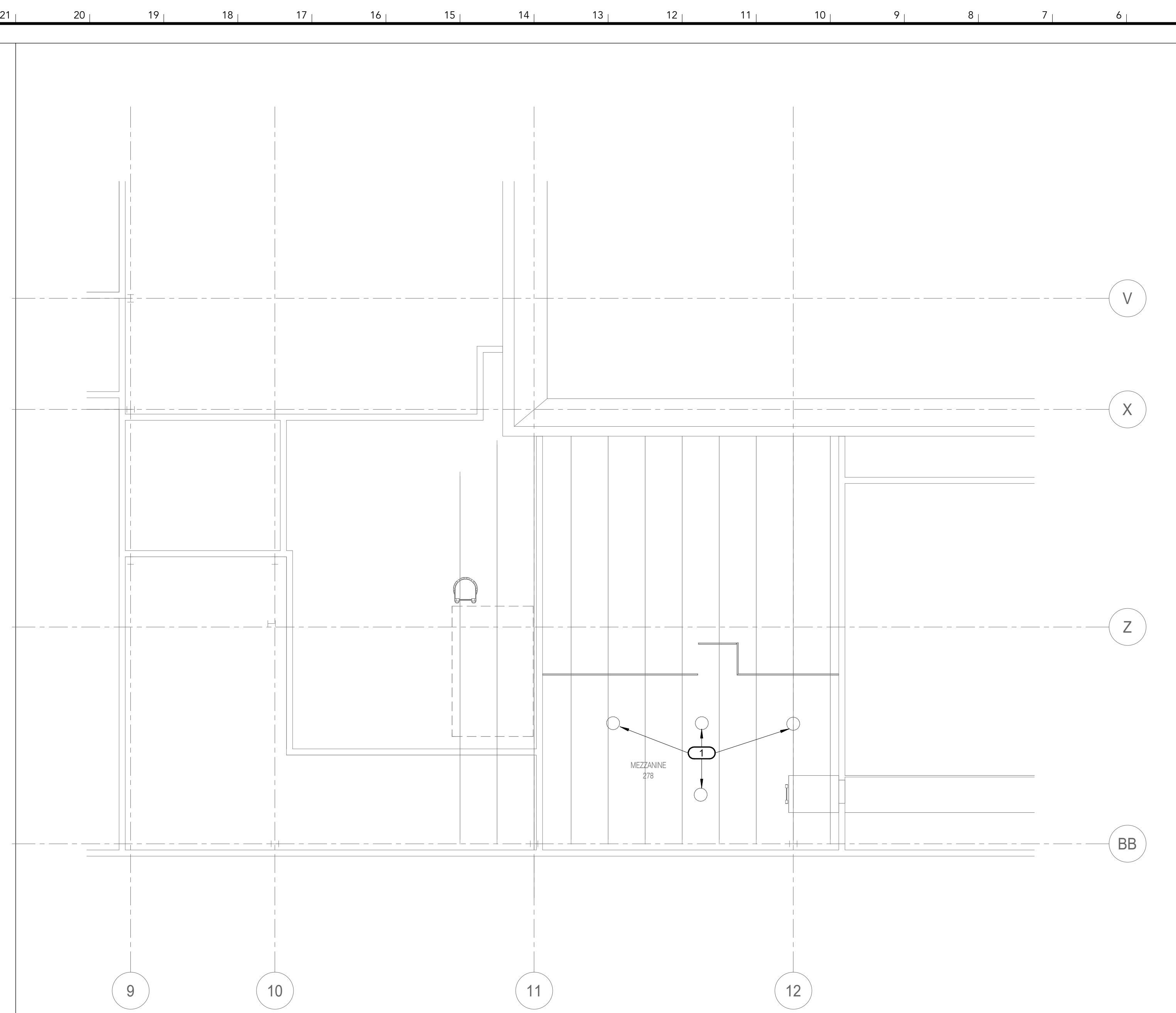
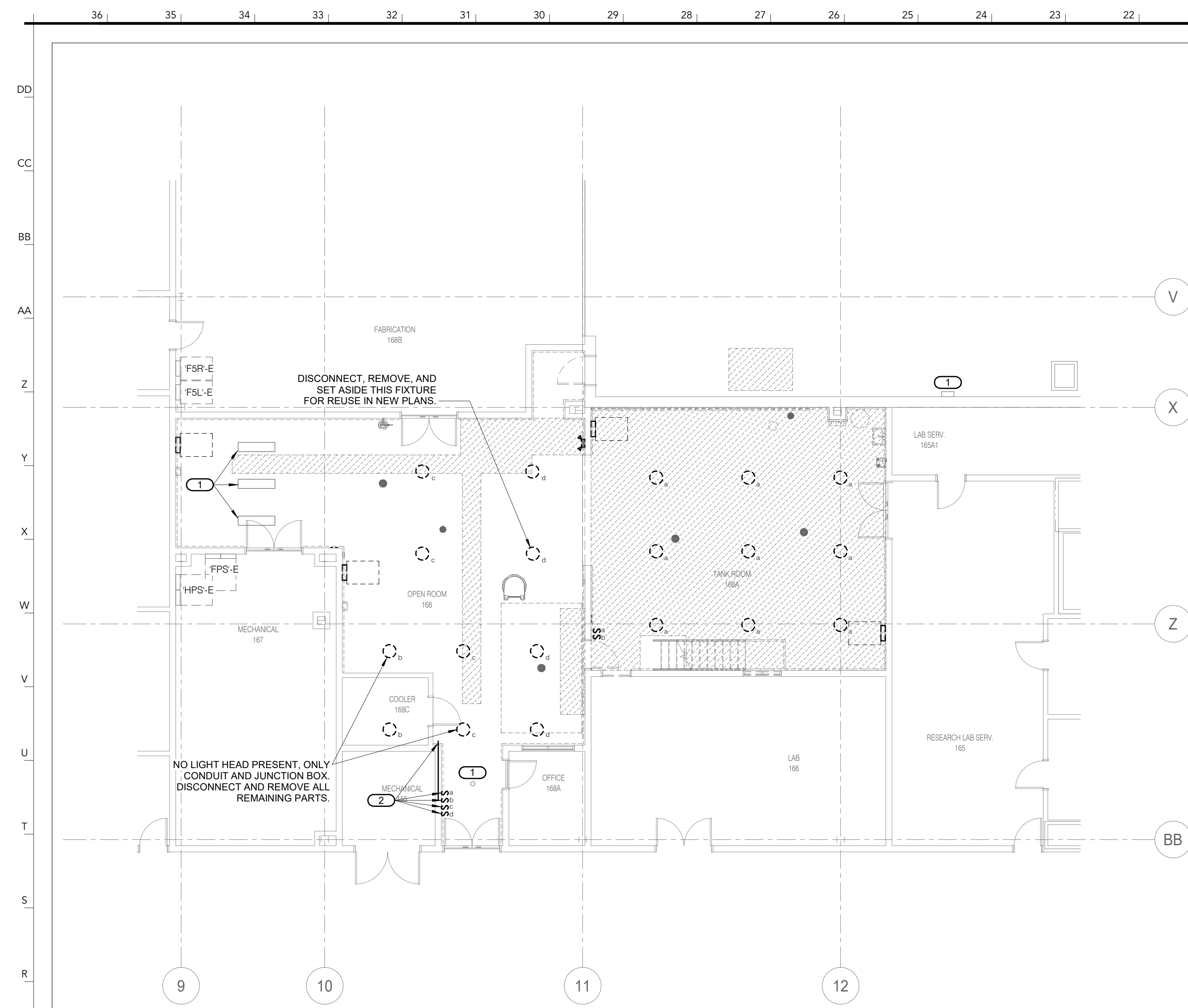
LUMINAIRE CIRCUIT AND CONTROL KEY

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ELECTRICAL SYMBOL LIST

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			LINEAR LUMINAIRES
			INDUSTRIAL LUMINAIRE
			WALL/CEILING EMERGENCY EXIT SIGN
			EMERGENCY UNIT</



SHEET NOTES:

KEYNOTES:



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MEP CONSULTANT

STRUCTURAL CONSULTANT



AGRICULTURAL
ENGINEERING
BUILDING - RMS
164/166
FERMENTATION
LAB
RENOVATION

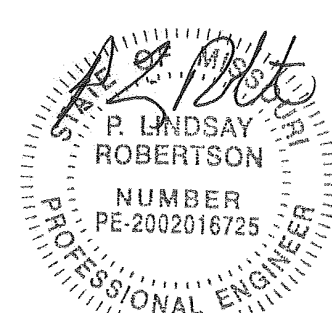
ISSUED FOR BID

1406 ROLLINS ST
COLUMBIA, MO 65201

DATE: 07/18/2025
PROJ. NO.: CP250051

DESIGNED BY: RAB
DRAWN BY: RAB
CHECKED BY: PLR
APPROVED BY: PLR

SEAL:



7/18/2025

P. Lindsay Robertson - #PE
2002016725

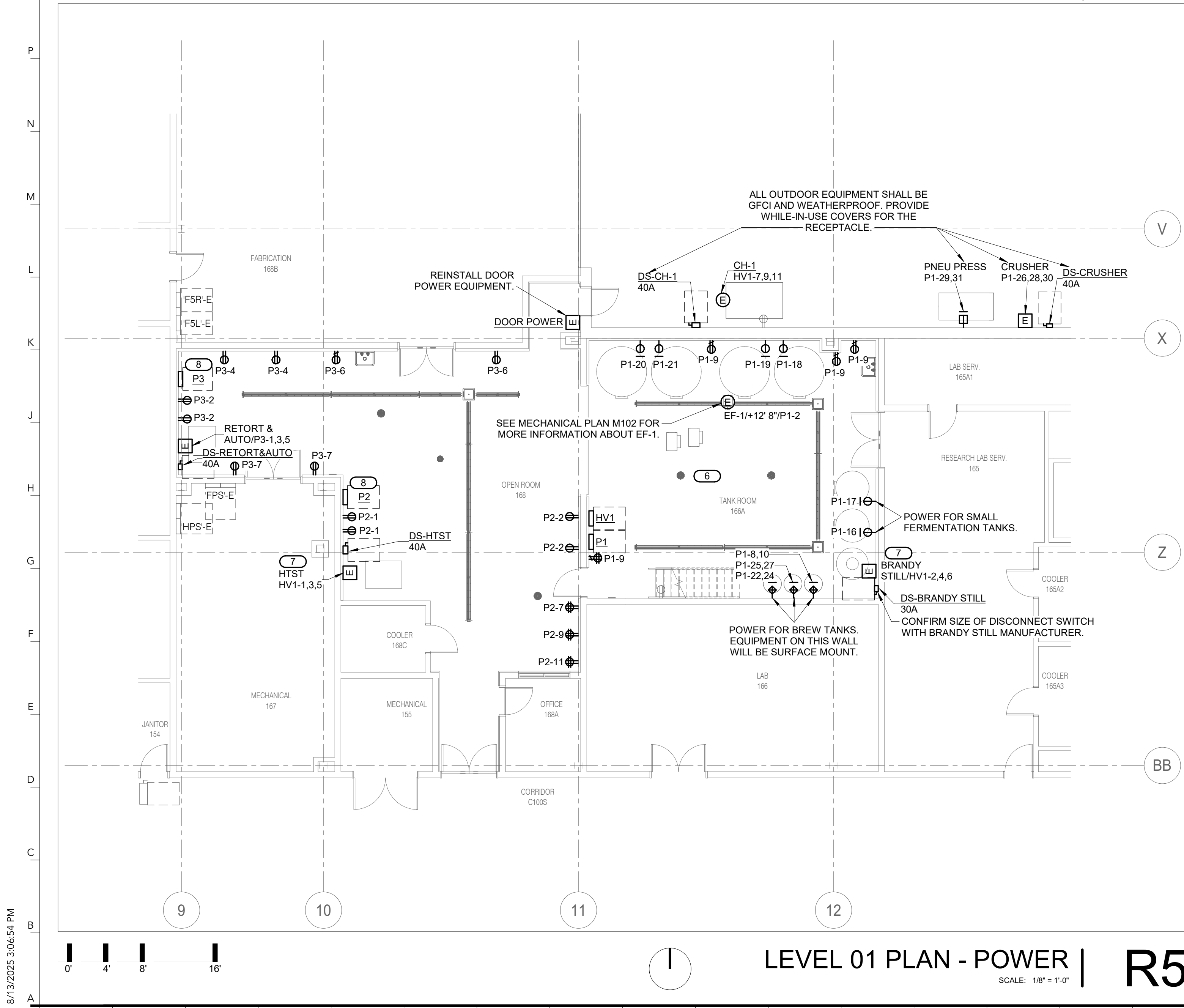
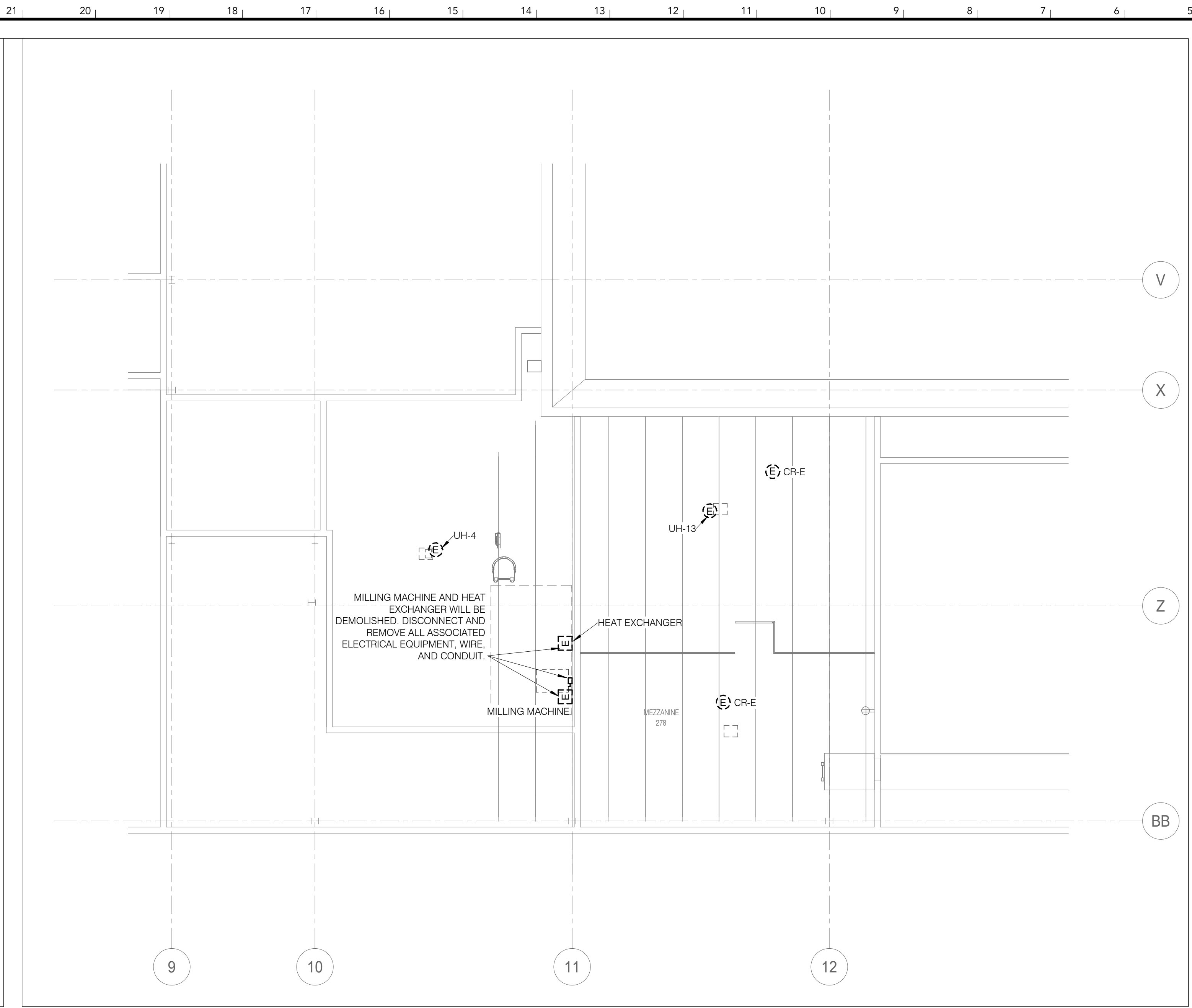
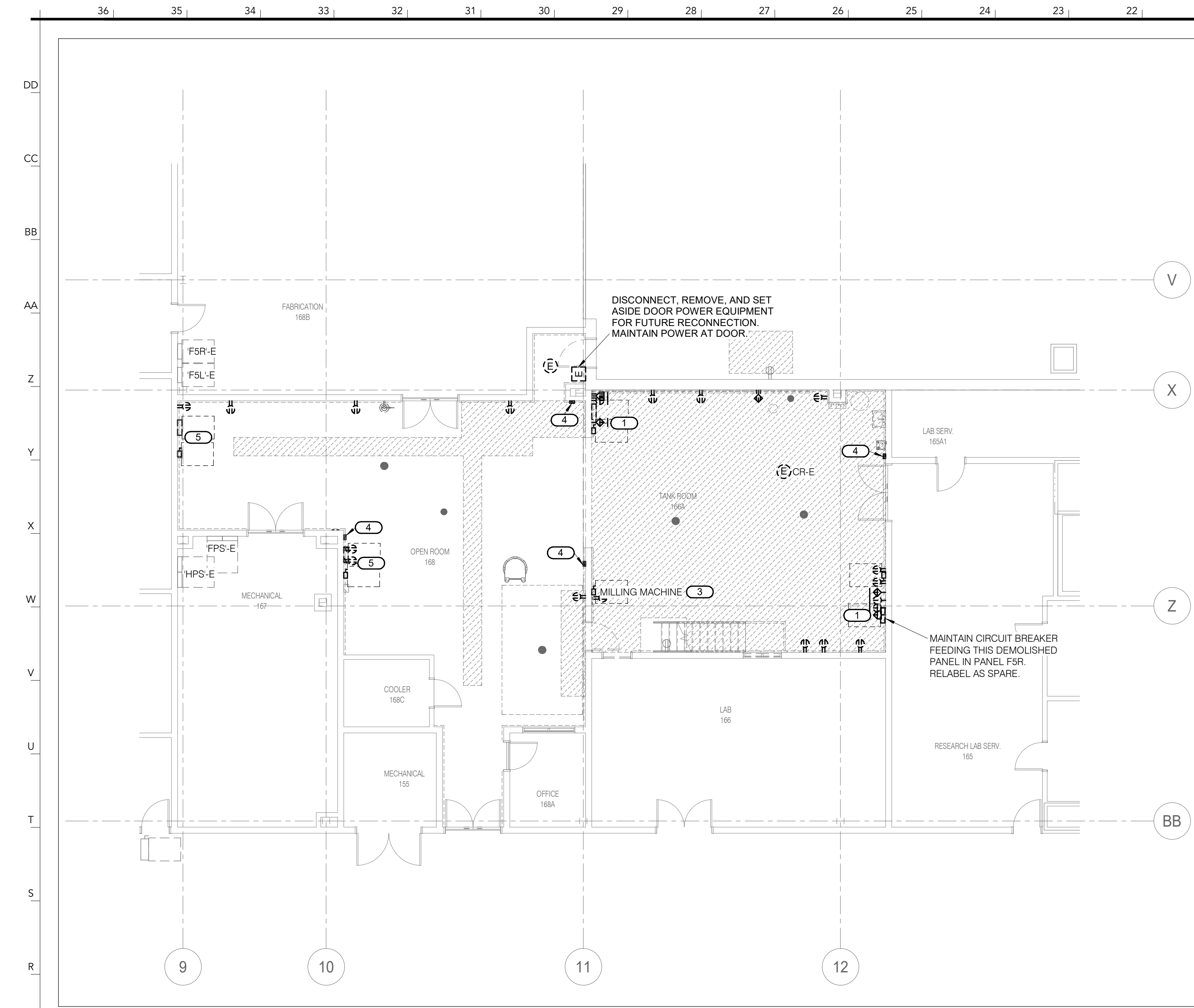
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[illegible]

LEVEL 01 & 02 PLANS -
LIGHTING

E101

NOTES | B1



- SHEET NOTES:**
- REFER TO SHEET E000 FOR GENERAL ELECTRICAL NOTES AND SYMBOLS. NOT ALL GENERAL NOTES MAY APPLY TO THIS SHEET.
 - REFER TO E400 FOR ELECTRICAL DETAILS.
 - ROOMS NOT SHOWING FIXTURES OR DEVICES ARE EXISTING TO REMAIN AND ARE NOT IN PROJECT SCOPE.
 - PROVIDE WATERPROOF COVERS FOR EACH RECEPTACLE, UON.

- KEYNOTES:**
- DISCONNECT AND REMOVE ELECTRICAL PANEL AND ASSOCIATED EQUIPMENT AND RECEPTACLES.
 - NOT USED.
 - DISCONNECT AND REMOVE DISCONNECT SWITCH AND ASSOCIATED WIRE AND CONDUIT FOR MILLING MACHINE.
 - MANUAL DISCONNECT TO BE DISCONNECTED, REMOVED, AND REPLACED WITH BLANK COVER.
 - DISCONNECT AND MAINTAIN WIRE AND CONDUIT FEEDING PANEL AND REMAINING BRANCH CIRCUITS AT WALL FOR FUTURE EXTENSION AND RECONNECTION TO NEW PANEL. REMOVE EXISTING PANEL. THERE ARE NO UNIVERSITY DOCUMENTS SHOWING WHERE THIS PANEL IS FED FROM, NOR LABELS ON EXISTING DISTRIBUTION PANELS DESCRIBING THIS PANEL. THE FEED TO THIS PANEL MUST BE TRACED, DOCUMENTED, AND REPORTED TO ENGINEER BEFORE SHUT DOWN CAN OCCUR.
 - ROUTE CONDUIT FOR WINE LAB EQUIPMENT UNDER FLOOR. AVOID DRAIN RUNS. RUN CONDUIT FROM UNDER FLOOR TO FURRED OUT WALLS UON. ALL RECEPTACLES AND ELECTRICAL CONNECTIONS SHALL BE INSTALLED WITHIN THE FURRED OUT WALLS UON. ALL RECEPTACLES, EQUIPMENT, AND POWER CONNECTIONS IN THIS ROOM SHALL BE WEATHERPROOF AND GFCI WITH WHILE-IN-USE COVERS. IF RECEPTACLE IS UNABLE TO BE GFCI, THEN PROVIDE GFCI CIRCUIT BREAKER IN RESPECTIVE PANEL.
 - PROVIDE VFD TO CONVERT 480V 60 HZ INPUT POWER TO 400V 50HZ OUTPUT POWER FOR USE WITH EQUIPMENT SHOWN. PRIOR TO PURCHASE AND INSTALLATION OF ANY ASSOCIATED EQUIPMENT, VERIFY ELECTRICAL REQUIREMENTS OF EQUIPMENT TO BE FURNISHED BY OWNER.
 - RECONNECT ALL PREVIOUSLY MAINTAINED FEEDERS. EXTEND AND CONNECT TO NEW PANEL.



INTERNATIONAL ARCHITECTS ATELIER

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MISSOURI STATE CERTIFICATE OF AUTHORITY #000582

MEP CONSULTANT

IMEG CORP.

1600 BALTIMORE, SUITE 300
KANSAS CITY, MO 64108
PH: 816.842.8437

STRUCTURAL CONSULTANT

BOB D. CAMPBELL & CO.

4338 BELLEVUE AVE.
KANSAS CITY, MO 64111
PH: 816.537.4144



FOR THE CURATORS OF
THE UNIVERSITY OF MISSOURI

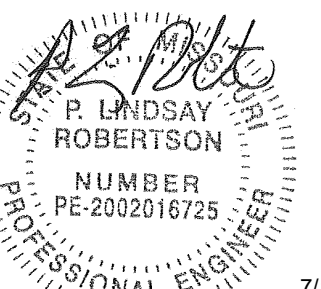
AGRICULTURAL ENGINEERING BUILDING - RMS 164/166 FERMENTATION LAB RENOVATION

ISSUED FOR BID

1406 ROLLINS ST
COLUMBIA, MO 65201

DATE:	07/18/2025
PROJ. NO.:	CP250051
DESIGNED BY:	RAB
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SEAL:



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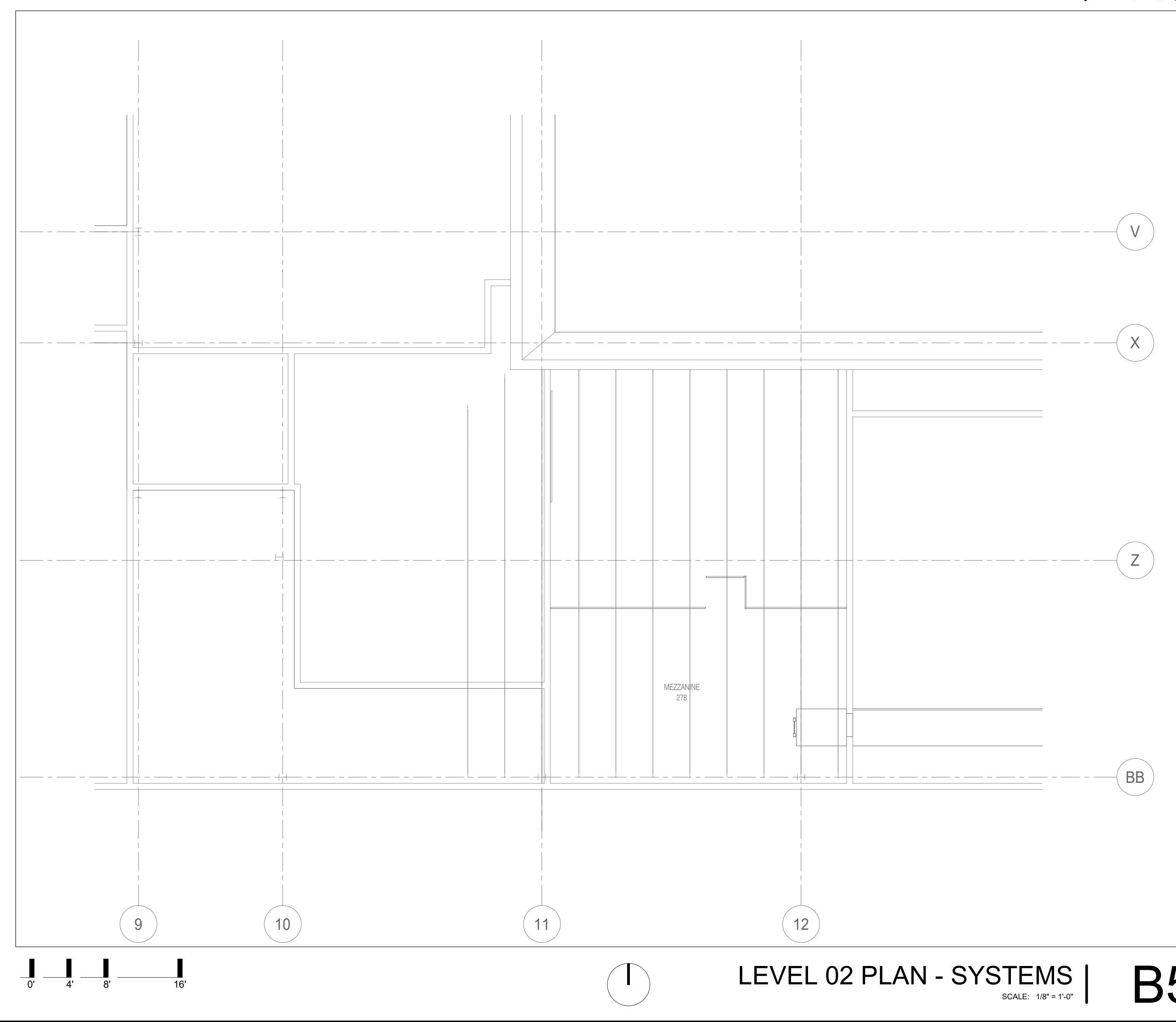
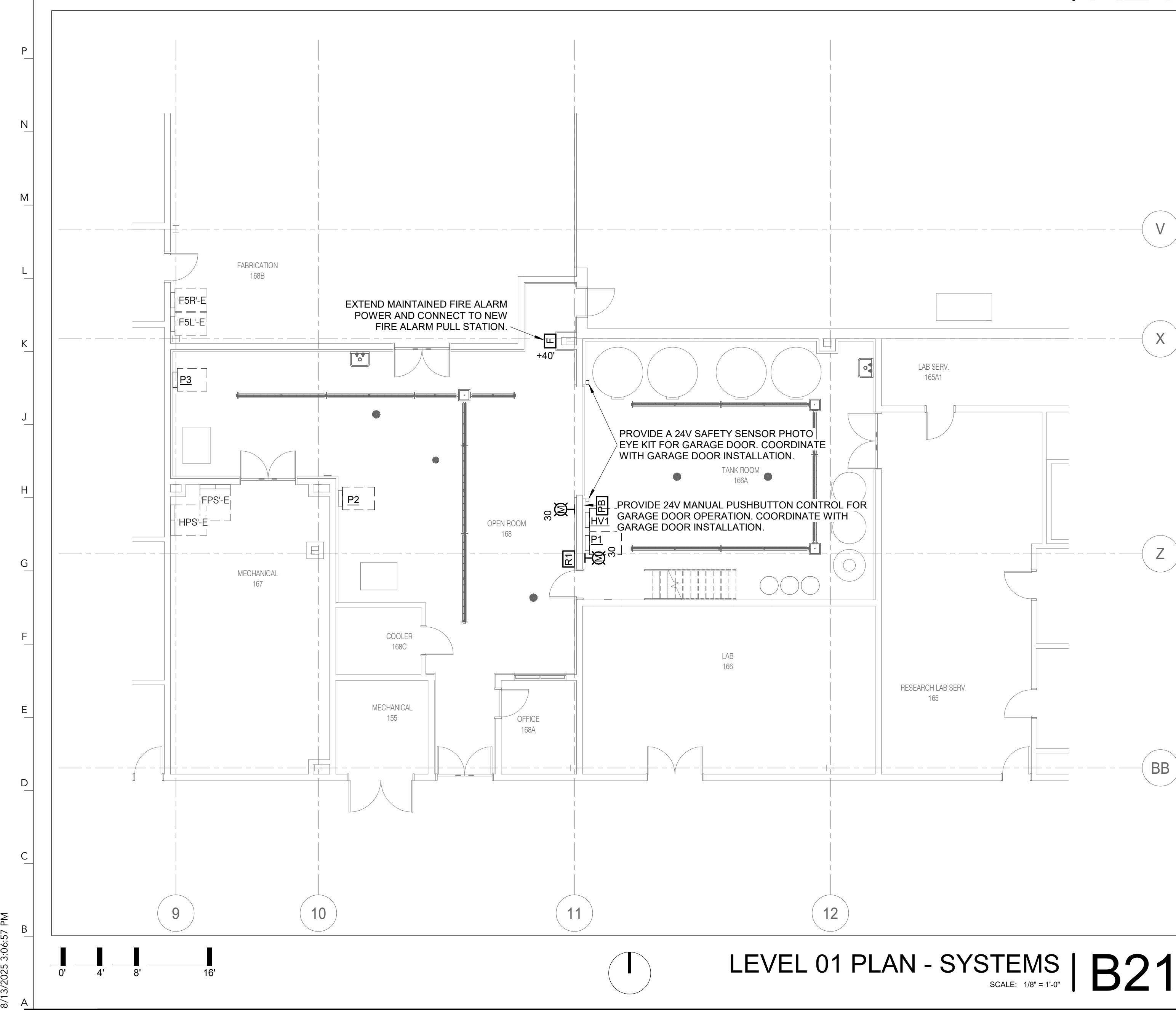
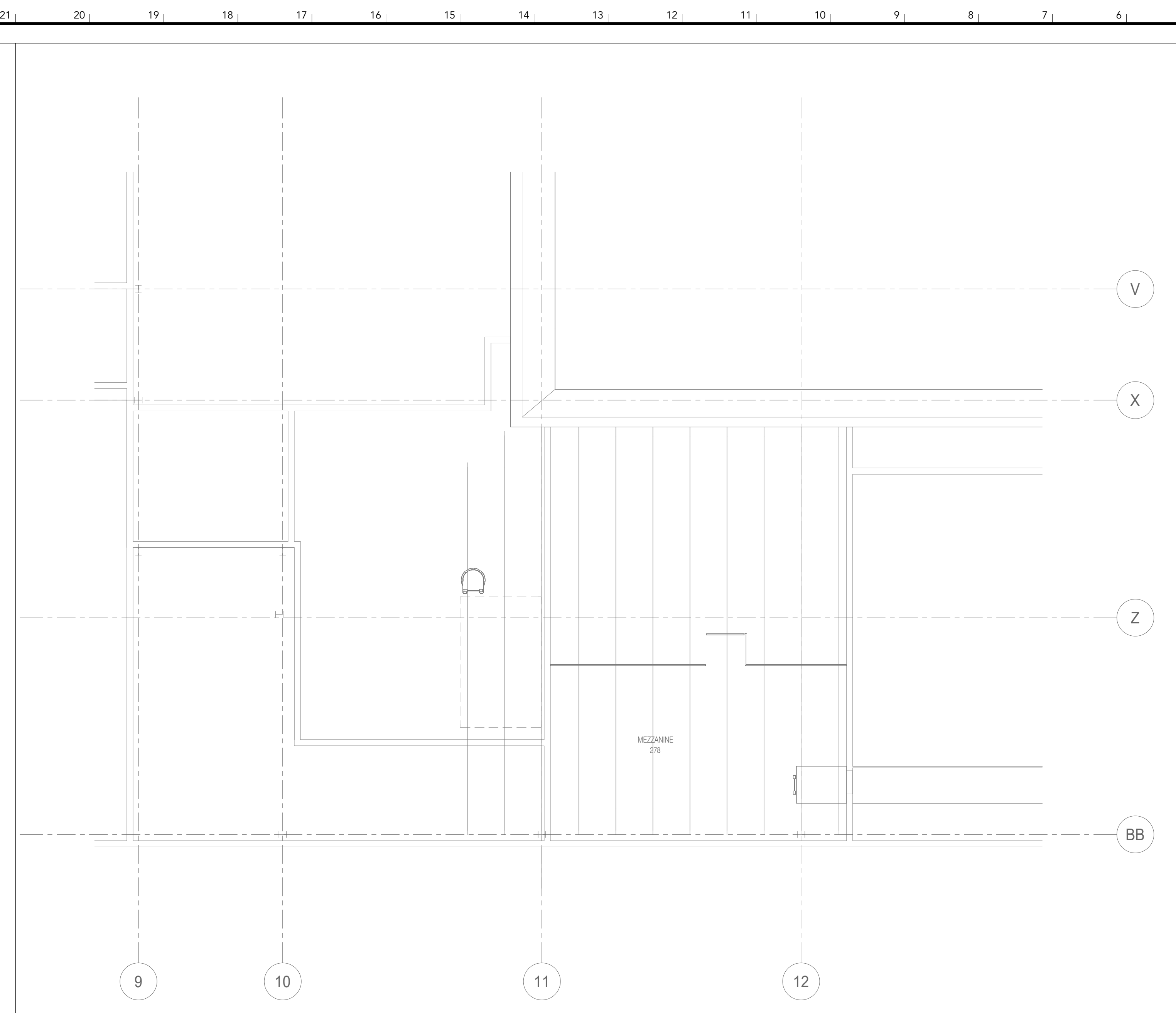
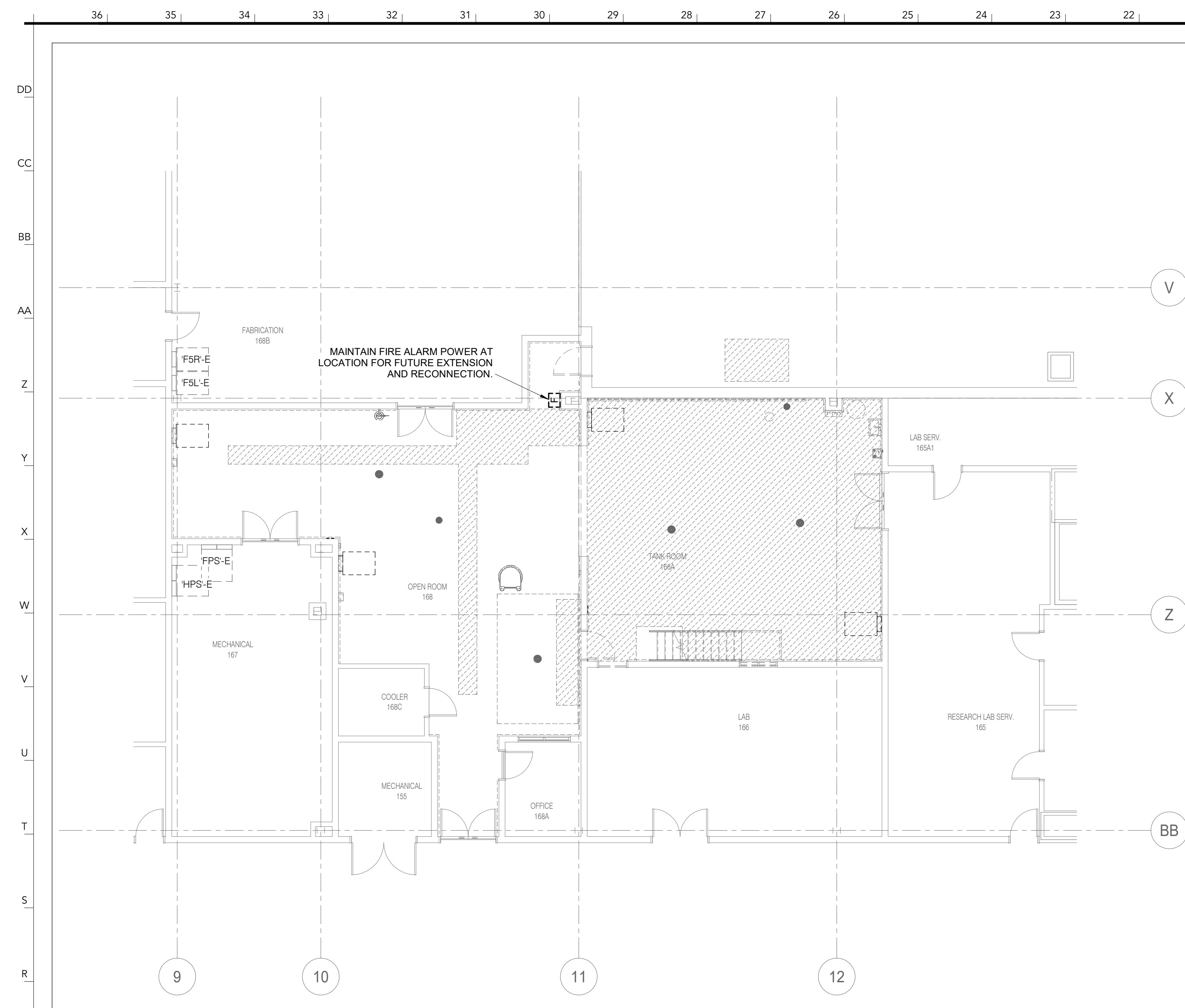
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NO.	REVISION	SUBMISSION	DATE
0	ISSUED FOR BID		07/18/2025

LEVEL 01 & 02 PLANS -
POWER

E102

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SHEET NOTES:



INTERNATIONAL ARCHITECTS ATELIER

912 BROADWAY BLVD, SUITE 300 | KANSAS CITY, MO 64105

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AGRICULTURAL
ENGINEERING
BUILDING - RMS
164/166
FERMENTATION
LAB
RENOVATION

ISSUED FOR BID

1406 ROLLINS ST
COLUMBIA, MO 65201

DATE: 07/18/2025
PROJ. NO.: CP250051

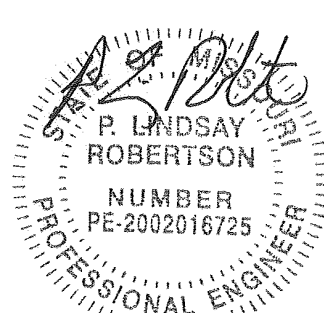
DESIGNED BY: RAB

DRAWN BY: RAB

CHECKED BY: PLR

APPROVED BY: _____ PLR

SEAL:



7/18/2025

**P. Lindsay Robertson - #PE
2002016725**

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[illegible]

LEVEL 01 & 02 PLANS - SYSTEMS

E103

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2 BROADWAY BLVD, SUITE 300 | KANSAS CITY, MO 64105

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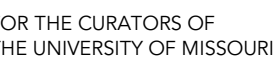
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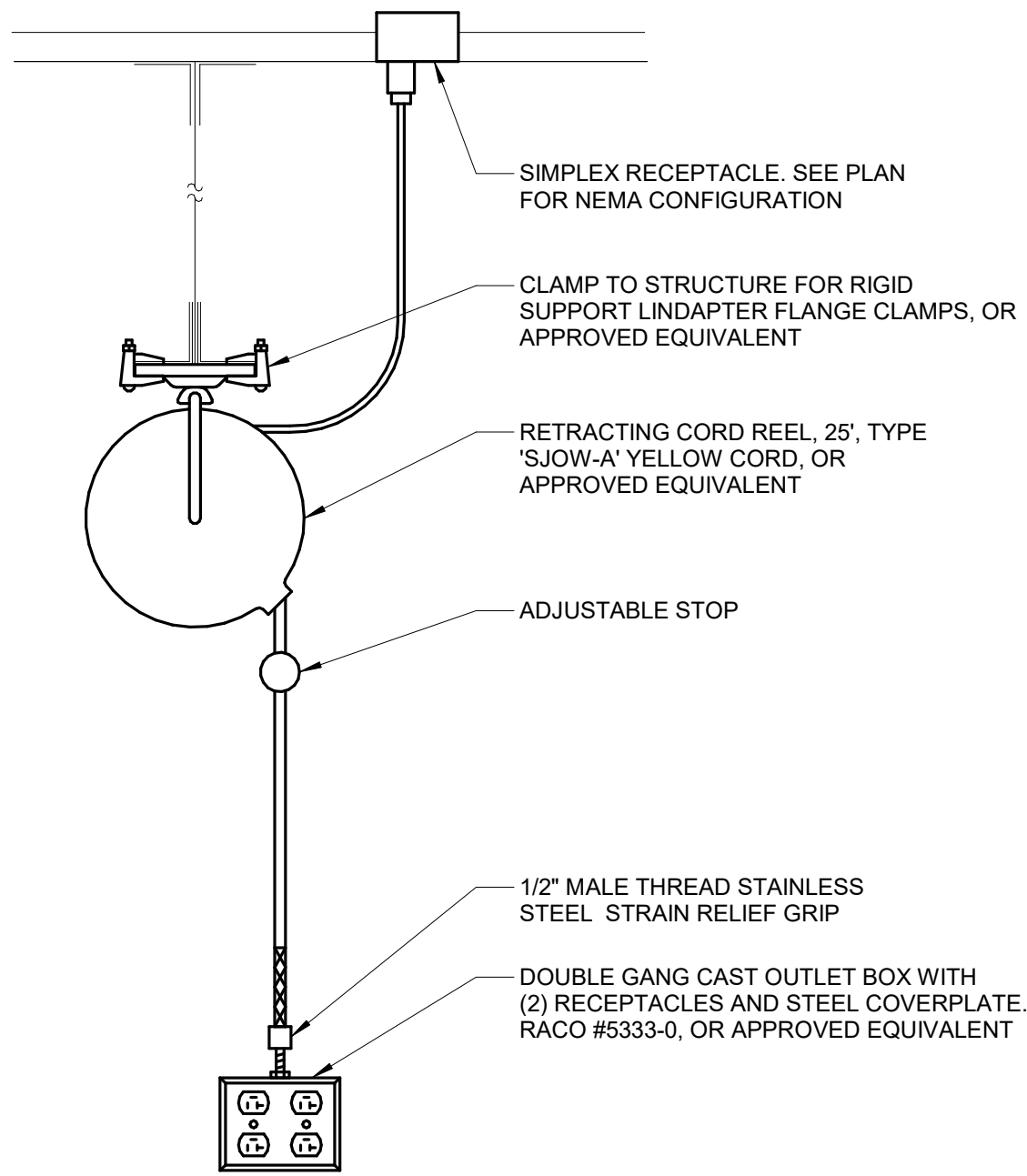
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[illegible]

ELECTRICAL DETAILS

E400

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CORD REEL MOUNTING

SCALE: NO SCALE

T1



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ELECTRICAL DIAGRAMS

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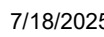
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[illegible]

ELECTRICAL SCHEDULES

E600

LUMINAIRE SCHEDULE GENERAL NOTES:

1. REFER TO SPECIFICATION SECTIONS LED LIGHTING 26 51 19 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

LUMINAIRE SCHEDULE								
TAG	DESCRIPTION	MTG	DIMENSIONS	LIGHT SOURCE	DELIVERED LUMENS	WATTS	POWER SUPPLY	MANUFACTURER - SERIES
EU	EMERGENCY UNIT, TWO ADJUSTABLE LED HEADS, WHITE THERMOPLASTIC HOUSING, LITHIUM IRON PHOSPHATE BATTERY, SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS, 500 LUMENS PER FIXTURE	WL	14"L X 6"W X 3 3/4"H	LED		6 / FIX	120	CURRENT HUI DUAL-LITE EVHC ACUITY LITHONIA ELMAL/ELM6L EELP EM20-E-LED OR APPROVED EQUIVALENT
EW	EMERGENCY UNIT, TWO ADJUSTABLE LED HEADS, WHITE THERMOPLASTIC HOUSING, LITHIUM IRON PHOSPHATE BATTERY, SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS, INCLUDE POLYCARBONATE SHIELD, 500 LUMENS PER FIXTURE	WL	14"L X 6"W X 3 3/4"H	LED		6 / FIX	120	CURRENT HUI DUAL-LITE EVHC ACUITY LITHONIA ELMAL/ELM6L EELP EM20-E-LED OR APPROVED EQUIVALENT
EX	SINGLE-FACE EXIT SIGN, WHITE THERMOPLASTIC BODY, RED LETTERS, EMERGENCY NI-CAD BATTERY INSIDE OF SIGN, SEE PLANS FOR ARROWS/MOUNTING, SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS, VERIFY RECESSED END, BACK OR CEILING MOUNTING AND ARROWS WITH PLANS.	WL	13"L X 2"W X 9"H	LED	0 lm	1 / FIX	120	ACUITY LITHONIA LQMS SIGNIFY CHLORIDE CLX CURRENT HUI DUAL-LITE EVE OR APPROVED EQUIVALENT
EXW	SINGLE-FACE EXIT SIGN, WHITE THERMOPLASTIC BODY, POLYCARBONATE HOUSING RATED FOR WET LOCATIONS, RED LETTERS, EMERGENCY NI-CAD BATTERY INSIDE OF SIGN, SEE PLANS FOR ARROWS/MOUNTING, SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS, VERIFY RECESSED END, BACK OR CEILING MOUNTING AND ARROWS WITH PLANS.	WL	13"L X 2"W X 9"H	LED	0 lm	1 / FIX	120	ACUITY LITHONIA WLTE CURRENT CEW OR APPROVED EQUIVALENT
L6	LINEAR LED SYSTEM SUSPENSION, SEE PLANS FOR LENGTH OF EACH FIXTURE.	SP	72"L X 2"W X 2"H	LED	9,000 lm	14 / FT	120	NUITE REGOLO RXT-P OR APPROVED EQUIVALENT
L14	LINEAR SYSTEM SUSPENSION, SEE PLANS FOR LENGTH OF EACH FIXTURE.	SP	168"L X 2"W X 2"H	LED	21,000 lm	14 / FT	120	NUITE REGOLO RXT-P OR APPROVED EQUIVALENT

DISCONNECT AND STARTER SCHEDULE

NOTE: ALL DISCONNECTS (EXCEPT MANUAL STARTERS) SHALL BE HEAVY DUTY TYPE.

DISCONNECT TYPE:		ACCESSORIES & OPTIONS		
FJ - FUSED		SA - STANDARD ACCESSORIES (INCLUDES * ITEMS)		PF - PHASE LOSS PROTECTION (5 HP OR GREATER, 3 PHASE MOTOR)
NF - NON-FUSED		*CT - CONTROL TRANSFORMER, FUSED 120V		TO - MELTING THERMAL OVERLOADS (1 PHASE)
CB - CIRCUIT BREAKER		*EO - ELECTRONIC OVERLOAD (3 PHASE MOTORS)		TS - 2 SPEED SELECTOR SWITCH IN DOOR
		*HA - HAND-OFF-AUTO IN DOOR		GP - GREEN (OFF) PILOT LIGHT IN DOOR
STARTER TYPE:		*RP - RED (RUN) PILOT LIGHT IN DOOR		FA - 4-CONVERTIBLE AUXILIARY CONTACTS
FV - FULL VOLTAGE		*TA - TWO CONVERTIBLE AUXILIARY CONTACTS		EI - ELECTRICAL INTERLOCK (2-N.O. & (2)-N.C.
WY - WYE / DELTA		S/N - INSULATED NEUTRAL ASSEMBLY		SS - START-STOP PUSHBUTTON IN DOOR
RE - REVERSING				HL - HANDLE PADLOCK HASP
TW - 2 SPEED, 2 WINDING				
SW - 2 SPEED, 1 WINDING				
RV - REDUCED VOLTAGE AUTOXFMR				
SS - SOLID STATE				
MS - MANUAL STARTER				
MX - MANUAL SWITCH				
FS - FUSED SWITCH				
FMS-ASSEMBLED MOTOR STARTER				

[illegible]

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